

7.5.2 At the exploration shaft during blasting

Noise

Previous experience and noise surveys at a similar blasting exercise revealed that the sound pressure levels during a blast are:

- Depth of 3m below ground level the sound pressure level was at 30m from the blasting area – 113 dB.
- Depth of 30m below ground level the sound pressure level was at 30m from the blasting area – 103dB

Table 10: Line of sight noise attenuation during blasting

Activity	Line-of- Sight Estimated Noise Level, dB						
	30m	60m	100m	200m	400m	800m	1600m
Blasting at 3m below ground level	113	107	101	95	89	83	76
Blasting at 30m below ground level	103	97	91	87	81	75	69

The above values are in dB and not the integrated sound pressure level over time (dBA) and the duration thereof is 2 seconds on the maximum per blast.

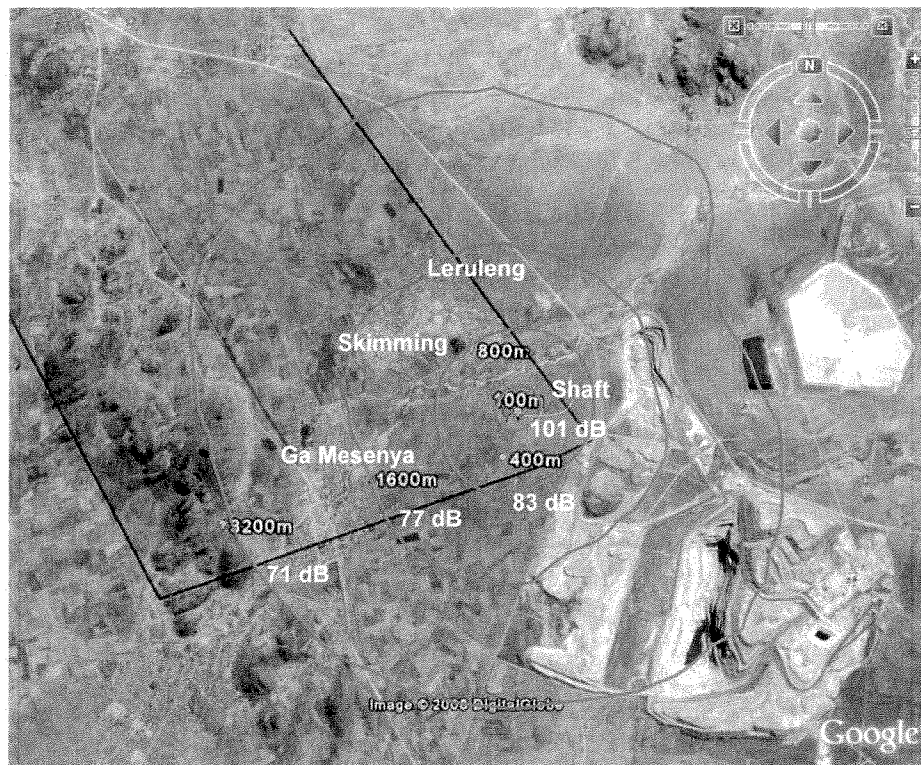


Figure 2: Line-of- Sight Estimated Noise Level in dB, which will last for 2 seconds per blast at 3m depths

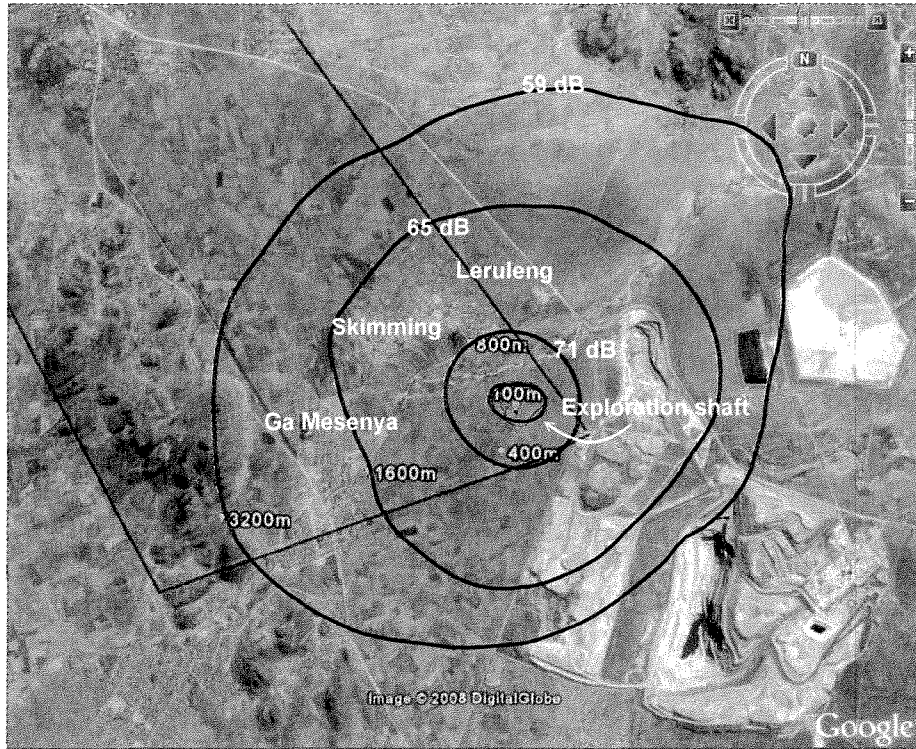
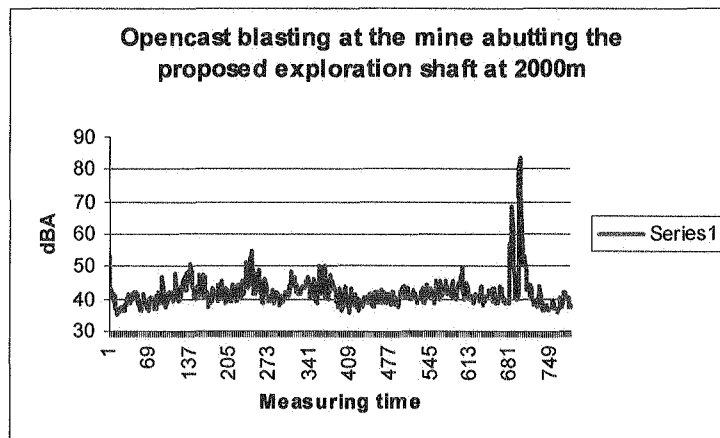


Figure 3: Line-of- Sight Estimated Noise Level in dB, which will last for 2 seconds per blast at 30m depths

The occupants of the study area is already exposed to open cast blasting from the adjoining open cast platinum mine and a noise study done during a blast at some 2000m from measuring point 1 revealed that the maximum sound pressure level is 83.7 dB. The people next to the provincial road experience maximum sound pressure levels of 69.5 dBA when a truck and/or speeding car use the road.



The blasting to take place at the proposed exploration shaft will be less dramatic and the deeper into the ground below ground level the blasting takes place the lower the maximum sound pressure level. It was calculated that at 2000m from the blasting activity the sound pressure level would be 61.0dB whereas the sound pressure level for the open cast blasting was 83.7dB. This will be for two seconds only whereas the open cast blasting is for up to 7 seconds. A different type of detonator will also be used in the blasting at the exploration shaft, which will limit the structural vibration levels.

Vibration

Previous experience revealed the following seismographic readings during blasting of a shaft:

- At a depth of 5.0m and 50m from the blasting area – 1.25mm/s
- At a depth of 11.0m and 50m from the blasting area – 1.05mm/s
- At a depth of 15.0m and 50m from the blasting area – 1.28mm/s
- At a depth of 16.0m and 50m from the blasting area – 1.25mm/s
- At a depth of 17.0m and 50m from the blasting area - 1.27mm/s

There is however variables, which must be considered i.e. distance from blasting, type of detonator used and explosive charges data i.e. holes, depth and kg.

Structural damage will only occur at a vibration level in excess of 5.0mm/s.

The following vibration levels in mm/s were recorded at the following measuring points:

- Position 6 – 0.56mm/s
- Position 10 – 0.54mm/s
- Position 11 – 0.30mm/s
- Position 12 – 0.43mm/s
- Position 13 – 0.52mm/s
- Position 14 – 0.59mm/s
- Position 15 – 0.34mm/s
- Position 16 – 0.65mm/s
- Position 17 – 0.74mm/s
- Position 18 – 0.56mm/s
- Position 19 – 0.60mm/s
- Position 20 – 0.68mm/s
- Position 21 – 0.72mm/s

These vibration levels are insignificant as there were no vibration generating sources within the vicinity of the measuring points.

7.6 Rating of impact

• 7.6.1 Construction

This is during the construction of the shaft, surface blasting, earth works and other construction activities during the preparation of the shaft.

- Exploration shaft
 - Probability – 3
 - Duration – 2
 - Scale – 1
 - Magnitude – 6

SP (significance points) = (probability + duration + scale) x magnitude – see appendix B

$$\begin{aligned}\text{Significance points} &= 6 \times 6 \\ &= 36\end{aligned}$$

- There is a moderate environmental significance during this phase of the project and require management control and could have an influence on the decision unless it is mitigated.

- 7.6.2 Operational

The daily blasting and removal of ore from the shaft for exploration purposes.

- Exploration shaft

- Probability – 3
- Duration – 2
- Scale – 1
- Magnitude – 6

SP (significance points) = (probability + duration + scale) x magnitude – see appendix B

$$\begin{aligned}\text{Significance points} &= 6 \times 6 \\ &= 36\end{aligned}$$

- ✦ There is a moderate environmental significance during this phase of the project and require management control and could have an influence on the decision unless it is mitigated.

8. Discussion

Two aspects are important when considering potential noise impacts of a project and it is:

- The increase in the noise level, and;
- The overall noise level produced

In terms of noise increases, persons exposed to an increase of 2 dBA or less would not notice the difference. Some people exposed to increases of 3-4 dBA will notice the increase in noise level, although the increase would not be considered serious. Noise increases of 5dBA and above are very noticeable, and, if these are frequent incidents, or continuous in nature, could represent a significant disturbance.

The Eastern side of the Leruleng village study area has already higher sound pressure levels expected in a residential area during night time of 45.0 dBA as recommended by the World Health Organisation. This is because of the mining activities at the abutting open cast mine.

Exploration shaft

The impact of the activities during the construction and operational phases of the exploration shaft will be minimal to the residential villages to the North and West of the exploration shaft.

Table 11: The following are the projected noise intrusion levels at 1800m (Ga Mesenya village), 880m (Skimming village) and 845m (Leruleng village) from the proposed exploration shaft.

Position	Prevailing ambient noise level – daytime in dBA	Prevailing ambient noise level – night time in dBA	Distance from the proposed shaft in South eastern corner of study area	Projected noise level during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.	Projected noise impact at daytime during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.	Projected noise impact at nighttime during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.
A – Ga Mesenya Village	42.8	43.7	1800m	45.0	2.2	1.3
B – Skimming village	49.7	44.6	880m	47.0	-2.0	2.4
C – Leruleng village	49.2	49.5	845m	47.0	-2.2	-2.5

The negative values indicate that there will be no noise impact at that specific area (receptor) at a sound pressure level of 85.0 dBA at the source. The sound pressure levels of 1.3, 2.2 and 2.4 dBA is insignificant.

Table 12: The following are the projected noise intrusion levels during blasting at the proposed exploration shaft at 30m below ground level:

Position	Prevailing ambient noise level – daytime in dBA	Prevailing ambient noise level – night time in dBA	Distance from the proposed shaft in South eastern corner of study area	Projected noise level during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.	Projected noise impact at daytime during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.	Projected noise impact at nighttime during unmitigated conditions at the villages with a noise pressure level of 85dBA at 15m from the exploration shaft in dBA.
A – Ga Mesenya Village	42.8	43.7	1800m	69	26.2	25.3
B – Skimming village	49.7	44.6	880m	75	25.3	30.4
C – Leruleng village	49.2	49.5	845m	75	25.8	25.5

The intrusion level will be for 2 seconds during blasting only after which the sound pressure level will be the same as before the blasting.

9. Recommendations

The following three primary variables should be considered when designing acoustic screening measures for the control of sound and/or noise:

- The source - Reduction of noise at the source

- The transmission path - Reduction of noise between the source and the receiver
- The receiver - Reduction of the noise at the receiver

There are different activities taking that will take place at the exploration shaft i.e. drilling, excavation, loading etc. and this area will have to be monitored in order to determine if a noise nuisance/disturbance is created.

Additional mitigation measures must be developed during the design phase of the project before construction activities will commence.

The following measures must be considered prior to the acquisition of earthmoving equipment:

- Enclosure of engine bays;
- Modification of radiator fan design and materials;
- Installation of louvers on radiator and hydraulic cooling fans;
- Re-engineering of exhaust systems

The following are the Environmental, Health and Safety Guidelines of the International Finance Corporation of the World Bank, which should be considered at all times:

- Selecting equipment with lower sound power levels
- Installing silencers for fans;
- Installing suitable mufflers on engine exhausts and compressor components;
- Installing acoustic enclosures for equipment causing radiating noise;
- Installing vibration isolation for mechanical equipment;
- Limiting the hours of operation for specific equipment and mobile sources with high sound power outputs;
- Re-locate noise sources to areas which are less noise sensitive, to take advantage of distance and natural shielding;
- Taking advantage during the design stage of natural topography as a noise buffer;
- Develop a mechanism to record and respond to complaints.

Blasting and vibration

The air over pressure level and vibration, (audible and the inaudible – concussion of the noise) to be monitored and controlled during each blasting operation. The following standards implemented by the USA Bureau of Mine Standards, RU 8507, are used as a guideline to monitor and control blasting operations in South Africa.

- The limit for ground vibration should not exceed 10mm/s.
- An over pressure limit of 134 dB should not be exceeded.
- No blasting to take place when there are windy conditions.
- No blasting to take place during nighttime.

The Regulations under the Mines Health and Safety Act requires the owner of the operation to ensure that the health and safety of employees and people will not be affected during blasting.

Blasts must be designed in such a manner that ground vibration and over pressure levels are adhered to. In order to comply with the above, the following measures should be implemented:

- A scheme of vibration and air over pressure monitoring to be implemented;
- A scheme by which air over pressure is controlled;
- Days and times of blasting operations to be established;
- Ensure that the correct design relationship exists between burden, spacing and hole diameter;
- Ensure the maximum amount of explosive on any one day delay interval, the maximum instantaneous charge, is optimized by considering: -
 - Reduce the number of holes per detonator delay interval;
 - Reduce the instantaneous charge by in-hole delay techniques;
 - Reduce the bench height or hole depth;
 - Reduce the borehole diameter.

 - Always attempt to minimize the resulting environmental effects of blasting operations and to recognize the fact that the perception of blasting events occurs at levels of vibration well below those necessary for the possible onset of the most cosmetic of damage; but nevertheless at levels that can concern occupants abutting the exploration shaft area;

 - Be aware that relatively small changes in blast design can produce noticeable differences in environmental emissions and that it is very often in response to changes in these emissions rather than their absolute value that complaints may be made.

Scheme of vibration monitoring may include the following:

- The location and number of monitoring points;
- The type of equipment to be used and the parameters to be measured;
- The frequency of monitoring;
- The method by which such data are made available to management;
- The method by which such data are used in order to ensure that the site vibration limit is not exceeded and to mitigate any environmental effects of blasting.

10. Conclusion and summary

The proposed Lonmin Akanani exploration shaft project will take place on partially agricultural land and vacant land covered with natural vegetation. The Eastern side abuts a gravel road and an existing open cast mine. This section of the proposed project area has higher ambient noise levels than the rest of the study area.

There is already a shift in the prevailing ambient noise levels on the Eastern and Southeastern section of the study area due to the existing mining activities of the abutting open cast mine.

There is an increase of mining activities during nighttime with the result that there is more traffic (heavy-duty vehicles transporting material), which is the biggest contributor to the higher prevailing ambient noise levels.

The exploration shaft will create a shift in the immediate prevailing ambient noise levels and at times there will be a temporary shift of the ambient noise level at the abutting residential village to the North.

The noise intrusion can however be controlled by means of state of the art equipment, proper noise management principles and compliance to the International Health and Safety Guidelines.



Barend van der Merwe
Acoustic Consultant

References:

Noise Control Regulations, published under the Environment Conservation Act, 1989 (Act No.73 of 1989, Extraordinary Provincial Gazette, Gauteng, 20 August 1999;

SANS 10108 of 2008 – The measurement and rating of environmental noise with respect to annoyance and to speech communication:

Environmental, Health and Safety Guidelines for Community Noise and Mining, World Health Organisation, Geneva, 1999;

USA Bureau of Mine Standards, RU 8507;

Google Earth – Aerial photos;

The Scottish Government – Controlling the Environmental Effects of Surface Mineral Workings;

Definitions/Noise:

Ambient noise

The totally encompassing sound in a given situation at a given time and usually composed of sound from many sources, both near and far

A-weighted sound pressure level (sound level) (L_{pA}), in decibels

The A-weighted sound pressure level is given by the equation:

$$L_{pA} = 10 \log (p_A/p_0)^2$$

Where

p_A is the root-mean-square sound pressure, using the frequency weighting network A in pascals; and

p_o is the reference sound pressure ($p_o = 20 \mu\text{Pa}$).

NOTE The internationally accepted symbol for sound level is dBA.

Distant source

A sound source that is situated more than 500 m from the point of observation

Equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$), in decibels

The value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T , has the same mean-square sound pressure as a sound under consideration whose level varies with time. It is given by the equation

$$L_{Aeq,T} = 10 \log \left[\frac{1}{t_2 - t_1} \int_{t_1}^{t_2} \frac{p_A^2(t)}{p_o^2} dt \right]$$

Where

$L_{Aeq,T}$ is the equivalent continuous A-weighted sound pressure level, in decibels, determined over a time interval T that starts at t_1 and ends at t_2 ;

p_o is the reference sound pressure ($p_o = 20 \mu\text{Pa}$); and

$p_A(t)$ is the instantaneous A-weighted sound pressure of the sound signal, in pascals.

Impulsive sound

Sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the residual noise

Initial noise

The component of the ambient noise present in an initial situation before any change to the existing situation occurs

Intelligible speech

Speech that can be understood without undue effort

Low frequency noise

Sound, which predominantly contains frequencies below 100 Hz

Nearby source

A sound source that is situated at a distance of 500 m or less from the point of observation

Residual noise

The ambient noise that remains at a given position in a given situation when one or more specific noises are suppressed

Specific noise

A component of the ambient noise which can be specifically identified by acoustical means and which may be associated with a specific source

NOTE Complaints about noise usually arise as a result of one or more specific noises.

Ambient sound level

Means the reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes after such meter was put into operation.

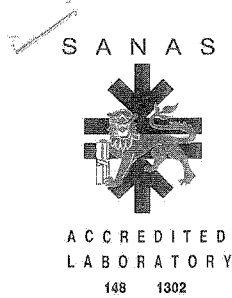
Disturbing noise

Means a noise that cause the ambient noise level to rise above the designated zone level, or if no zone level has been designated, the typical rating levels for ambient noise in districts, indicated in table 2 of SANS 10103.

Noise nuisance

Means any sound which disturbs or impairs the convenience or peace of any person

Appendix A:



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CERTIFICATE NUMBER	2008-082
ORGANISATION	dB ACOUSTICS
ORGANISATION ADDRESS	P.O. BOX 1219, ALLENSNEK, 1737
CALIBRATION OF	INTEGRATING SOUND LEVEL METER with built-in 1/3-OCTAVE/OCTAVE FILTER and 1/2" MICROPHONE
CALIBRATED BY	M.W. DE BEER
MANUFACTURERS	LARSON DAVIS and PCB
MODEL NUMBERS	834 and 377 B 02
SERIAL NUMBERS	0001072 and 102184
DATE OF CALIBRATION	24 JANUARY 2008
RECOMMENDED DUE DATE	JANUARY 2009
PAGE NUMBER	PAGE 1 OF 4

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MANUFACTURER	LARSON DAVIS
MODEL NUMBER	CAL 200
SERIAL NUMBER	3073
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CERTIFICATE NUMBER	2006-1175
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CALIBRATED BY	M.W. DE BEER
MANUFACTURER	LARSON.DAVIS
MODEL NUMBERS	824 and 2541
SERIAL NUMBERS	824A3282 and 7937
DATE OF CALIBRATION	20 DECEMBER 2006
RECOMMENDED DUE DATE	DECEMBER 2007

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21 December 2006
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Director: M.W. de Beer

Appendix B:

Methodology for assessing impacts

The significance of the identified impacts will be determined using the approach outlined below. This incorporates two aspects for assessing the potential significance of impacts (terminology from the Department of Environmental Affairs and Tourism Guideline document on EIA Regulations, April 1998), namely occurrence and severity, which are further sub-divided as follows:

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Magnitude (severity) of impact	Scale / extent of impact

To assess each of these factors for each impact, the following four ranking scales are used:

PROBABILITY	DURATION
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term
3 - Medium probability	3 - Medium-term (8-15 years)
2 - Low probability	2 - Short-term (0-7 years) (impact ceases after the operational life of the activity)
1 - Improbable	1 - Immediate
0 - None	

SCALE	MAGNITUDE
5 - International	10 - Very high/don't know
4 - National	8 - High
3 - Regional	6 - Moderate
2 - Local	4 - Low
1 - Site only	2 - Minor
0 - None	

Once these factors are ranked for each impact, the significance of the two aspects, occurrence and severity, is assessed using the following formula:

$$\text{SP (significance points)} = (\text{probability} + \text{duration} + \text{scale}) \times \text{magnitude}$$

The maximum value is 150 significance points (SP). The impact significance will then be rated as follows:

SP >75	Indicates high environmental significance	An impact, which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates moderate environmental significance	An impact or benefit, which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP <30	Indicates low environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.

Appendix B.5
Stormwater Routing Framework (Conceptual Design) for the
proposed Lonmin Akanani Bulk Sampling Prospecting Shaft; Golder
Associates

TECHNICAL MEMORANDUM



Golder Associates Africa (Pty) Ltd

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TO: Lonmin

DATE: 23/10/2008

FROM: Kevin Burse

JOB NO: 11808

EMAIL:

**RE: STORMWATER ROUTING FRAMEWORK, OR CONCEPTUAL DESIGN,
FOR THE PROPOSED LONMIN AKANANI BULK SAMPLING
PROSPECTING SHAFT**

1 INTRODUCTION

Lonmin proposes to establish a bulk sampling prospecting shaft at their Akanani prospecting area north of Mokopane in the Limpopo Province. The purpose of this Technical Memorandum is to provide a stormwater routing framework, or conceptual design, for the management of stormwater on the proposed prospecting shaft site, as required in terms of Regulation 704, of the National Water Act, Act 36 of 1998.

This Technical Memorandum would be one of the key components contributing to the compilation of an Integrated Water and Waste Management Plan (IWWMP) for the proposed site, as required in terms of the National Water Act, Act 36 of 1998.

Refer to Figure 1 for the location of the proposed prospecting shaft site. Golder Associates undertook a site visit on the 13 June 2008, during which the site was investigated and the upstream and downstream catchments scrutinised.

2 PROJECT OBJECTIVES

The main objective of this stormwater routing framework was to compile a conceptual design of the stormwater runoff routing, collection and handling infrastructure required for the proposed Lonmin Akanani prospecting shaft site.

3 ASSUMPTIONS

This study was based on the following assumptions:

- It is assumed that the lay down areas are classified as 'clean'.
- It is assumed that the waste rock dump and shaft areas are classified as 'dirty'.
- The study was undertaken in accordance with Regulation 704 of the National Water Act, Act 36 of 1998, where one spill is allowed every fifty years.
- The 50 year Return Period rainfall event according to Adamson's TR102 (1981) was included in sizing the pollution control dam. The rainfall event was 211mm.
- The graves in the immediate area would not affect the design as they would be circumvented.

4 DESCRIPTION OF DRAINAGE AREA

The proposed Lonmin Akanani shaft site will be situated within the A61G Quaternary catchment. The subcatchments upstream of the site have been delineated using the 1m contour survey provided by the client and are shown in Figure 1. There are no streams upstream of the site, but the upstream catchments would still have a significant runoff peak and volume during large storm events. The shaft site lies along the Mohlosane River and is outside of the 100 year Return Period floodline.

5 STORMWATER MANAGEMENT PHILOSOPHY

The main objective of this assessment was to compile a conceptual design to separate the clean and dirty catchments either originating upstream of Lonmin Akanani shaft site (clean) or on site (dirty). This diversion of the clean water from the upslope catchments away from the site area is required in terms of Regulation 704 of the National Water Act, Act 36 of 1998. The clean water from upslope will be diverted around the shaft complex by means of two stormwater diversion channels or drains, namely Clean Water Diversion Drains 1 and 2. Refer to Figure 2. The Clean Water Diversion Drains 1 is fed by Subcatchment 1 from the east and the Clean Water Diversion Drains 2 is fed by Subcatchment 1 from the south-east (Figure 2). The dirty water originating on site will be collected in internal dirty water drains, and eventually in the Dirty Water Collection Drain, and directed to a pollution control dam. The abstraction rate from this dam needs to be determined by the developer, and could be based on those options put forward in this study. Abstracted water should, for example, be re-used as process water and/or dust suppression on site.

6 FLOOD PEAKS FOR UPSTREAM CATCHMENTS AND DRAIN SIZING

6.1 Rainfall

The Rainfall Depths were extracted from the closest weather station. This information was obtained from the Design Rainfall Estimation Program (2002). See Table 1. Station 0633482_W (Groenfontein) was selected since it is the closest station to the study area with a reliable record.

Table 1: Rainfall Station used in the study

Station Name	Station No	Distance to Site	Latitude	Longitude	Record	MAP	Altitude
		(km)	(°)(')	(°)(')	(Years)	(mm)	(m)
Groenfontein	0633482 W	8.0	24°02'	28°47'	46	638	1200

The 24 hour storm rainfall data for the 1:2, 1:5, 1:10, 1:20, 1:50, 1:100 and 1:200-year recurrence intervals at the SAWS Station 0633482_W (Groenfontein) was abstracted from the database. The relevant rainfall depths are presented in Table 2 below.

Table 2: 24 Hour Storm Rainfall Depths (mm)

Return Period (years)	1:2	1:5	1:10	1:20	1:50	1:100	1:200
Rainfall Depth (mm)	78	106	127	147	176	199	224

6.2 Flood peak calculations

The upslope catchment areas were delineated (Figure 1) and their areas calculated, which are shown in Table 3 along with the other modelling parameters used in generating the storm runoff peaks and volumes. A hydrological assessment of the catchment was carried out and used in estimating of the flood peaks. The flood peaks for the stream were estimated using the rational method.

The rational method is an empirical method which determines flood peaks based on rainfall intensity, catchment area, catchment characteristics and the C-value (runoff coefficient). The catchment characteristics include catchment slope, soil properties, vegetation and land use. The C-value is a number comprising of soil permeability, vegetation and catchment slope. The adopted flood peaks were calculated from a C-value of 100% developed future conditions. The catchment characteristics are summarised in Table 3 and the calculated flood peaks provided in Table 4.

6.3 Catchment characteristics

The catchment parameters used in the modelling of the rivers are listed in Table 3.

Table 3: Catchment parameters used in the modelling

Parameter	Catchment 1 (Upstream Catchment)	Catchment 2 (Pollution Control Dam Catchment)
Area of catchment (km ²)	1.06	0.07
Slope (m/m)	0.01	0.0181
Hydraulic Length (m)	1000	500
Time of Concentration (Hrs)	0.776	0.365

6.4 Calculated Flood Peaks

The rational method was used to calculate the storm runoff peaks and volumes. The Hydrosim model was used to size the Clean Water Diversion Drains 1 and 2 as well as the Dirty Water Collection Drain. The peaks generated by the Hydrosim model were smaller, so these were calibrated using the storm runoff peaks calculated using the rational method. The flood peaks calculated using the rational method and the Hydrosim model are shown in Table 4.

Table 4: Computed flood peaks (m³/s)

Recurrence Interval (years)	Catchment 1 (Clean)	Catchment 2 (Dirty)
Rational method 1:50	19	1.9
Hydrosim Model 1:50	17	1.8

6.5 Stormwater Diversion Drain Design

The conceptual design of the stormwater diversion drains was done using the Hydrosim Model for the 1:50 year Return Period. The dimensions of the conceptual Clean Water Diversion Drains 1 and 2 as well as the conceptual Dirty Water Collection Drain are shown below in Table 5.

Table 5: Dimensions of the Stormwater Diversion Drains for the 1:50 year Return Period

	Clean Water Diversion Drain 1	Clean Water Diversion Drain 2	Dirty Water Collection Drain 3
Length (m)	400	800	500
Side Slopes (H/V)	2:1	2:1	2:1
Bottom Width (m)	1	1	1
Slope (m/m)	0.015	0.0123	0.01
Depth of water in Drain (m)	1	1	0.5
Depth of water in Drain including 0.8m of Freeboard (m)	1.8	1.8	1.3
Velocity of water in Drain (m/s)	3.2	3.0	1.9

7 POLLUTION CONTROL DAM SIZING

The dirty stormwater flowing from the proposed Lonmin Akanani prospecting shaft area will be collected and diverted to a pollution control dam situated downslope of the site. The abstraction rate from the dam should be determined by the developer. This is very important as it will affect the capacity of the dam, which should meet the Regulation 704 spill criteria. The runoff for the area was calculated using the Agrohydrological Modelling System (ACRU) model with Quaternary Catchment A61G being used as a basis. The simulated runoff was then used in a spreadsheet to calculate the size of the pollution control dam and the spilling frequency using a mass balance approach.

The rainfall record used in the ACRU model was taken from the A0633422W rain gauge, which is part of the ACRU database. A plot of the rainfall record is presented below in Figure 3. The rainfall record is for the period from 1950 to 1993. The statistics of the rainfall and simulated runoff used in the ACRU model and the mass balance spreadsheet are given below in Table 6. The monthly evaporation data used in the spreadsheet was sourced from the WR 90 report and was converted to daily evaporation evaporating from the dam surface; these values are shown in Table 7.

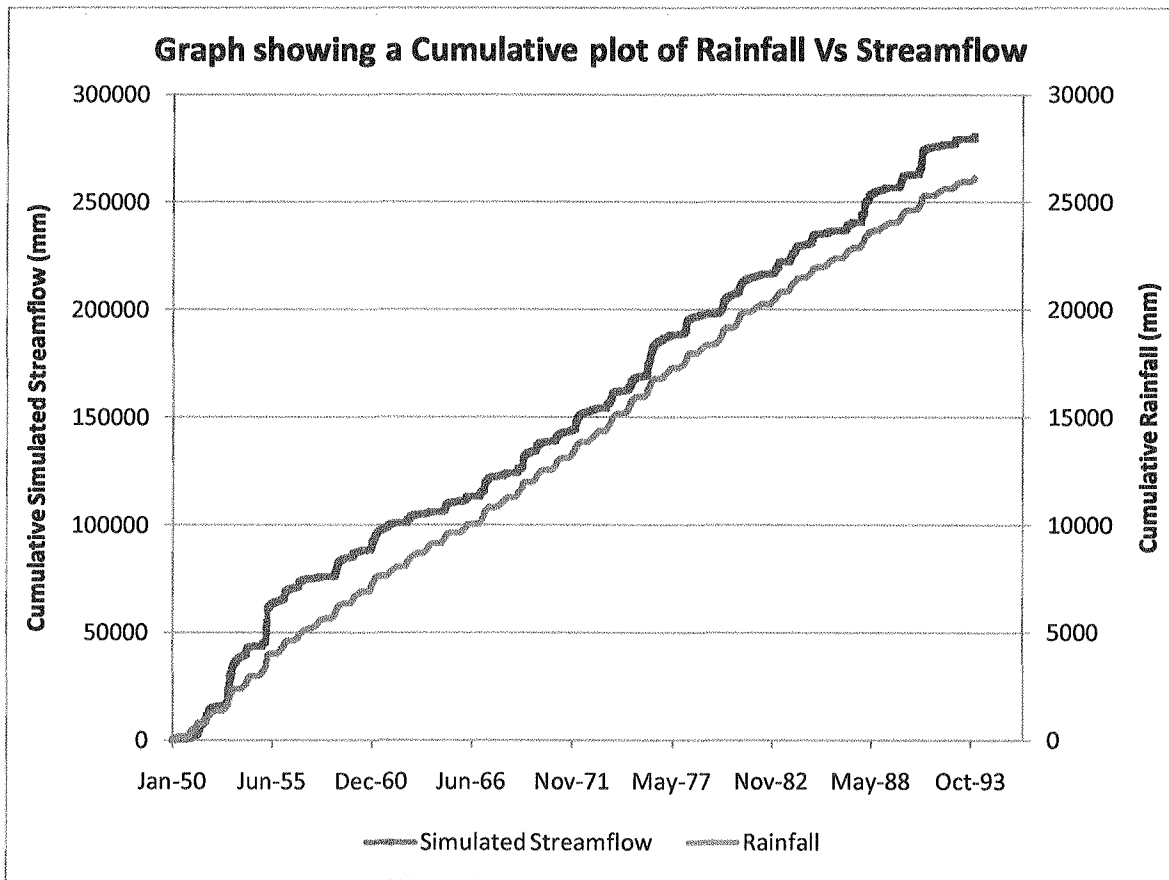


Figure 3: Cumulative Plot of Rainfall and Simulated Streamflow generated by ACURU from 1950 – 1993 (A0633422W rain gauge).

Table 6: Climate Statistics used in the sizing of the Pollution Control Dam

MAP (mm) from WR 90	585
MAE (mm) from WR 90	1800
MAR (mm) from WR 90	17
Average Annual Rainfall for Simulation Period (mm)	593
Average Annual Evaporation for Simulation Period (mm)	1513
Average Annual Runoff for Simulation Period (mm)	91.1
% Runoff of Average Annual Rainfall for Simulation Period	15.4

Table 7: Monthly and Daily Lake Evaporation from WR 90

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Monthly Lake Evaporation (mm)	161.55	151.88	163.74	166.32	144.94	140.82	109.14	89.58	71.15	75.3	102.3	135.74
Daily Lake Evaporation (mm)	5.21	5.06	5.28	5.37	5.18	4.54	3.64	2.89	2.37	2.43	3.30	4.52

The daily rainfall and simulated streamflow from the ACRU model was used to calculate the area and capacity of the pollution control dam. The evaporation was calculated from values obtained from the WR 90 reports. The volume of water in the dam, the amount evaporated, the amount abstracted (between 50 m³/day and 200m³/day) and the amount of water flowing over the spillway was calculated for each day of the simulation. A graph showing the variation in dam volume with different abstraction rates and the rainfall for the simulation period is shown in Figure 4. The spreadsheet gives the abstraction rate, the size, capacity as well as the depth of the dam with the number of spills during the 43 year simulation period, as well as the spill frequency. Refer to Table 8.

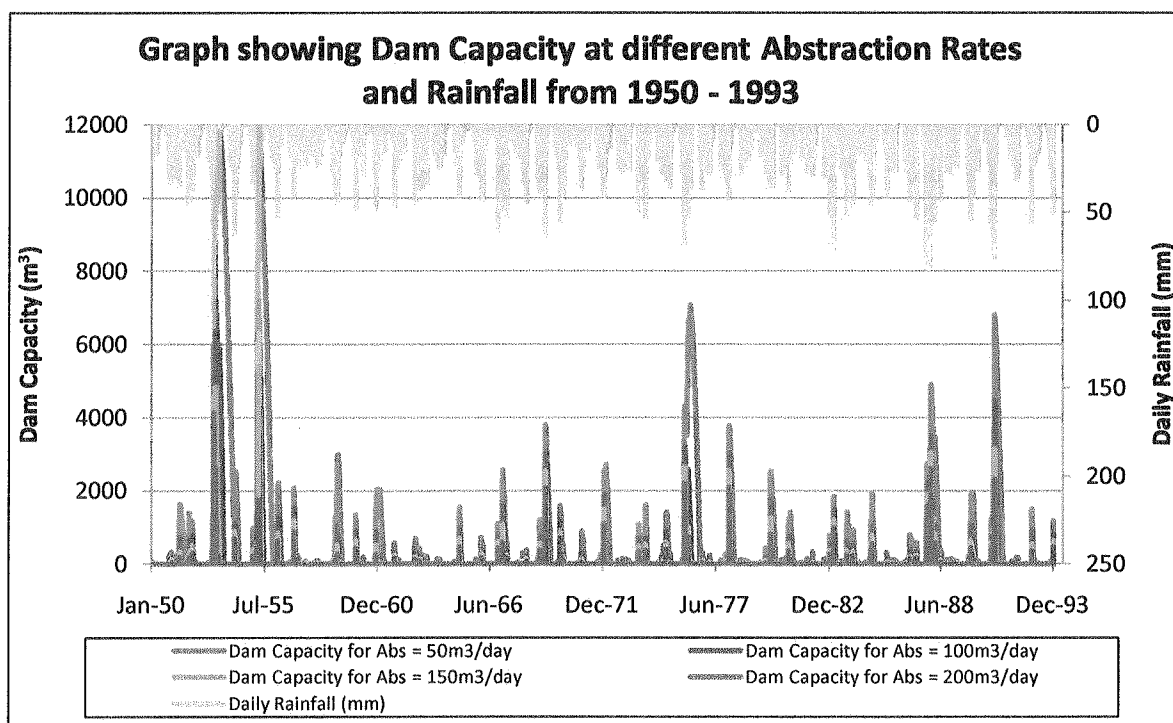


Figure 4: Graph showing the dam capacity with different abstraction rates and the rainfall for the simulation period.

Table 8: Abstraction Rate, Dam Area, Capacity and Depth, Spill Frequency and Number of Spills during the simulation period

Abstraction Rate (m ³ /day)	Area (m ²)	Capacity (m ³)	Depth (m)	Spill Frequency (%)	Number of Spills during Simulation Period
50	4000	12000	3	0.000062	1
100	2400	7200	3	0.000062	1
150	2100	6300	3	0.000062	1
200	1800	5400	3	0.000062	1

8 CONCLUSIONS

This document provides a conceptual design of the infrastructure required to separate clean and dirty water at the Lonmin Akanani Prospecting Shaft site. Conceptual sizes for stormwater diversion drains are proposed in Table 5. The pollution control dam has been sized to allow for only one spill during the simulation period. The single spill is due to the 50 year Return Period rainfall event of 211mm. The detailed stormwater management plan to be implemented on site should be based on the conceptual design framework presented in this technical memorandum.

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Appendix B.6
Phase I Heritage Impact Assessment for the proposed Akanani
exploration shaft near Mokopane, Limpopo Province; Dr Julius
Pistorius

**Prepared for:
GOLDER ASSOCIATES
LONMIN**

**PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR
THE PROPOSED AKANANI PROSPECTING SHAFT NEAR
MOKOPANE IN THE LIMPOPO PROVINCE OF SOUTH AFRICA**

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EXECUTIVE SUMMARY

This Phase I Heritage Impact Assessment (HIA) study for the proposed Akanani Prospecting Shaft was undertaken according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The aims with the study were:

- To determine if any of the types and ranges of heritage resources (the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (no 25 of 1999) do occur within the boundaries of the proposed Akanani prospecting site and to establish the levels of significance of these heritage resources.
- To establish whether these heritage resources will be affected by the proposed prospecting activity and, if so, to propose mitigation measures for those heritage resources that may be affected by the development project.

The Phase I HIA study for the Akanani prospecting site revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Stone tools dating from the Stone Age which occur here and there along the banks of the Mohlosane River.
- Remains dating from the Late Iron Age/Historical Period that consisted of a scatter of metal working slag.
- Remains from the recent past which consists of the disintegrated remains of dwellings and informal graves which are scattered across the project area.

The remains from the Late Iron Age/Historical Period (scattered metal working slag) and some of the remains from the recent past and the graves were geo-referenced and mapped (Figure 3; Tables 1-3). (It must be noted that the remains from the recent past are extensive and that not all of these remains were mapped).

The significance of the heritage resources

The significance of the heritage resources that may be affected by the mining development project was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria. Mitigation measures are proposed for those heritage resources that may be affected by the proposed new development project.

Stone tools

The stone tools along the banks of the Moholosane River will not be affected by the proposed Akanani Prospecting Shaft.

Remains from the Late Iron Age/Historical Period

Remains from the Late Iron Age/Historical Period qualify as archaeological remains and are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). These remains may be affected by the development project. The scatter of metal working slag has low significance when considering the following criteria:

- The metal working slag may represent the last remains of a fast eroding and disturbed archaeological site.
- It seems as if the metal working slag occurs in isolation and is not associated with any sealed archaeological context any longer. It therefore has low research value.

Remains from the recent past

The remains from the recent past have no significance any longer as they are not older than sixty years. Even if these remains qualify as historical remains (because they are older than sixty years) they have low significance due to the following criteria:

- These types of remains are abundant and occur throughout the larger project area.
- These remains have little to offer in the sense of research, educational or tourism value.

These remains may be affected by the development project.

Graves

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Mitigating the heritage resources

It is possible that the scatter of metal working slag as well as some of the remains from the recent past and graves may be affected by the proposed prospecting activity. Mitigation measures for these types and ranges of heritage resources therefore have to be determined.

Remains from the Late Iron Age/Historical Period

The scatter of metal working slag has low significance and therefore need no mitigation measures. These remains can be destroyed without acquiring a permit from the Limpopo Heritage Resources Agency (LIHRA).

Remains from the recent past

The remains from the recent past have low significance and therefore need no mitigation measures. These remains can be destroyed without acquiring a permit from the Limpopo Heritage Resources Agency (LIHRA).

Graves

If any of the graves are to be affected by the mining development project the following mitigation measures have to be applied, namely:

- Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

More inconspicuous graves may occur on the Akanani prospecting site. Some of these may be unconsciously exposed during development activities. Under such circumstances the development must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) contacted to obtain the necessary permits from LIHRA to remove the human remains.

It is therefore possible that this Phase I HIA study may have missed heritage resources in the project area. If any heritage resources of significance is exposed during the mining development project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all mining activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

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1 BACKGROUND

This document contains the report on a Phase I Heritage Impact Assessment (HIA) study which was done for the proposed new Akanani Prospecting Shaft situated in the south-eastern corner of the farm Zwartfontein 814 north-west of Mokopane (Potgietersrust) in the Limpopo Mpumalanga Province of South Africa.

The Limpopo Province of South Africa has a rich heritage comprised of remains dating from the pre-historic and from the historical (or colonial) periods of South Africa. Pre-historic and historical remains in the Limpopo Province present a record of the heritage of most groups living in South Africa today. Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (outlined in Section 3 of the National Heritage Resources Act, Act No 25 of 1999) occur in this province (see Box 1).

Box 1: Types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the national estate, namely:

- (a) places, buildings structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and paleontological sites;
- (g) graves and burial grounds including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders
 - (iii) graves of victims of conflict
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered by in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) moveable objects, including -
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (i) sites of significance relating to the history of slavery in South Africa

The development of the proposed new Akanani Prospecting Shaft will be undertaken by Lonmin. In order to comply with legislation, Lonmin requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in or near the proposed Akanani prospecting site. Lonmin needs this information in order to take pro-active measures with regard to any heritage resources that may be affected by the proposed new development. Golder Associates therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study on the proposed Akanani prospecting site. The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) occur in or near the Akanani prospecting site and, if so, to determine the nature, the extent and the significance of these remains.
- To establish if any of these heritage resources will be affected by the proposed prospecting activities and, if so, to evaluate what appropriate mitigation measures could be taken if any of the types and ranges of heritage resources may be affected by the proposed 2 ha prospecting shaft development.

3 METHODOLOGY

This Phase I HIA study was conducted by means of a survey of literature and databases; studying maps of the project area and by surveying the project area with a vehicle and on foot.

3.1 Survey of literature and studying maps

A survey of literature and studying maps of the project area was done in order to contextualise the study area with regard to the presence of humans, cultures and important events which provided, albeit only a broad framework, a sense of the presence of humans and their interaction with the project area during the last few centuries. This regional historical overview of the project area was linked to the possible ranges of heritage resources one would expect to find in the project area.

3.2 Consulting heritage data bases

Information derived from databases kept and maintained at institutions such as the South African Heritage Resources Agency (SAHRA) and the National Flagship Institute in Pretoria were used to determine whether any heritage resources have been identified during field surveys or post-graduate studies in the project area. The author has completed several field surveys in the immediate surroundings of the project area in the past (see 'Select Bibliography', Part 8).

3.3 The survey with a vehicle and on foot

The Akanani prospecting site was subjected to a survey with a vehicle where accessible routes exist and by means of a survey on foot of areas considered to be sensitive, e.g. the location where the proposed new prospecting shaft will be sunk.

3.4 Assumptions and limitations

The Phase I HIA study may not have detected all graves that may occur on the Akanani prospecting site given the nature of these remains. Part of the project area has been occupied during the past few decades and perhaps during an earlier historical period as well. It seems as if remains from both the historical period, such as metal working debris, as well as residential remains (with graves) from the more recent past occur together in the Project Area. This means that people in the recent past may have settled on top of remains which may be older than a century.

The project area has also been utilised for agricultural activities in the more recent past. In some instances these activities have occurred on top of the older and younger remains in the area. Graves from the recent past therefore has in many instances been disturbed. Some of these graves may not be marked any longer and may not be visible on the land.

Graves are also ploughed under over time. Abandoned or neglected graves are also gradually disappearing below the surface of the land while others may be covered with thickets of sickle bush. Consequently, inconspicuous graves may be exposed by the proposed prospecting activities.

It is therefore possible that this Phase I HIA study may have missed heritage resources in the project area. If any heritage resources of significance is exposed during the mining development project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all mining activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

3.7 Some remarks on terminology

Terminology that may be used in this report is outlined in Box 2 (below, next page).

Box 2. Terminologies that may be used in this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the project area, to the first appearance or use of 'modern' Western writing brought to the Mokopane (Potgietersrust) area by the first Colonists who settled here during the 1830's.

The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

It is not always possible, based on observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or, when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floor plans (a historical feature) may serve as a guideline. However, circular and square floors may occur together on the same site.

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honoured whenever graveyards are exhumed and relocated.

The term 'Stone Age' refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the historical period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

The term 'Late Iron Age' refers to the period between the 17th century and the 19th century and can therefore include the historical period.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'study area', or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of bodies and the relocation of graveyards, etc. Phase II work may require the input of specialists and requires the co-operation and approval of SAHRA.

4 THE AKANANI PROSPECTING SITE

4.1 Location

The Akanani prospecting site is situated approximately twenty-five kilometres to the north-west of Mokopane (Potgietersust) in the Limpopo Province of South Africa. The project area borders on the road that runs from Mokopane to Bakenberg. The proposed new prospecting shaft will be established on the Merensky Reef, locally and historically known as the 'Platreef', which was discovered in the 1920's by Hans Merensky. The shaft will be located in the south-eastern corner of the farm Zwartfontein 814 (2428BB Tinmyne 2328DD & Limburg; 1:50 000 topographical maps).

Geographically, the Akanani Prospecting Shaft is located in the Mokopane District of the Limpopo Province. The mine is surrounded by communities whose ancestors were once part of the sphere of influence of the Langa Ndebele, a community whose origins can be traced to Nguni (Kwa Zulu/Natal) ancestry. The Langa Ndebele intermarried, over centuries, with numerous Sotho and other clans. They occupied villages and homesteads in the territory where the proposed new prospecting shaft will be established.

Towns that surround the proposed new mining area include Ga Masenya, Molotswi, Mapela and Ga Mosoge. The descendants of the Ledwaba/Maune Ndebele clans live in the Bergzicht-Kalkspruit and Mašašane townships to the east of the Akanani prospecting site.

Few outstanding geographic features occur in the project area, except the prominent Fonthane mountain range along the western border of the project area. The Mohlosane River crosses the project area near its southern perimeter.

4.2 Historical context of the project area

The original and present occupants of the wider study area are the Langa Ndebele who occupied this area for several centuries. The names of some of

their early settlements appear in bold. Also note the 1:50 000 topographical maps of the area (2428BB Tinmyne; 2328DD Limburg). The Langa Ndebele subjugated a large number of clans in this region.

The Ndebele of Langa are of Hlubi (Nguni) origin. The name of their clan, Langa, was derived from the name of their original chief when the clans were part of the Hlubi. They originated from eNgungunglovu (Pietermaritzburg) where they occupied a place known as **Langalibalele**. (Other clans such as the Mbo [Mkize], Bhele, Phuti, Polane and Swazi also trace their genealogies back to a Chief Langa who lived during the latter half of the 17th century).

The second half of the 17th century seems to have been a turbulent period in Hlubi history, as the Langa clan hived off from the main body in AD1650. They were led by Langalibalele/Masebe I (Masebethêla) from Hlubi country through what is today Swaziland. Their first significant stop was near Leydsdorp or **Mafefera**. They moved to **Bosega**, an area around Bonye, east of Pietersburg, and the present territory of the Molepo chiefdom. After a short stay, the Langa moved to Thaba Tšweu (Witkoppes Mountain), a few kilometres to the south-east of Pietersburg, where they remained for four generations. The chiefs who ruled and died at **Thaba Tšweu** were Masebe I, Mapuso, Podile and Masebe II.

During their sojourn and stay in the Limpopo Province, the Langa adopted the Sotho language and culture fully. They adopted the custom of circumcision from the Matlala (Koni). The fact that they accepted 'medicated' (treated) pumpkin, a symbolic gesture by which seniority is acknowledged, from the Ndebele of Kekana (near Zebediela) proves that they acknowledged the seniority of this clan which had also moved to the Transvaal from the KwaZulu/Natal region.

Seritarita, who succeeded Masebe II at **Thaba Tšweu**, led the clan to **Maleoko** (on the farm Bultongfontein [239KR]), where he remained for three years. From here, the clan moved to **Moumong-wa-Matswake** on the farm Zuid-Holland 773LR. Their settlement was known as **Mokgokong**. Seritarita was succeeded by Mapela, son of Seritarita's third ranking wife.

Two sons of Seritarita higher in rank than Mapela namely Mosogo (son of the second ranking wife) and Mamaala (Makgenene) established several villages around the royal lineage of Mapela during the 19th century, e.g. **Mabyanamatshwaana**, **Tsotsodi** and **Segodini**. These lineages still enjoy seniority, as can be seen during initiation lodges.

During Mapela's stay at **Moumong wa Matswake**, numerous smaller Sotho clans were subjugated and incorporated in the Langa tribe. (Clans that were incorporated before Mapela's rule were the Tlhaloga Kwena of Tshaba, the Bakwena of Lelaka and the Dikgomo of Lebelo). The Phalane Nareng of Mabuêla and the Pedi of Matlou were attacked before the Langa Ndebele settled at **Moumong wa Matswake**. Internal strife amongst the Phalane enabled the Langa to incorporate a section of this group, as well as the Pedi of Matlou. When the Phalane fled (to Ramakôka), the Bididi (or Tlhatlherwa) fled to **Bobididi** near Villa Nora.

Also incorporated amongst the Langa were the Kwena of Ramorulane and the Hurutshse of Molokomme, after the latter were defeated at Senta Hill and Swartkop (north of Thutlwane). Groups that voluntarily joined the Langa were the Koni of Masenya and Puka; the Tlôkwa of Pila; the people of Tshokwe and the Koni of Seema.

When Thulare of the Pedi undertook his great expedition up the Steelpoort River at the end of the 18th century, the move did not affect the Langa Ndebele. When Mzilikazi moved through Mpumalanga and the Bankeveld during the early 19th century, groups such as the people of Mabuêla became dislocated and occupied mountains in the area.

When he was old, Mapela moved his village to **Fothane Hills** (Moordkopje) where he died in 1825. Maleya (a son of Mapela by a minor wife) ruled until Mankopane (the rightful heir) ousted him. Maleya fled to **Magagamatala** on Ruigtevlei 710LR. Maleya ruled from **Ditlotswana** hills. The Langa fled to **Magagamatlala** (on Ruigtevlei 710 LR), a high flat-topped mountain with steep cliffs. On 14 April 1858 this stronghold was attacked by a punitive expedition

sent by the Voortrekkers and 800 of Mankopane's subjects were killed. (This is known as the war of 'Nterekane' or the 'War of Maruputlase'). After the Langa's defeat, the Mankopane settled on **Thutlwane Hill** (Kromkloof 744 LR). The first mission stations of the Berlin Missionary Society were established in Langa country in 1867.

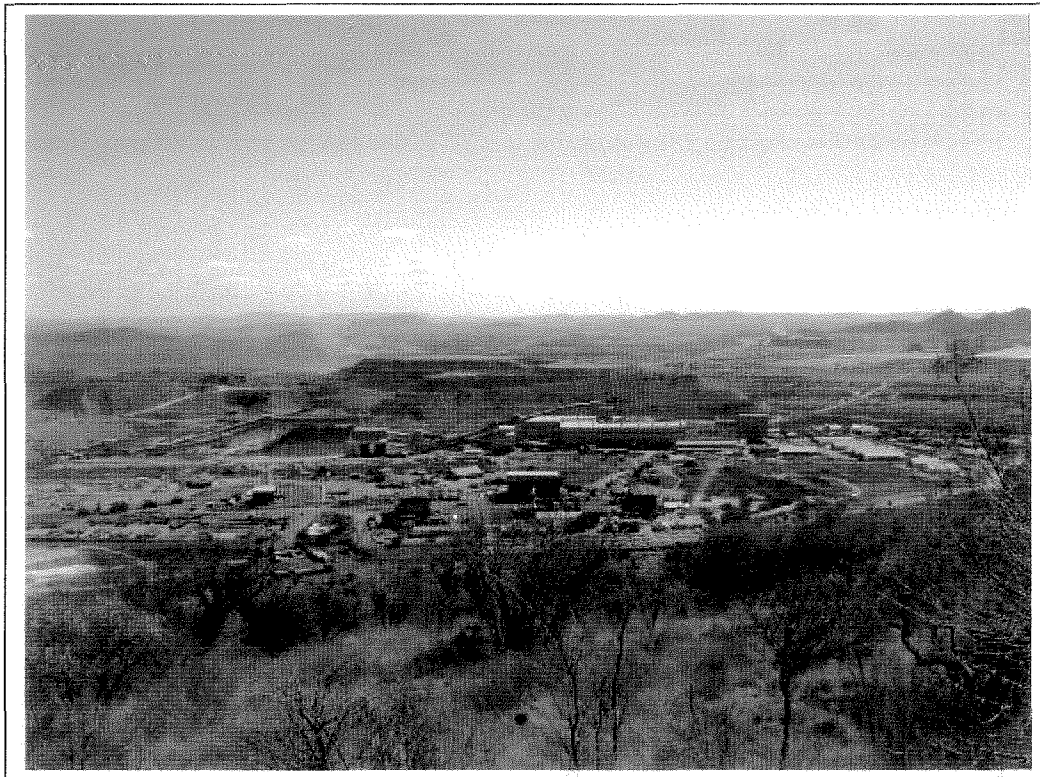


Figure 1- The Akanani prospecting site is located behind the waste rock dumps in the far south-eastern corner of the farm Zwartfontein 814 (above).

Other events were the following:

- ξ The Langa expedition in 1837 aimed to expedite Mzilikazi's departure from what is today the North-West Province into Botswana.
- ξ The Langa (and Kekana) were involved in the massacre of Voortrekker parties and the siege of the Makapans Caves in 1854.
- ξ The Langa Ndebele (Lamola clan) scattered the copper miners of Mussina (Messina) with whom they bartered copper shortly before 1854.

ξ The Langa subjugated the Bididi (Songwana) until 1890, exacting heavy tribute from this clan.

The second encounter between the Voortrekkers and the Langa took place in 1868. At the time, the Langa were in an alliance with the Kekana Ndebele of Mogemi. Mogemi acted as regent for Mankopane. While the Boers besieged **Sefakaulo** Hill where Mogemi lived, Mankopane raided white farmers and outposts. The Voortrekkers attacked Mankopane on 12 June 1868 at **Thutlwane** and raided large numbers of cattle and small stock, but they could not take the highest part of the mountain where Mankopane's headquarters were. The Boers could also not achieve much success with their raids on Mogemi's mountain fortress. The Voortrekkers then evacuated Potgietersrus.

Mankopane died on 30 May 1877 and was buried in his cattle kraal on the mountain **Thutlwane**. Masebe III was proclaimed chief on 3 June 1877. Sporadic wars continued between the Langa and the Kekana chiefdoms from 1883 to October 1886, when President Paul Kruger summoned the two chiefs before him.

After the death of Masebe III on 4 May 1890, a succession dispute split the tribe into two sections, namely the Ndebele of Bankeberg and the Ndebele of Hans Langa. Hans Langa became chief of the southern portion and Bankeberg of the northern portion. As the ancient grounds of Mapela (**Fothane Hill**) fall in the southern portion, this section of the Langa became known as the Bagamapela.

After the Voortrekker leaders Hendrik Potgieter and Andries Potgieter were reconciled in 1852, the former established a town at Makapanspoort, between the Waterberg and the Strydpoort Mountains, which he named 'Vredenburg' ('town of peace') to commemorate the reconciliation. The town was later renamed after Piet Potgieter (who was killed during the siege of the Makapans Caves in 1854) and was called Potgietersrus. Because of fever and trouble with the Ndebele, the town was abandoned and deserted for about twenty years after 1868, but after 1890 it was re-established.

4.3 Human intervention from the earliest times (not conducive to the conservation of heritage resources)

The project area is not an unaffected piece of land any longer as large parts have been exploited for agricultural activities in the past. These agricultural pursuits are visible on the 1983 edition of the 1: 50 000 topographical map of Limpburg (1: 50 000; 2328 DD). According to an eighty-six year old spokesperson (Jan Tefu) agricultural fields already existed on various farms before the second half of the 20th century. Hunting, gathering, cultivating and stock farming therefore were economic activities of the Langa Ndebele of Ga Mapela for decades. Some people still depend on agriculture and stock farming to supplement their income and communities still maintain agricultural plots and utilise the veldt for grazing.

In the Limpopo Province, in the past, chiefs allocated pieces of land to the heads of wards who in turn provided plots to married men. The sizes of these plots were determined by the number of wives a man had, but each plot was usually one to two hectares, which is the maximum that a woman could cultivate using a hoe. The introduction of the plough allowed families to cultivate larger areas of land, up to about 4,5 hectares.

Crops included sorghum (*mabele*) and millet (*letsoa*), which were later largely replaced by maize (*mahea*) as a staple food. Supplementary crops included pumpkins (*marotse*), various varieties of gourd (*maraka*), beans (*dinawa*) and a type of groundnut (*ditloo*). Tobacco and sugarcane were also planted.

Although each person usually possessed his own stock, pasturage was used on a communal basis. At a fixed time, the tribal ruler declared the reaped grain fields open for use as winter grazing. Grazing cattle in particular disturbs heritage resources, as deposits on sites are churned under the hooves of the cattle and low stone foundations are broken and scattered.

The scarring effect of earlier ploughing is visible where the veldt has been cleared from trees and bush. Open patches of land covered only with grass mostly represent old agricultural fields.

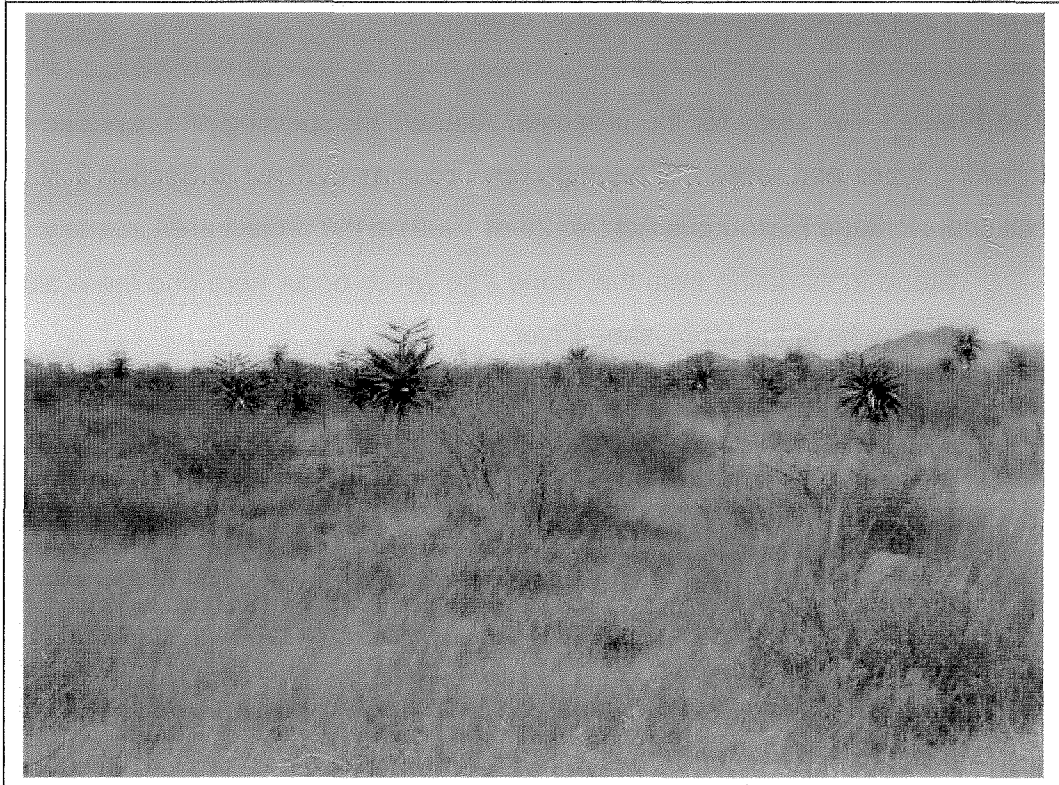


Figure 2- The Akanani prospecting site includes bare pieces of land as well as spots with extensive vegetation that makes the identification of graves extremely difficult (above).

5 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY

5.1 Types and ranges of heritage resources

The Phase I HIA study for the proposed Akanani prospecting site revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the project area, namely:

- ξ Stone tools dating from the Stone Age which occur here and there along the banks of the Mohlosane River.
- ξ Remains dating from the Late Iron Age/Historical Period that consisted of a scatter of metal working slag.
- ξ Remains from the recent past which consists of the disintegrated remains of dwellings and informal graves which are scattered across the project area.

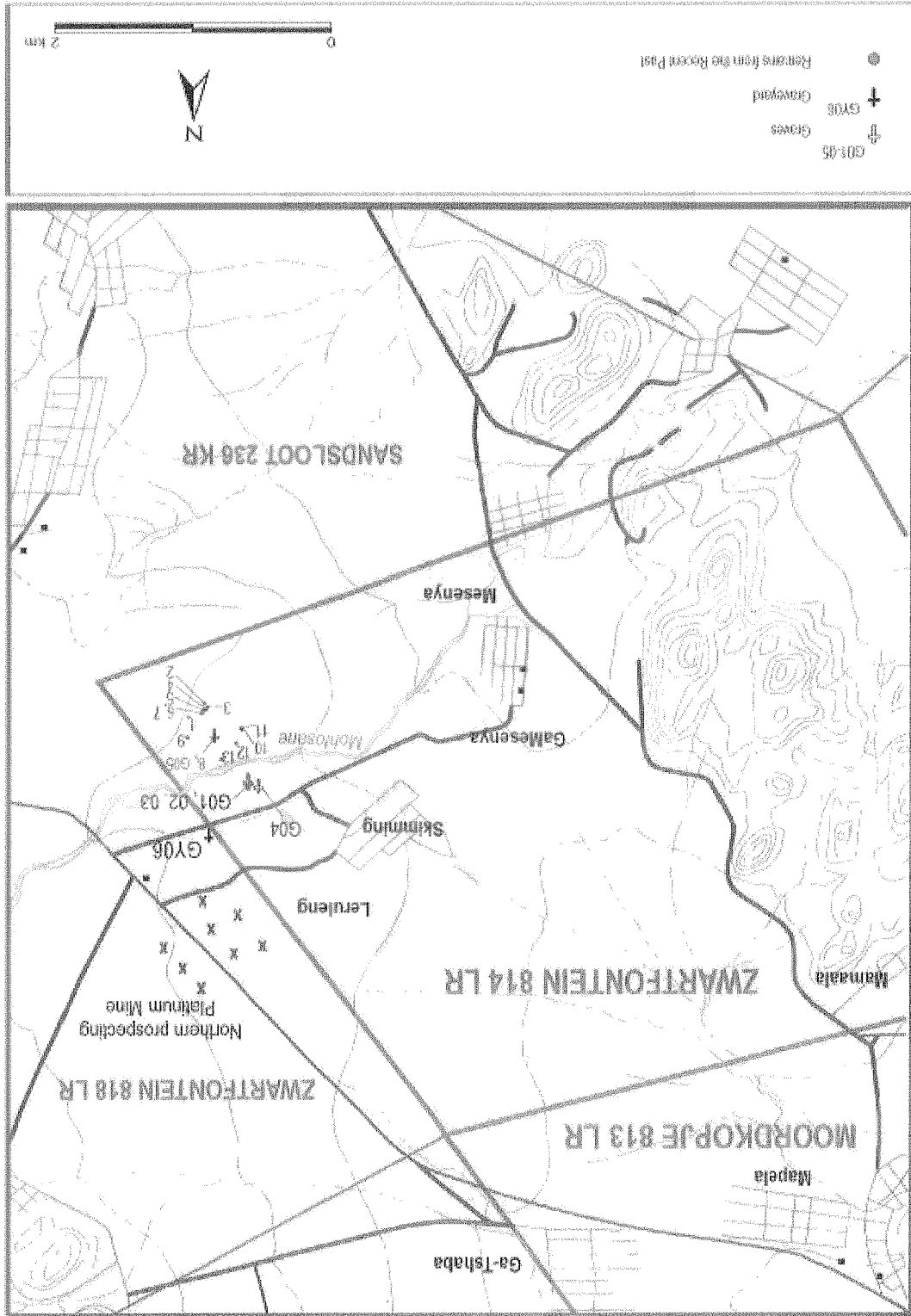
The stone tools, remains from the Late Iron Age/Historical Period (scattered metal working slag), some of the remains from the recent past and the graves were geo-referenced and mapped (Figure 3; Tables 1-3). (It must be noted that the remains from the recent past are extensive and that not all of these remains were mapped).

The significance of the heritage resources that may be affected by the proposed prospecting activities was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria. Mitigation measures are proposed for those heritage resources that may be affected by the proposed new development project.

The Phase I HIA study is now briefly discussed and illuminated with photographs.

Figure 3- The Akanani Project Area in the south-eastern corner of Zwartfontein 814 north-west of Potgietersrus (Mokopane) in the Limpopo Province of South Africa.

Note the presence of heritage resources such as remains dating from the Late Iron Age/historical Period (scatters of metal working slag) and remains from the recent past (disintegrated dwellings) with informal graves.



5.2 Stone tools from the Stone Age

The Phase I HIA study uncovered stone tools in older beds of the Mohlosane River. These stone tools are mostly derived from the Middle Stone Age, dating back 200 000 years to 22 000 years ago.

The scatterings of stone tools were not geo-referenced as they occur at random along the Mohlosane River. The stone tools were limited in numbers and do not occur as large concentrations (assemblages) in a closed (sealed) stratigraphical context. The stone tools occur out of an archaeological context as they have been washed by water or have been exposed by erosion activities.

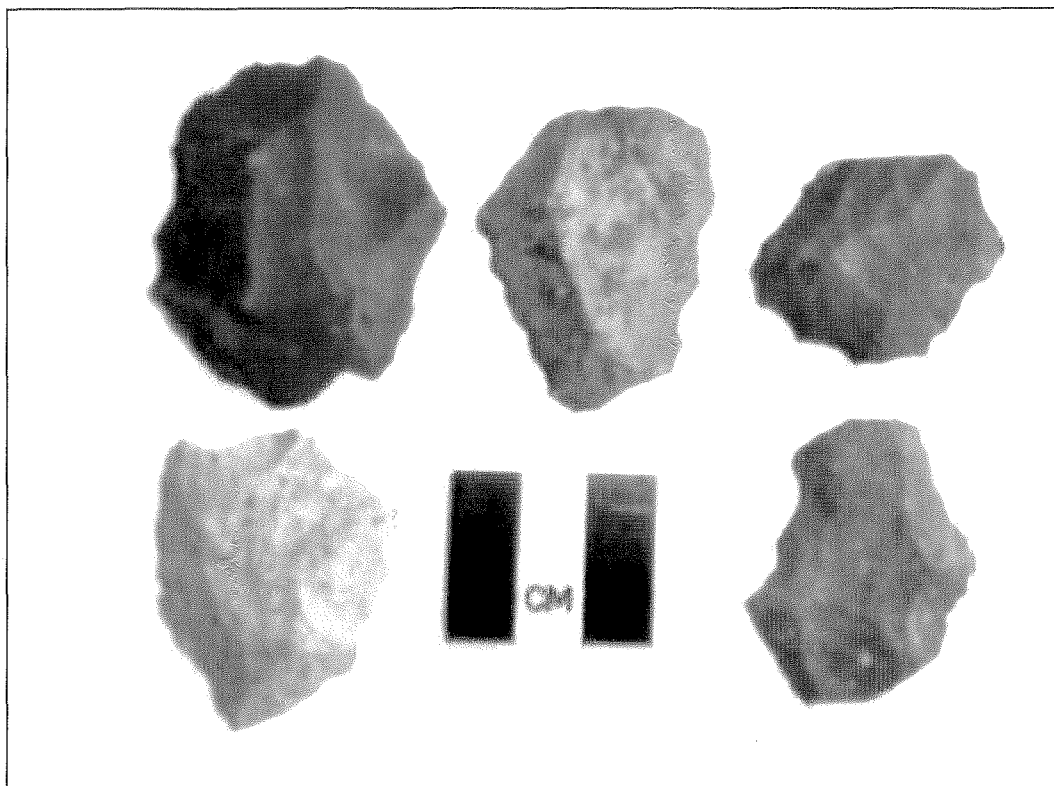


Figure 4- Stone tools manufactured from red felsite dating from the Middle Stone Age, 200 000years to 22 000 years ago. Note: core (top left), points, (middle top, below left and right) (above).

5.3 Remains from the Late Iron Age and/or Historical Period

A scattered occurrence of metal working slag was observed at one locality in the project area. Isolated, single pieces of slag were also observed across the project area. However, no concentrated occurrence of metal working remains associated with metal working activities such as smelting or forging was observed in the project area.

It is possible that these remains date from the Late Iron Age (AD1600-1840) or from the Historical Period (AD1840-1880). It is not clear whether these remains are associated with any residential remains although metal working activities and habitation remains mostly occurred geographically separated from each other during the Late Iron Age/Historical Period.

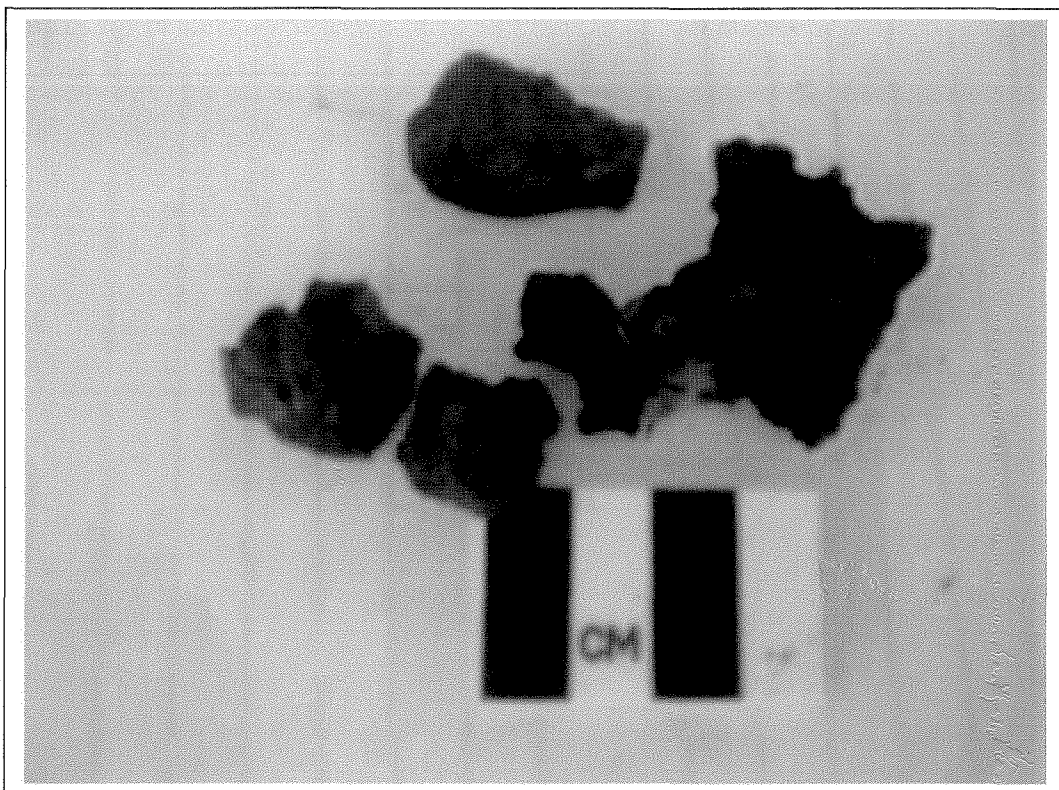


Figure 5- Scatters of slag which probably date from the Late Iron Age (AD1600-1840) or the Historical Period (AD1840-1880) (above).

5.4 Remains from the recent past with graves

Remains dating from the recent past consisting of disintegrated dwellings associated with graves occur across the project area. At least four of these occurrences were recorded. It is possible that more of these remains, particularly graves, may exist but that they are unmarked or located in inconspicuous locations.

The remains from the recent past mainly comprise of upright stones outlining the foundations of either homes or homestead boundaries. Most of these dwellings were square or elongated in ground plan indicating their historical identity. These remains are associated with 'modern' rubbish such as tin plate or pieces of glass.

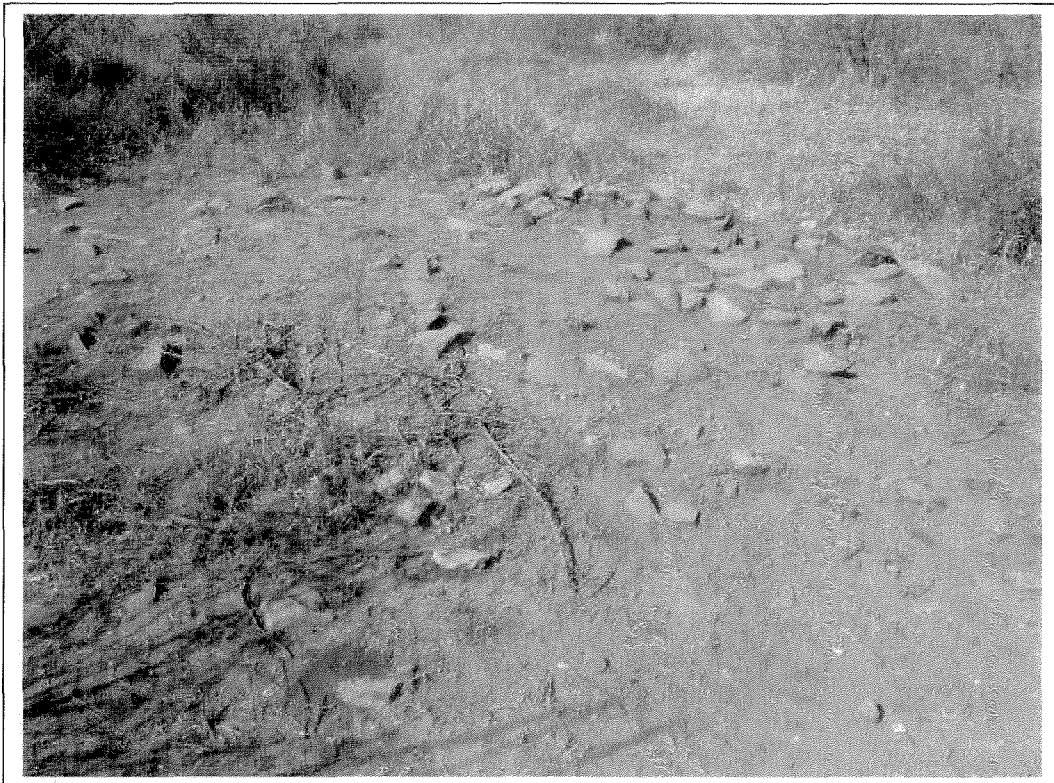


Figure 6- Remains from the recent past consisting of disintegrated dwellings (above).

Graves that were observed in the project area include the following:

5.4.1 Grave 01

This grave is marked by upright stones demarcating an elliptical area. The dilapidated remains of residences occur near the grave.

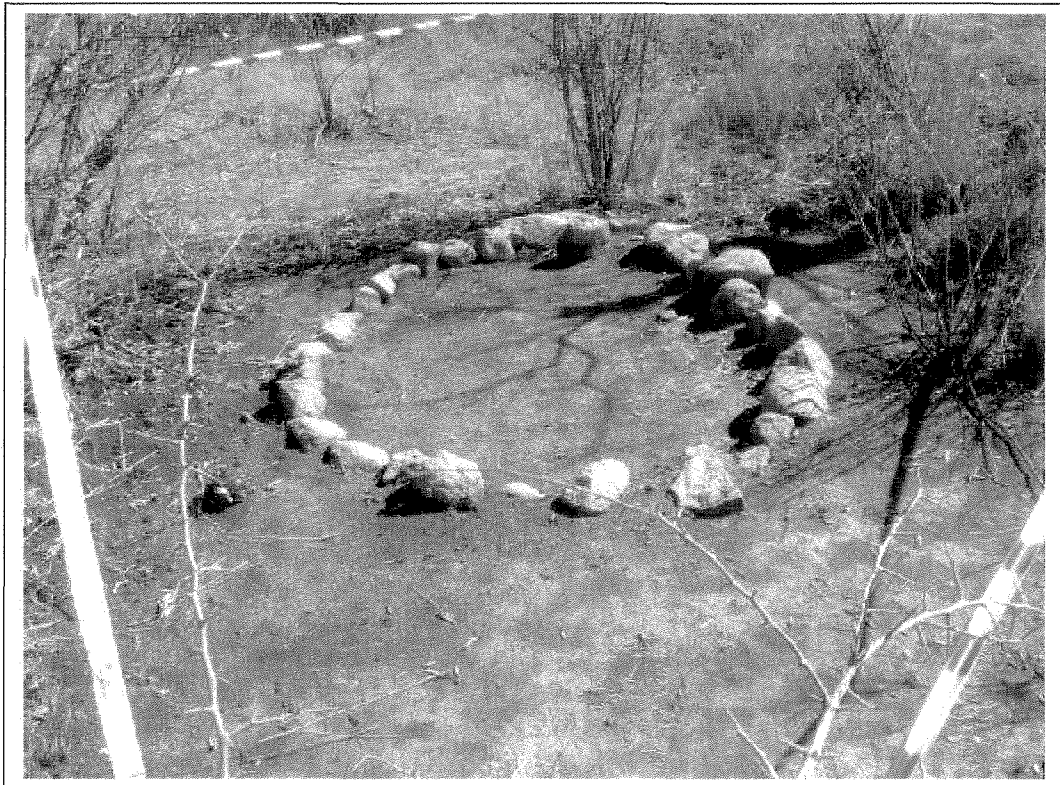


Figure 7- A circle outlined with stones indicate the presence of a grave (above).

5.4.2 Grave 02

It is not unequivocally clear if ' Grave 02' actually represents a grave or merely a heap of stones. This feature is represented by a heap of stones which amongst other include a lower grinding stone. It is therefore likely that this stone feature may cover the remains of a woman.



Figure 8- A heap of stones with a lower grinding stone may cover the remains of a woman (above).

5.4.3 Grave 03

This grave is also demarcated with upright stones

5.4.4 Graves 04

This small graveyard incorporates the remains of at least four individuals. The four graves are demarcated with upright stones. The graveyard is totally inconspicuous as it occurs in tall grass. A metal signpost with the following barely decipherable inscription is nailed on the trunk of a tree next to the graveyard, namely: 'Zone 1. Mahwelereng Jackson?'



Figure 9- G03 is demarcated with stones (above).

5.4.5 Possible Grave 05

A prominent stone feature occurs on the periphery of remains from the recent past. It is not quite clear whether this feature may represent a grave or whether it is merely part of an elaborate stone wall.

Graves	Coordinates	Significance
G01 Stone circle near remains from the recent past	23° 59.39.5' 28° 53.34.5'	HIGH
G02 Stone cairn with lower grinding stone	23° 59.39.0' 28° 53.34.3'	HIGH
G03 Stone circle near remains from the recent past	23° 59.38.2' 28° 53.34.4'	HIGH
G04 Four graves demarcated with stones	23° 59.37.1' 28° 53.30.5'	HIGH
G05 Possible stone feature or grave	29Y0011065 X2654502'	HIGH
GY06 Formal graveyard located in Skimming	23° 59.183' 28° 53.498'	HIGH

Table 1- Coordinates for graves dating from the more recent past which are mostly associated with disintegrated dwellings from the more recent past (above).

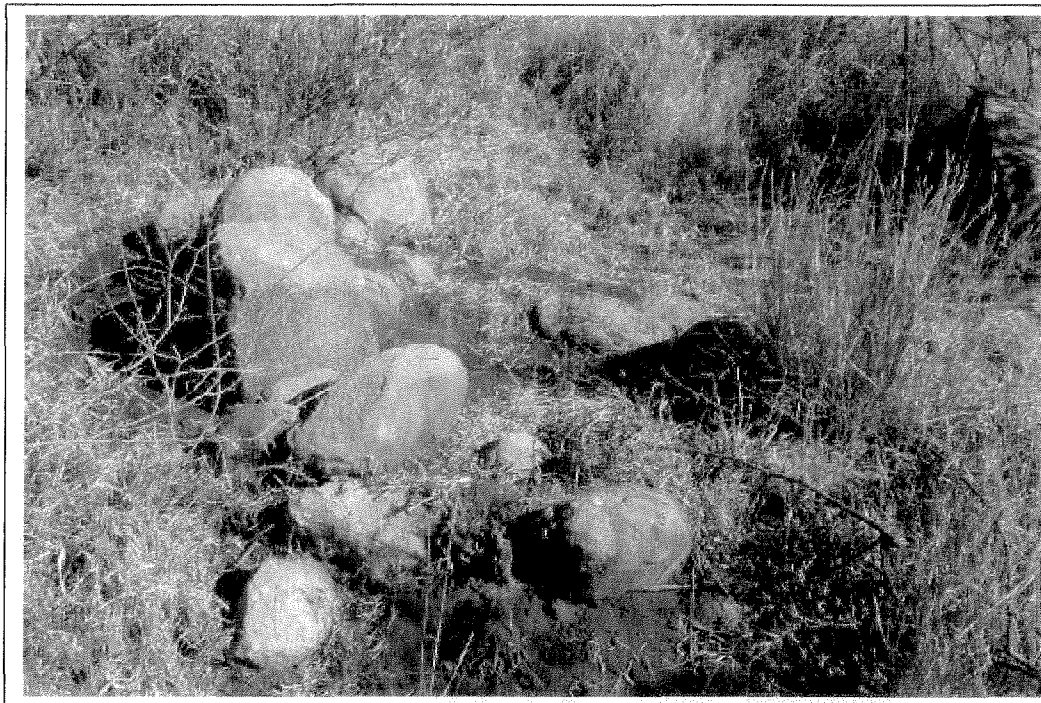


Figure 6- A stone feature which may either be part of an elaborate structure such as a short wall or a possible grave (above).

Heritage remains	Coordinates	Significance
<u>Scatter with metal slag</u>	29Y0011079 X2654537	LOW
<u>Remains from the recent past</u>		
Disintegrated dwellings	29Y0010896 X2654648	LOW
Disintegrated dwellings	29Y0010974 X2654696	LOW
Disintegrated dwellings	29Y0010992 X2654747	LOW
Disintegrated dwellings	29Y0011016 X2654720	LOW
Disintegrated dwellings	29Y0011006 X2654702	LOW
Disintegrated dwellings	29Y0010988 X2654697	LOW
Disintegrated dwellings	290010979 X2654674	LOW
Disintegrated dwellings	29Y0011065 X2654502	LOW
Disintegrated dwellings	29Y0010888 X2654502	LOW
Disintegrated dwellings	29Y0011245 X2654560	LOW
Disintegrated dwellings	29Y0011235 X2654568	LOW
Disintegrated dwellings	29Y0011206 X2654456	LOW
Disintegrated dwellings	29Y0010924 X2654342	LOW

Table 2- Coordinates for remains from the Late Iron Age/Historical Period (metal slag) and from the recent past (disintegrated dwellings) (above).

6 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

The Phase I HIA study for the Akanani prospecting shaft site revealed the following types and ranges of heritage resources in the project area, namely:

- ξ Stone tools dating from the Stone Age which occur here and there along the banks of the Mohlosane River.
- ξ Remains dating from the Late Iron Age/Historical Period that consisted of a scatter of metal working slag.
- ξ Remains from the recent past which consists of the disintegrated remains of dwellings and informal graves which are scattered across the project area.

The stone tools along the banks of the Moholosane River will not be affected by the proposed Akanani Prospecting Shaft. However, it is possible that the scatter of metal working slag as well as some of the remains from the recent past and graves may be affected by the proposed prospecting activity. The significance of these heritage resources therefore has to be determined.

6.1 The significance of the heritage resources

The significance of the heritage resources that may be affected by the proposed Prospecting Shaft was determined by means of stipulations from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria relating to the types and ranges of heritage resources to be affected.

6.1.1 Remains from the Late Iron Age/Historical Period

Remains from the Late Iron Age/Historical Period qualify as archaeological remains and are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). The scatter of metal working slag has low significance when considering the following criteria:

- ξ The metal working slag may represent the last remains of a fast eroding and disturbed archaeological site.
- ξ It seems as if the metal working slag occurs in isolation and is not associated with any sealed archaeological context any longer. It therefore has low research value.

6.1.2 Remains from the recent past

The remains from the recent past have no significance any longer as they are not older than sixty years. Even if these remains qualify as historical remains (because they are older than sixty years) they have low significance due to the following criteria:

- ξ These types of remains are abundant and occur throughout the larger project area.
- ξ These remains have little to offer in the sense of research, educational or tourism value.

6.1.3 The graves

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

6.2 Mitigating the heritage resources

It is possible that the scatter of metal working slag as well as some of the remains from the recent past and graves may be affected by the proposed

prospecting activity. Mitigation measures for these types and ranges of heritage resources therefore have to be determined.

6.2.1 Remains from the Late Iron Age/Historical Period

The scatter of metal working slag has low significance and therefore need no mitigation measures. These remains can be destroyed without acquiring a permit from the Limpopo Heritage Resources Agency (LIHRA).

6.2.3 Remains from the recent past

The remains from the recent past have low significance and therefore need no mitigation measures. These remains can be destroyed without acquiring a permit from the Limpopo Heritage Resources Agency (LIHRA).

6.2.3 Graves

If any of the graves are to be affected by the mining development project the following mitigation measures have to be applied, namely:

- ξ Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- ξ Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years.

Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

More inconspicuous graves may occur on the Akanani prospecting site. Some of these may be unconsciously exposed during development activities. Under such circumstances the development must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) contacted to obtain the necessary permits from LIHRA to remove the human remains.

7 CONCLUSION AND RECOMMENDATION

The Phase I HIA study on the Akanani Prospecting Shaft site revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- ξ Stone tools dating from the Stone Age which occur here and there along the banks of the Mohlosane River.
- ξ Remains dating from the Late Iron Age/Historical Period that consisted of a scatter of metal working slag.
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The significance of the heritage resources

The significance of the heritage resources that may be affected by the mining development project was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria. Mitigation measures are proposed for those heritage resources that may be affected by the proposed new development project.

The stone tools

The stone tools along the banks of the Moholosane River will not be affected by the proposed Akanani Prospecting Shaft.

Remains from the Late Iron Age/Historical Period

Remains from the Late Iron Age/Historical Period qualify as archaeological remains and are protected by Section 35 of the National Heritage Resources Act

(No 25 of 1999). These remains may be affected by the development project. The scatter of metal working slag has low significance when considering the following criteria:

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Remains from the recent past

The remains from the recent past have no significance any longer as they are not older than sixty years. Even if these remains qualify as historical remains (because they are older than sixty years) they have low significance due to the following criteria:

- ξ These types of remains are abundant and occur throughout the larger project area.
- ξ These remains have little to offer in the sense of research, educational or tourism value.

These remains may be affected by the development project.

The graves

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Mitigating the heritage resources

It is possible that the scatter of metal working slag as well as some of the remains from the recent past and graves may be affected by the proposed prospecting activity. Mitigation measures for these types and ranges of heritage resources therefore have to be determined.

Remains from the Late Iron Age/Historical Period

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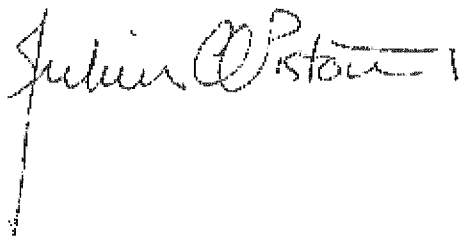
Graves

If any of the graves are to be affected by the mining development project the following mitigation measures have to be applied, namely:

- ξ Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
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More inconspicuous graves may occur on the Akanani prospecting site. Some of these may be unconsciously exposed during development activities. Under such circumstances the development must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) contacted to obtain the necessary permits from LIHRA to remove the human remains.

A handwritten signature in black ink, appearing to read 'Julius CC Pistorius'. The signature is written in a cursive style with a long horizontal stroke at the end.

DR JULIUS CC PISTORIUS
Archaeologist &
Heritage Management Consultant
Member ASAPA

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Appendix B.7
Visual Assessment for the proposed Lonmin Akanani Exploration
Shaft; Newtown Landscape Architects

Visual Assessment

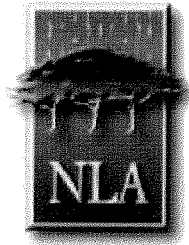


Proposed
Lommin Akanani Exploration
Shaft

**Proposed Lonmin Akanani Exploration Shaft,
Mokopane (Potgietersrus),
Limpopo Province**

**Specialist Study Report
Visual Assessment,
Professional Opinion**

Submitted to:
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NLA Project No: 956/E08P
Report Revision No: Draft 0
Date Issued: 18 July 2008
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Reference: Akanani VIA

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GLOSSARY OF TERMS

Landscape Character

The individual elements that make up the landscape, including prominent or eye-catching features such as hills, valleys, woods, trees, water bodies, buildings and roads. They are generally quantifiable and can be easily described.

Sense of Place

Sense of place is the unique value that is allocated to a specific place or area through the cognitive experience of the user or viewer.

Aesthetic value

Aesthetic value is the emotional response derived from the experience of the environment with its particular natural and cultural attributes. The response can be either to visual or non-visual elements and can embrace sound, smell and any other factor having a strong impact on human thoughts, feelings and attitudes (Ramsay 1993). Thus aesthetic value encompasses more than the seen view, visual quality or scenery, and includes atmosphere, landscape character and sense of place (Schapper 1993).

Visibility

The area/points from which project components will be visible.

Sensitive receptors

Sensitivity of visual receptors (viewers) to the proposed development.

Visual impact

Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity (Institute of Environmental Assessment & The landscape Institute 1996).

1. INTRODUCTION

1.1 Project Overview

Lonmin Platinum (Lonmin) intends to amend its approved Prospecting Permit to include the development of a prospecting shaft for bulk sampling purposes at its Akanani Mine prospecting area north of Mokopane in the Limpopo Province. This prospecting shaft is required to determine the metallurgical properties of the Platreef at the Akanani Project area.

As part of the Environmental Impact Assessment process, Newtown Landscape Architects (NLA) was commissioned by Golder Associates Africa (Pty) Ltd to give a professional opinion on the visual impact of the proposed Lonmin Akanani Exploration Shaft.

1.2 Project Location

The proposed site for the Akanani Lonmin Exploration Shaft is approximately 25km north of Mokopane (Potgietersrust), Mogalakwena Local Municipality, Limpopo Province. The broader prospecting area consists of 2 farms, namely Zwartfontein 814 LR and Moordkopje 813 LR, which together cover an area of about 4 000 hectares. The prospecting shaft site will be approximately 2 ha in extent. The site is situated between the small villages Sekimming, Hans and Masenya. The site is surrounded by Anglo Platinum's Potgietersrust Plantinum Mine to the west and the south of the site. Refer to Figure 1: Locality.

1.3 Terms of Reference

- Conduct a field survey to study the area to the extent that a professional opinion can be given of the potential impact on the visual environment and the sense of place of the proposed mine;
- Describe the visual resource (i.e. receiving environment);
- Describe and map the landscape character of the study area. The description of the landscape will focus on the nature and character of the landscape rather than the response of a viewer.
- Provide a professional opinion on the potential visual issues that could arise due to the proposed project.

2 AIM OF THE SCOPING STUDY

The aims of the scoping study are to determine the aesthetic value of the visual resource (receiving environment) and to identify issues that need to be addressed in the impact assessment phase.

3 APPROACH AND METHODOLOGY

3.1 Approach

To evaluate the visual impact of the exploration shaft on the landscape the scenic quality (visual resource) first needs to be determined. Data collected during a site visit allowed for a comprehensive description and valuation of the receiving environment and also for issues to be identified that must be addressed in the impact assessment phase.

3.2 Methodology

The following method was used for the scoping phase of the project.

- **Site visit** - a field survey was undertaken and the study area scrutinized to the extent that the receiving environment could be documented and adequately described;
- **General landscape characterization** - landscape character types were mapped using field survey and physiographic data (from 1:50 000 maps). The description of the landscape focused on the nature of the land rather than the response of a viewer;
- **Scenic quality** - using the landscape character types, sense of place and studies for perceptual psychology, the aesthetic value of study area (scenic quality) was determined.
- **Sense of place** of the study area was evaluated as to the uniqueness and distinctiveness or otherwise of the landscape. The primary informant of these qualities is the spatial form and character of the landscape together with the cultural transformations associated with the historic/current use of the land.
- **Project components** - the physical characteristics of the project components were described and illustrated.
- **Visual issues** - based on the work as described above visual issues were identified that should be addressed in the impact assessment phase.

4 DESCRIPTION OF THE PROJECT

4.1 Proposed Project

Lonmin Platinum (Lonmin) intends to amend its approved Prospecting Permit to include the development of a prospecting shaft for bulk sampling purposes at its Akanani Mine prospecting area north of Mokopane in the Limpopo Province. This prospecting shaft is required to determine the metallurgical properties of the Platreef at the Akanani Project area. A bulk sample of 3 000 tons for testing purposes will be obtained by sinking the single prospecting shaft in the area over a three year period.

The above ground prospecting shaft infrastructure will be developed within the project footprint of approximately 2 ha (please refer to Figure 3) It will comprise of the following:

- Shaft infrastructure including winders,
- a batch plant,
- a temporary ore storage area;
- a cooling tower
- an electrical substation
- a temporary waste rock stockpile
- Offices, workshops, stores, first aid facilities and change houses will be provided in temporary containers

Temporary access roads will be developed to the prospecting shaft site.

The proposed project will also include the creation of a temporary waste rock stockpile. The stockpile will cover an area of about 0.5 hectares. Should the project not be viable, the waste rock on surface will be dumped back into the shaft and a concrete slab will be constructed in the mouth of the shaft. The rest of the area will then be rehabilitated to its former state and in accordance with best practice.

5 THE ENVIRONMENTAL SETTING

5.1 Land use

The mine is located in an area where platinum mining and associated activities are prevalent (refer to Figure 4 View 1 and Figure 8 View 7) such as ...Anglo Platinum's Potgietersrus Platinum Mine and which occur to the south and east of the site. The Mohlosane River is approximately 300m to the north of the site.

The majority of residential properties in the immediate vicinity of the site are located in Sikemming, Hans and Masenya villages to the north (refer to Figure 6 & 7). The proposed site was previously used for agricultural activities and surrounding properties are still being used for agricultural activities by people from the villages.

Access to the proposed site is provided by local (mine and village) roads, which in return are connected to the N11 and R518.

5.2 Landscape character

Landscape character types are landscape units derived from the regional physiographic and cultural data on 1:50 000 maps and information gathered on the site visit. Dominant landform/land use features (e.g., hills, rolling plains, valleys and urban areas) of similar physiographic and visual characteristics typically define landscape character types.

The general area in the vicinity of the proposed shaft is characterized by a rolling topography with flat expansive plains and surrounding hills. Immediately north of the site is the Mohlosane River. Figure 1 illustrates the general lay of the land and the viewing point locations of the photographs illustrated in the report. The panoramas in Figure 1 illustrate the nature of the landscape.

According to Mucina & Rutherford (2006) the vegetation of the flat expansive areas is be classified as Makhado Sweet Bushveld, which is characterised by slightly to moderate undulating plains sloping generally down to the north, with some hills in the southwest. The vegetation consists of short and shrubby bushveld with a poorly developed grass layer. As previously mentioned the area was used agricultural activities as well as for housing. The proposed site is surrounded to the north and west by villages.

Mining infrastructure, including processing plants, tailings dams and rock dumps, dominate the terrain to the east and south of the site.

5.3 Visual resource

Landscapes with greater diversity or containing "distinctive" features are classified as having a higher scenic value than landscapes with low diversity, few distinctive features, or more "common" elements. Generally, the greater the diversity of form, line, texture, and colour in a landscape unit or area, the greater the potential for high scenic value. Scenic quality classifications are:

- High - distinctive landscape and strong sense of place
- Moderate - common landscape
- Low - minimal landscape and weak sense of place

The landscape as described in Section 5.2 can be divided into five basic landscape character types each with its own set of physical, visual and aesthetic characteristics.

Scenic quality ratings (using the scenic quality rating criteria described in Appendix A) were assigned to each of the homogeneous landscape units defined in Figure 2: Land Types.

The highest value is assigned to the mountains and hills, followed by rivers and streams. The combination of natural features, characteristic of these landscape units, stands out within the context of the region and evokes a distinct and unique image that produces a strong sense of place. However, the remainder of the study area has been compromised by the presence of villages and associated infrastructure as well as existing mines.

The noticeable presence of mining activities in the study area detracts from the rural / natural quality of the landscape. Therefore the scenic quality of the landscape (i.e. its value as a visual resource), is rated moderate to low (refer also to Appendix A).

Based on the discussion in this section and the criteria given in Appendix A, scenic quality value for each of the landscape types is rated in Table 1 below.

Table 1: Value of the Visual Resource - Scenic Quality

<p>High Mountains and Hills, Rivers and Streams</p>	<p>Moderate Surrounding natural Areas, Villages</p>	<p>Low Mining Infrastructure, Power Lines</p>
<p>This landscape type is considered to have a <i>high</i> value because it is a: Distinct landscape that exhibits a very positive character with valued features that combine to give the experience of unity, richness and harmony. It is a landscape that may be considered to be of particular importance to conserve and which has a strong sense of place. It may be sensitive to change in general and may be detrimentally affected if change is inappropriately dealt with.</p>	<p>This landscape type is considered to have a <i>moderate</i> value because it is a: Common landscape that exhibits some positive character but which has evidence of alteration /degradation/erosion of features resulting in areas of more mixed character. It is potentially sensitive to change in general and change may be detrimental if inappropriately dealt with but change may not require special or particular attention to detail.</p>	<p>This landscape type is considered to have a <i>low</i> value because it is a: Minimal landscape generally negative in character with few, if any, valued features. Scope for positive enhancement could occur.</p>

5.4 Views

The existing open structure of the landscape, with its short shrubs and trees, is unable to absorb the existing mine structures such as the tailings dam, rock dumps, existing shafts and drills. However, the new shaft and associated infrastructure will form part of the existing mining structures and will therefore blend with structures which form a backdrop to views from the villages and local roads. Refer to Figure – waiting for image

5.4.1 Sensitive visual receptors

When visual intrusion, visibility and visual exposure are incorporated, and qualified by sensitivity criteria (visual receptors) the magnitude of the impact of the development can be determined.

The sensitivity of visual receptors and views will be depended on:

- The location and context of the viewpoint;
- The expectations and occupation or activity of the receptor;
- The importance of the view (which may be determined with respect to its popularity or numbers of people affected, its appearance in guidebooks, on tourist maps, and in the facilities provided for its enjoyment and references to it in literature or art).

The most sensitive receptors may include:

- Users of all outdoor recreational facilities including public rights of way, whose intention or interest may be focused on the landscape;
- Communities where the development results in changes in the landscape setting or valued views enjoyed by the community;
- Occupiers of residential properties with views affected by the development.

Other receptors include:

- People engaged in outdoor sport or recreation (other than appreciation of the landscape, as in landscapes of acknowledged importance or value);
- People travelling through or past the affected landscape in cars, on trains or other transport routes;
- People at their place of work.

Viewers in the villages would typically be more sensitive to views of the proposed shaft and associated structures since views from a residence are often frequent and of long duration. The current view from the villages is however already spoiled by the existing rock dumps and other mining infrastructure in the area. The villagers would have been regarded as highly sensitivity receptors but because their view is already compromised, they are likely to be less sensitive to the introduction of new mining infrastructure and are considered to be moderately sensitive.

5.4.2 Non sensitive visual receptors

Non sensitive visual receptors are typically people living and working in the surrounding mining areas as well as people using local roads in the study area. The roads are considered as non sensitive viewing locations as people driving along these roads are already exposed to the mining activities. It should also be kept in mind that the existing mining infrastructure is visible from most of the local roads within the study area.

Table 2: Sensitivity of Visual Receptors

High	Moderate Views from the Villages	Low Views from work, roads
Users of all outdoor recreational facilities including public rights of way (tourist routes), whose intention or interest may be focused on the landscape; Communities where the development results in changes in the landscape setting or valued views enjoyed by the community; Occupiers of residential properties with views affected by the development.	People engaged in outdoor sport or recreation (other than appreciation of the landscape, as in landscapes of acknowledged importance or value); People travelling through or past the affected landscape in cars, on trains or other transport routes;	The least sensitive receptors are likely to be people at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who therefore may be potentially less susceptible to changes in the view (i.e. office and industrial areas). Roads going through urban and industrial areas

6 VISUAL ISSUES

To evaluate the impacts of the proposed exploration shaft and associated infrastructure the visual condition of the existing landscape, which would be affected by the proposed shaft has been described and rated as being of moderate to low for the study area.

It is anticipated that visual impacts would result from the construction, operation, and maintenance of the proposed shaft and its associated infrastructure. Specifically, impacts would result from the proposed project by being seen from sensitive viewpoints and from the effects it would have on the scenic value of the landscape.

In the case of the proposed exploration shaft and its associated infrastructure, the views from the villages have already been influenced negatively by the existing mine. The shaft is proposed to be constructed between an existing rock dump and the villages. It would therefore bring little change to the landscape as when viewed from the villages it would be visually 'absorbed' by the rock dump which forms the background to these views.

The potential visual impact resulting from the construction and operation of the proposed exploration shaft and associated structures is therefore considered to be low (i.e. this landscape type is considered to have a *low* value because it is a: minimal landscape generally negative in character with few, if any, valued features. Scope for positive enhancement could occur). The shaft would however have a cumulative impact on the visual environment but of low significances.

If the project expands to include full scale mining the anticipated visual impacts on sensitive receptors would be direct, adverse, and long-term and must therefore be addressed in the assessment phase of the project. The following issues should be considered when the project expands to a full scale mine:

- Establish public concern for scenic quality of the study area and their perception of what constitutes a sensitive viewing site;
- Determine the visibility of the exploration shaft and associated structures by conducting viewshed analyses from sensitive viewing areas;
- Determine visual intrusion (contrast) of the proposed shaft and associated structures by simulating its physical appearance from sensitive viewing areas;
- Rate the impact of the shaft and associated structures on views from sensitive viewing areas;
- Rate the impact on the scenic quality and sense of place of the study area;
- Establish management measures (mitigation) to reduce the impact of the shaft and associated structures where appropriate.

NLA

7 REFERENCES

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8 Appendix A:

Determining the Value of a Visual Resource

In order to reach an understanding of the effect of development on a landscape resource, it is necessary to consider the different aspects of the landscape as follows:

Landscape Elements and Character

The individual elements that make up the landscape, including prominent or eye-catching features such as hills, valleys, woods, trees, water bodies, buildings and roads. They are generally quantifiable and can be easily described.

Landscape character is the description of pattern, resulting from particular combinations of natural (physical and biological) and cultural (land use) factors and how people perceive these. The visual dimension of the landscape is a reflection of the way in which these factors create repetitive groupings and interact to create areas that have a specific visual identity. The process of landscape character assessment can increase appreciation of what makes the landscape distinctive and what is important about an area. The description of landscape character thus focuses on the *nature of the land*, rather than the response of a viewer.

Landscape Quality and Aesthetic Value

Studies for perceptual psychology have shown human preference for landscapes with a higher visual complexity particularly in scenes with water, over homogeneous areas. On the basis of contemporary research landscape quality increases when:

- Topographic ruggedness and relative relief increase;
- Where water forms are present;
- Where diverse patterns of grasslands and trees occur;
- Where natural landscape increases and man-made landscape decreases;
- And where land use compatibility increases and land use edge diversity decreases (Crawford 1994).

Aesthetic value is the emotional response derived from the experience of the environment with its particular natural and cultural attributes. The response can be either to visual or non-visual elements and can embrace sound, smell and any other factor having a strong impact on human thoughts, feelings and attitudes (Ramsay 1993). Thus aesthetic value encompasses more than the seen view, visual quality or scenery, and includes atmosphere, landscape character and sense of place (Schapper 1993). Refer also to Appendix A for further elaboration.

Aesthetic appeal (value) is considered high when the following are present (Ramsay 1993):

- *Abstract qualities*: such as the presence of vivid, distinguished, uncommon or rare features or abstract attributes;
- *Evocative responses*: the ability of the landscape to evoke particularly strong responses in community members or visitors;
- *Meanings*: the existence of a long-standing special meaning to a particular group of people or the ability of the landscape to convey special meanings to viewers in general;
- *Landmark quality*: a particular feature that stands out and is recognised by the broader community.

Sense of Place

Central to the concept of a sense of place is that the place requires uniqueness and distinctiveness. The primary informant of these qualities is the spatial form and character of the natural landscape together with the cultural transformations and traditions associated with historic use and habitation.

According to Lynch (1992) sense of place "is the extent to which a person can recognize or recall a place as being distinct from other places - as having a vivid, or unique, or at least particular, character of its own". Sense of place is the unique value that is allocated to a specific place or area through the cognitive experience of the user or viewer. In some cases these values allocated to the place are similar for a wide spectrum of users or viewers, giving the place a universally recognized and therefore, strong sense of place.

Scenic Quality of Visual Resource

In determining the scenic quality of the visual resource both the objective and the subjective or aesthetic factors associated with the landscape are considered. Many landscapes can be said to have a strong sense of place, regardless of whether they are considered to be scenically beautiful but where landscape quality, aesthetic value and a strong sense of place coincide - the visual resource or perceived value of the landscape is considered to be very high.

When considering both objective and subjective factors associated with the landscape there is a balance between landscape character and individual landscape features and elements, which would result in the values as follows:

Value of Visual Resource

After The Landscape Institute with the Institute of Environmental Management and Assessment (2002)

High (Distinct)	Moderate (Common)	Low (Minimal)
Areas that exhibit a very positive character with valued features that combine to give the experience of unity, richness and harmony. These are landscapes that may be considered to be of particular importance to conserve and which may be sensitive change in general and which may be detrimental if change is inappropriately dealt with.	Areas that exhibit positive character but which may have evidence of alteration to /degradation/erosion of features resulting in areas of more mixed character. Potentially sensitive to change in general; again change may be detrimental if inappropriately dealt with but it may not require special or particular attention to detail.	Areas generally negative in character with few, if any, valued features. Scope for positive enhancement frequently occurs.

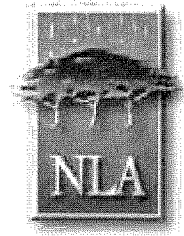
9 Appendix B:

Curriculum Vitae of Authors

Proposed PTM WBJV Platinum Mine
Newtown Landscape Architects cc

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Visual Impact Assessment – Scoping Report Rev 0
October 2007



Since 1994

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Graham is a landscape architect with twenty-nine years experience. He has worked in South Africa and Canada and has valuable expertise in the practice of landscape architecture, urban design and environmental planning. He is also a senior lecturer, teaching urban design and landscape architecture at post and under graduate levels at the University of Pretoria. He also specializes in Visual Impact Assessments.

- EXPERIENCE:** **NEWTOWN LANDSCAPE ARCHITECTS cc. Member**
Current Responsible for project management, landscape design, urban design, and visual impact assessment.
Senior Lecturer: Department of Architecture, University of Pretoria.
- 1991 - 1994 **GRAHAM A YOUNG LANDSCAPE ARCHITECT - Sole proprietor**
1988 - 1989 Designed major transit and CBD based urban design schemes; designed commercial and recreational landscapes and a regional urban park; participated in inter-disciplinary consulting teams that produced master plans for various beachfront areas in KwaZulu Natal and a mountain resort in the Drakensberg.
- 1989 - 1991 **CANADA - Free Lance**
Designed golf courses and carried out golf course feasibility studies (Robert Heaslip and Associates); developed landscape site plans and an end-use plan for an abandoned mine (du Toit, Allsopp and Hillier); conducted a visual analysis of a proposed landfill site. .
- 1980 - 1988 **KDM (FORMERLY DAMES AND MOORE) - Started as a Senior Landscape Architect and was appointed Partner in charge of Landscape Architecture and Environmental Planning in 1984.** Designed commercial, corporate and urban landscapes; completed landscape site plans; developed end-use master plans for urban parks, college and technikon sites; carried out ecological planning studies for factories, motorways and a railway line.
- 1978 - 1980 **DAYSON & DE VILLIERS - Staff Landscape Architect**
Designed various caravan parks; designed a recreation complex for a public resort; conducted a visual analysis for the recreation planning of Pilgrims Rest; and designed and supervised the installation of various private gardens.

AWARDS:

Proposed PTM WBJV Platinum Mine

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Visual Impact Assessment – Scoping Report Rev 0

Newtown Landscape Architects cc

October 2007

Institute of Landscape Architects Merit Awards:

Isivivane, Freedom Park: Presidential Award of Excellence Design (2005)

Information Kiosk, Freedom Park: Merit Award for Design (2005)

Moroka Park Precinct, Soweto: Merit Award for Design (2005)

Moroka – Mofola Open Space Framework, Soweto: Merit Award for Planning (2005)

Mpumalanga Provincial Government Complex: Presidential Award of Excellence (with KWP Landscape Architects for Design (2003)

Specialist Impact Report: Visual Environment, Sibaya Resort and Entertainment World: Merit Award for Environmental Planning (1999);

Gillooly's Farm, Bedfordview (with Dayson and DeVilliers): Merit Award for Design;

COMPETITIONS:

Landscape Architecture Consultant on Project Phoenix Architectural Competition, Pretoria (1999): Winner;

Mpumalanga Legislature Buildings (1998): Commissioned;

Toyota Fountain (1985): First Prize - commissioned;

Bedfordview Bike/Walkway System - Van Buuren Road (1982): First Prize - commissioned;

Portland Cement Institute Display Park (1982): Second Prize

PROFESSIONAL:

Registered Landscape Architect – South African Council for Landscape Architectural Profession (2001);

Board of Control for Landscape Architects of South Africa (1987) – Vice Chairman 1988 to 1989;

Professional Member - Institute of Landscape Architects Southern Africa (1982) – President 1986 - 1988;

Member Planning Professions Board 1987 to 1989;

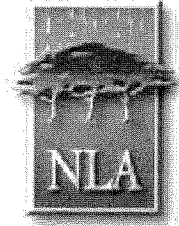
Member International Association of Impact Assessment;

EDUCATION:

Bachelor of Landscape Architecture, 1978, (BLArch), University of Toronto, Canada;

Completing a master's degree in Landscape Architecture, University of Pretoria; Thesis: Visual Impact Assessment;

Senior Lecturer - Department of Architecture, University of Pretoria.



Since 1994

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Liana is a landscape architect with seven years experience. She has mainly worked in South Africa and has valuable expertise in the practice of landscape architecture, cultural and historic landscapes and environmental planning. She currently specializes in Visual Impact Assessments. She is also a lecture at the University of Pretoria, teaching Design and History of the Environment at first and second year level.

EXPERIENCE:

Present:

Consultant: NEWTOWN LANDSCAPE ARCHITECTS cc.

2004 – 2008

Visual Impact Assessments for a number of developments, including:

- Power Infrastructure - Power lines, Power Stations and Sub stations within the North West, Limpopo and Free State Provinces.
- Mining - Platinum, Coal, Chrome & Gold Mines with related Infrastructure within Gauteng, Mpumalanga and North West Provinces.
- Housing Developments - Township, Cluster and apartments in Gauteng and Kwa-Zulu Natal
- Infrastructural developments - Sport stadiums, Department of Foreign Affairs Headquarters

Developed a Conservation Management Plan for the Union Buildings Estate. Responsible for Heritage Audit of the Estate, including research into history and layout of the gardens. Included a Heritage Management Plan for the Estate.

2008

Lecturer: UNIVERSITY OF PRETORIA

First Year Design

History of the Environment 224 & 120

2005 – 2007

Part-Time Lecturer: UNIVERSITY OF PRETORIA

First Year Design

History of the Environment 120, 224 & 210

Act as external examiner during final year design examinations

Act as external examiner for History of the Environment 120

2004 – 2007

Consultant: CULTMATRIX cc.

Responsible for the archival research and database development of all buildings, design and movables contained within significant historical governmental residences and estates.

- 2004 – 2006 *Consultant: ECOCONSULT cc.*
 Assist in developing Rehabilitation and Management Plans for granite quarries north of Pretoria and Sekukuneland. Extensive archaeological sites were found on sites and had to be incorporated in end use plans.
 Visual Impact Assessments for Townships and Tourist Developments.
- 2002 – 2005 *Consultant: STRATEGIC ENVIRONMENTAL FOCUS cc.*
 Responsible for Phase 3b of the North West Biodiversity Site Inventory and Database Development. This included the research and assessment of all socially important Floral and Faunal Species in the North West Province.
 Various heritage studies and assessments, including sites in Soweto, Groot Marico and around Tshwane.
 Visual Impact Assessments for Residential Estates, Outdoor Signage, Road Network upgrade around Menlyn Shopping Centre & N1 Highway upgrade.
 Production of landscape designs for various projects, most notably Blue IQ developments such as the Automotive Supplier Park. This also included all construction documentation and site supervision.
- 2000 – 2002 *Consultant: ENVIRONMENTAL POTENTIAL ATLAS OF SOUTH AFRICA*
 Responsible for researching Cultural and Historical Heritage Sites in Pondoland in the Eastern Cape. This comprised of desktop surveys of existing information and intensive fieldwork for capturing sites according to Section 3 of the National Heritage Resources Act No. 25 of 1999. The information was then captured in the ENPAT GIS Database.
 Produced promotional posters promoting the Cultural Heritage Databases of Enpat.
- 1999 – 2002 *Landscape Assistant: ATLAND LANDSCAPE ARCHITECTS*
 Responsible for cultural and historical research on a number of projects, the most prominent the development of the Gongola Conservancy in the Natal Midlands.
 Master plan and Sketch plan designs for the Gongola Conservancy. Tasks included the conceptual and detail development of different themed camps within the conservancy, drawing from the heritage research completed.
 Assisted with the compilation of Environmental Impact Assessments and Environmental Management Plans.
- 1999 – 2002 *Landscape Assistant: NEWTOWN LANDSCAPE ARCHITECTS cc.*
 Hardscape design, including the development of the National Union of Mineworkers Memorial Garden at their head office in Johannesburg.
 General Project administration and documentation including Bill of Quantities and Plant Lists.
 Responsible for all rendering and presentation drawings for Promotional purposes

PROFESSIONAL:

Registered Landscape Architect – South African Council for Landscape Architectural Profession (2006);
 Board Member – Tshwane Building Heritage Association (2005 – 2007)
 Member - Van Riebeeck Society
 Member - South African Archaeological Society
 Member - Wildlife and Environment Society of South Africa

EDUCATION:

Bachelor of Landscape Architecture, 2000, (BLArch), University of Pretoria.
 Currently completing Masters Degree in Anthropology: Cultural Landscape Thesis: *Tangible and Intangible Landscapes: An Anthropological Perspective based on two South African Landscapes.* University of South Africa.



Since 1994

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B.Sc Degree in Environmental Science from the University of North West, Potchefstroom Campus (2003). M.Sc Degree in Ecological Remediation and Sustainable Utilization from the University of North West, Potchefstroom Campus (2007). She is currently employed by Newtown Landscape Architects working on the following projects.

EXPERIENCE:

Environmentalist: Newtown Landscape Architects

Responsible for the environmental work, which includes Basic Assessments, Environmental Impact Assessments (Scoping & EIA), Environmental Management Plans (EMP), Environmental Auditing as well as Visual Impact Assessments.

Current Projects:

- Orchards Extension 49-53, Pretoria - Environmental Impact Assessment and Environmental Management Plan
- Crane Valley Estates, Johannesburg - Environmental Impact Assessment and Environmental Management Plan
- Tanganani, Diepsloot - Environmental Impact Assessment and Environmental Management Plan
- Blue Hills, Johannesburg - Environmental Management Plan and additional information reports for GDACE
- Glen Marais Ext 102 & 103, Kempton Park - Basic Assessment and Environmental Management Plan
- Lady Selbourne, Pretoria - Environmental Impact Assessment
- Road P71-1, Johannesburg - Scoping Report, Environmental Management Plan and Environmental Auditing.
- Dynamix House Billboard - VIA

EDUCATION:

- Oct 2007 Short course in Geographic Information Systems (GIS), Planet GIS
- Jan 2004 – April 2007 M.Sc Degree in Ecological Remediation and Sustainable Utilization, University of North West, Potchefstroom Campus.
- Jan 2001 – Dec 2003 B.Sc Degree in Environmental Science, University of Potchefstroom



Figure 1: LOCALITY: Lommin Akanani Exploration Shaft VIA

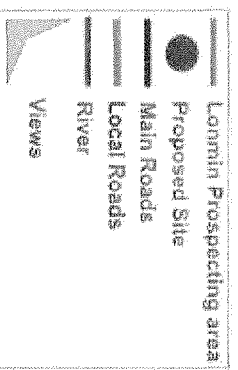
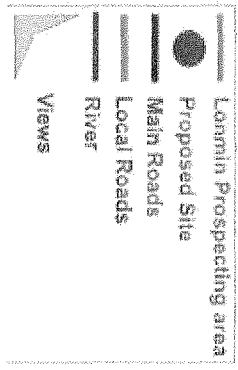
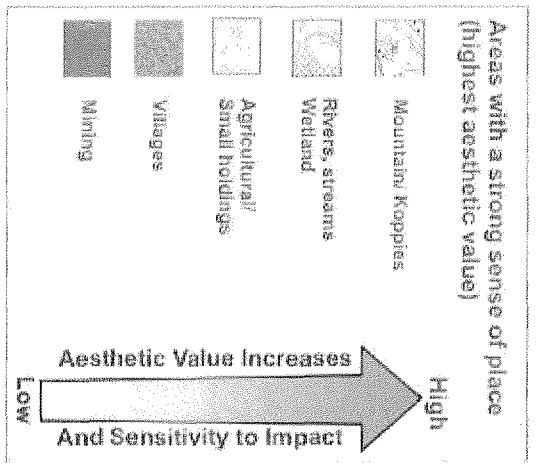
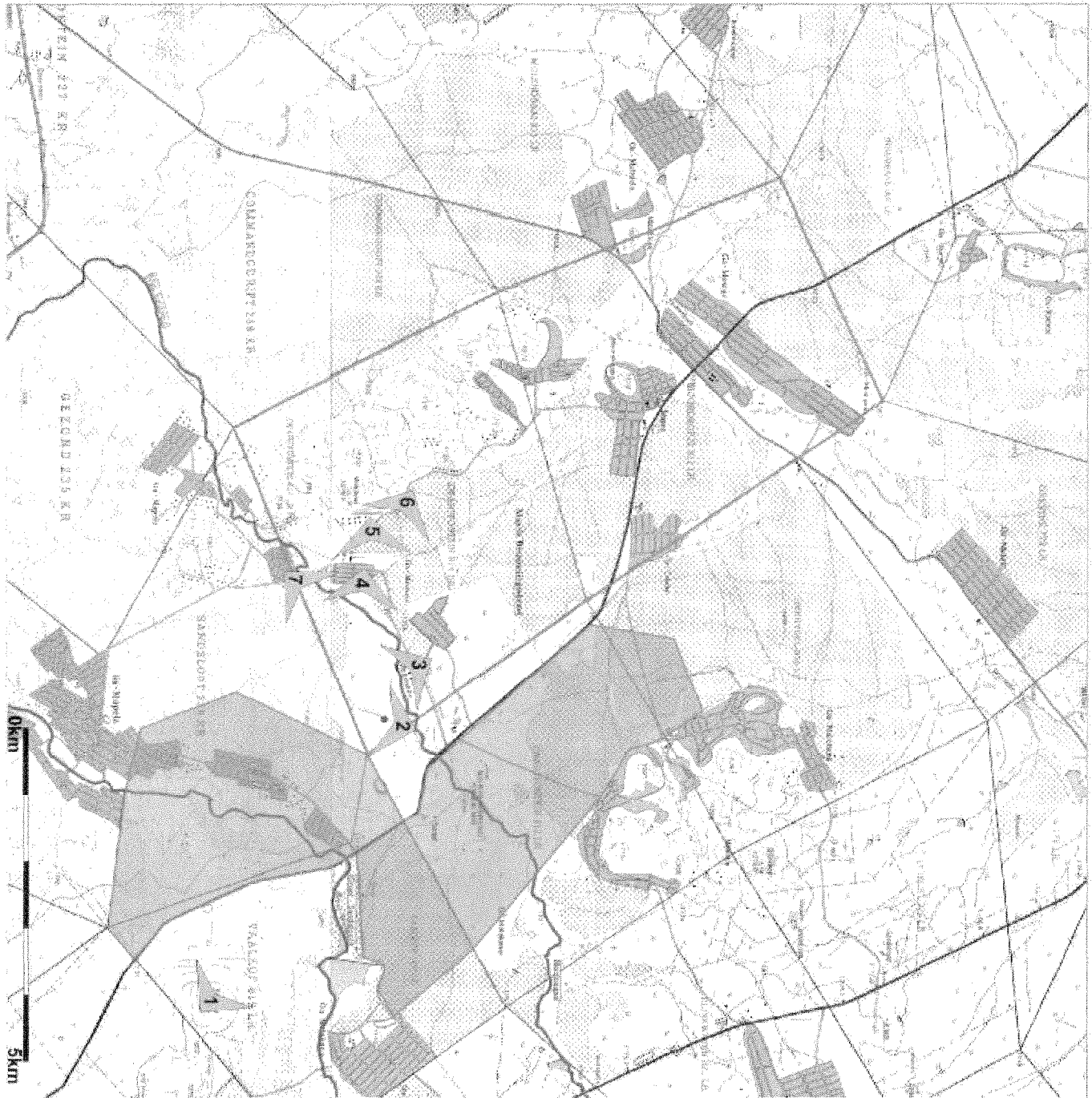
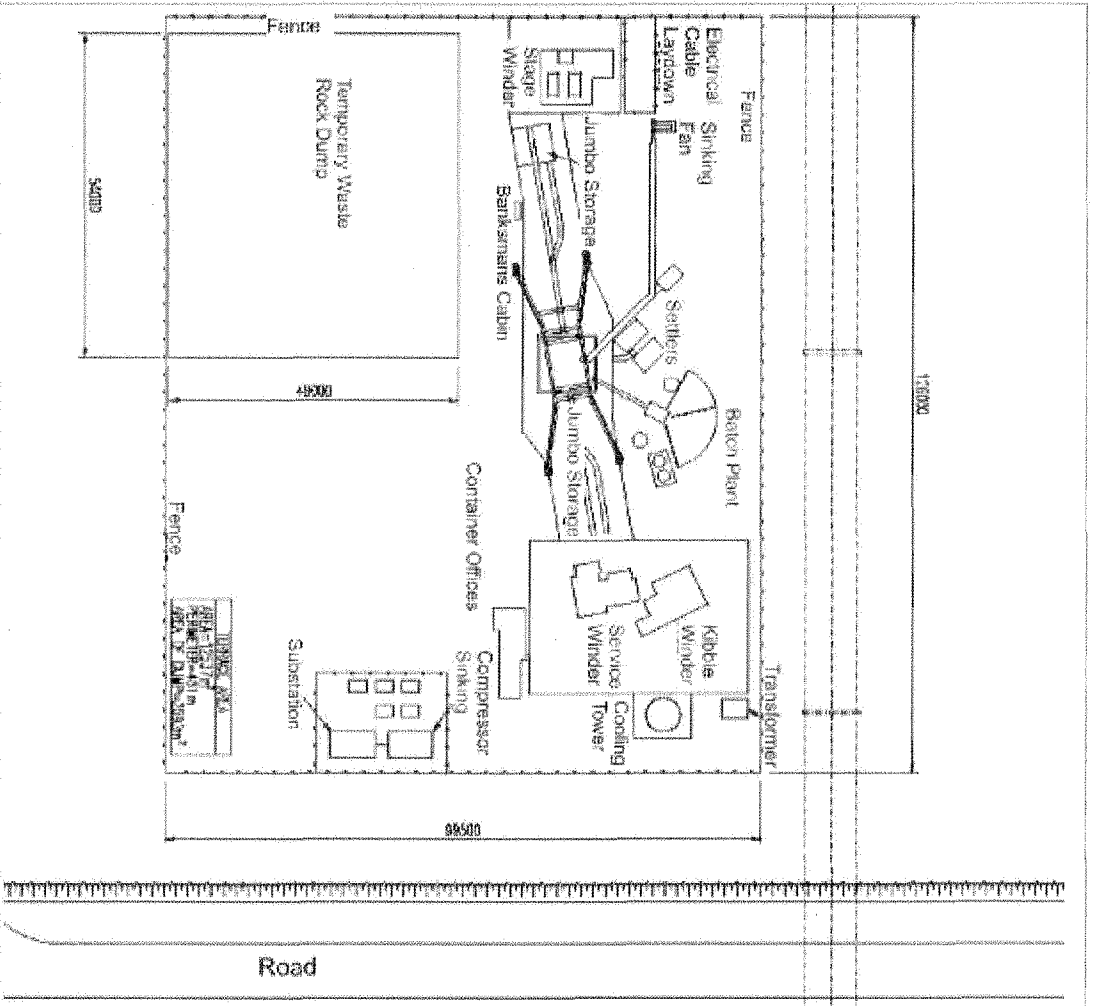


Figure 2: LAND TYPES: Lonmin Akanani Exploration Shaft VIA





Proposed layout

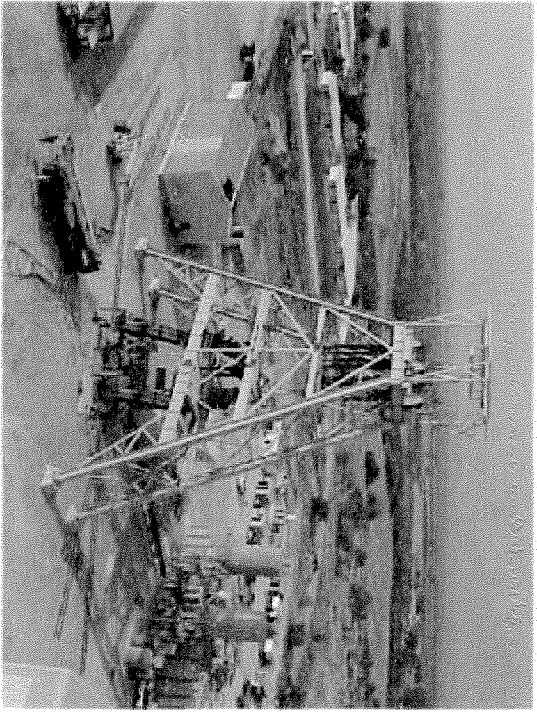
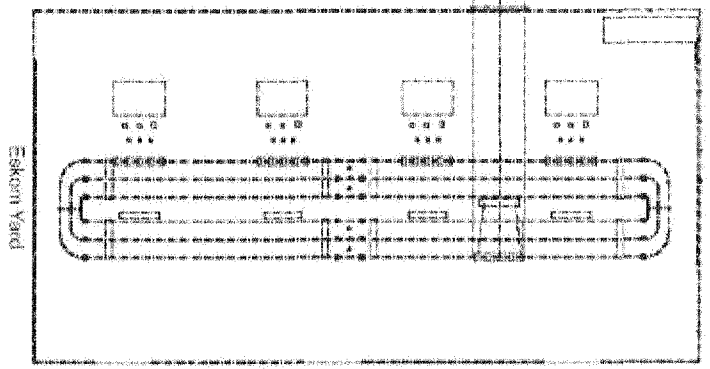


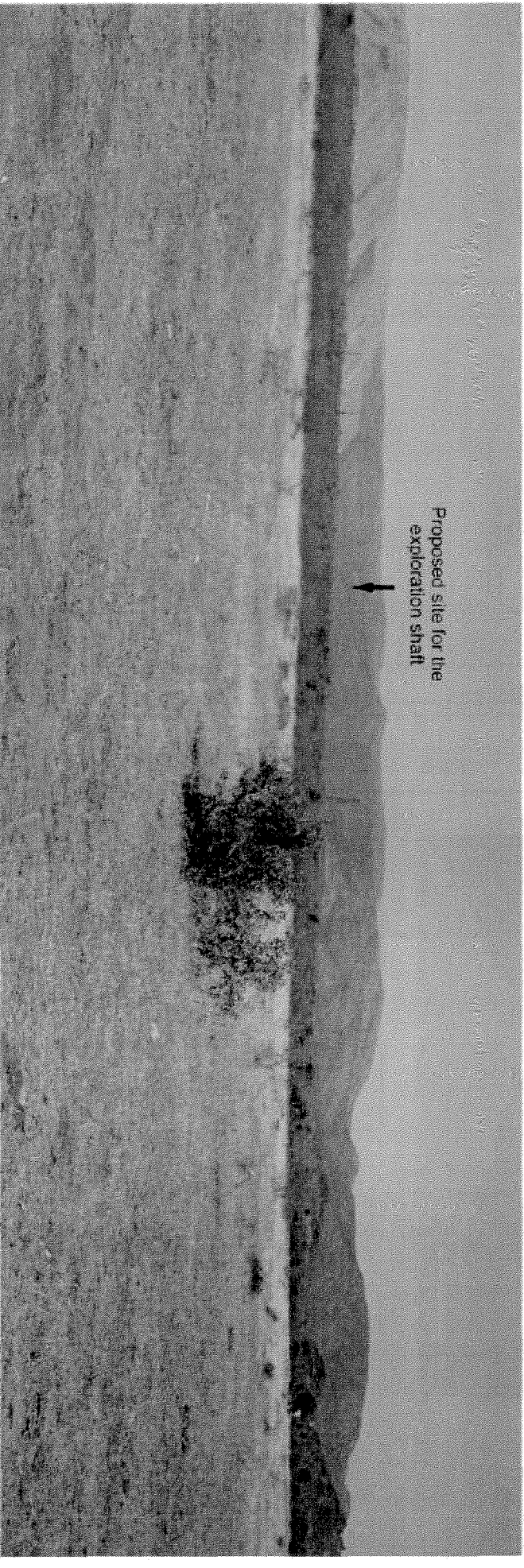
Illustration of the proposed shaft

Figure 3: LAYOUT: Lonmin Akanani Exploration Shaft VIA





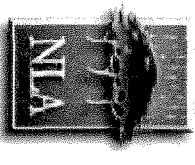
View 1: View of the mining activities surrounding the proposed site, taken from Vaalkop southeast of the proposed site

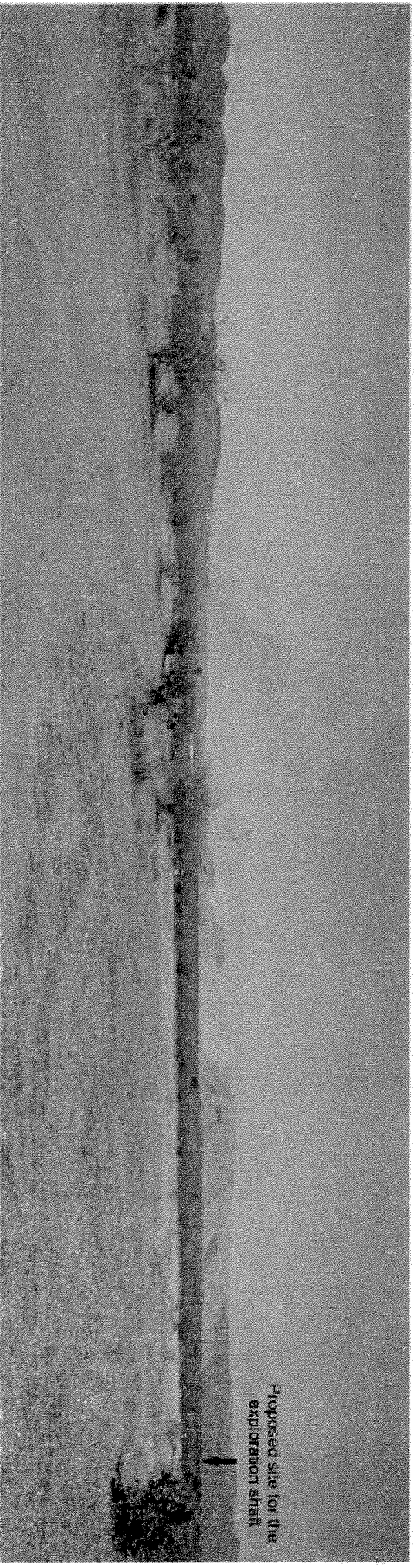


View 2: View of the proposed site, photo taken from the east of the proposed site

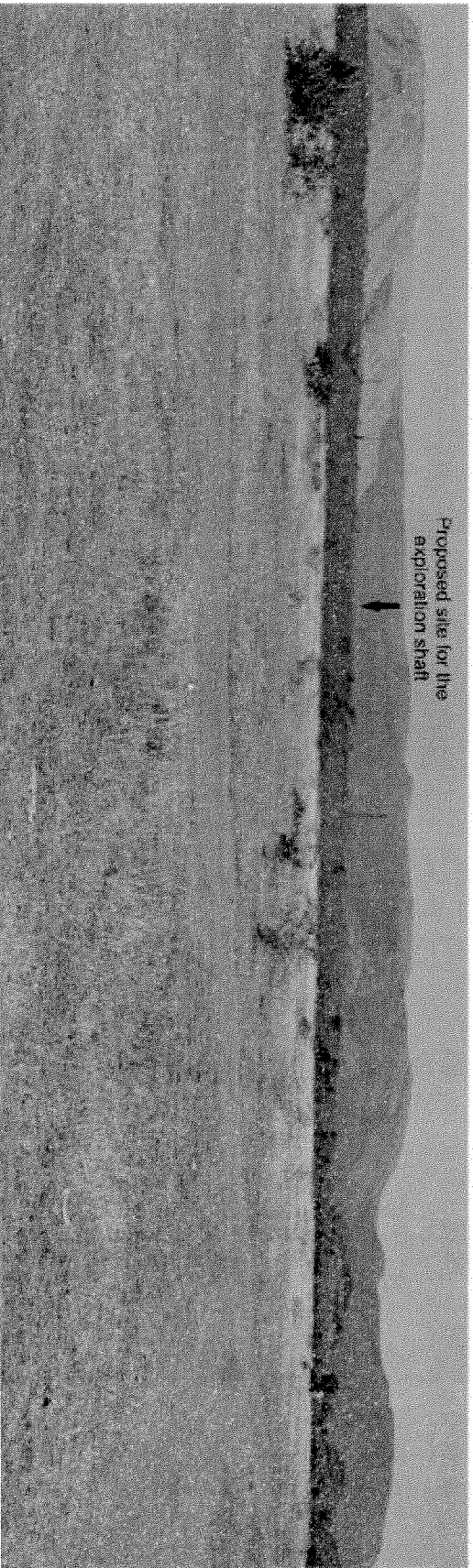
Refer to Figure 1 for location of view points

Figure 4: LANDSCAPE CHARACTER: Lonmin Akanani Exploration Shaft VIA





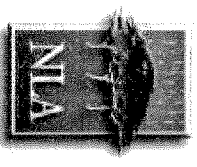
View 3a: View from Skemming (Village), northwest of the proposed site

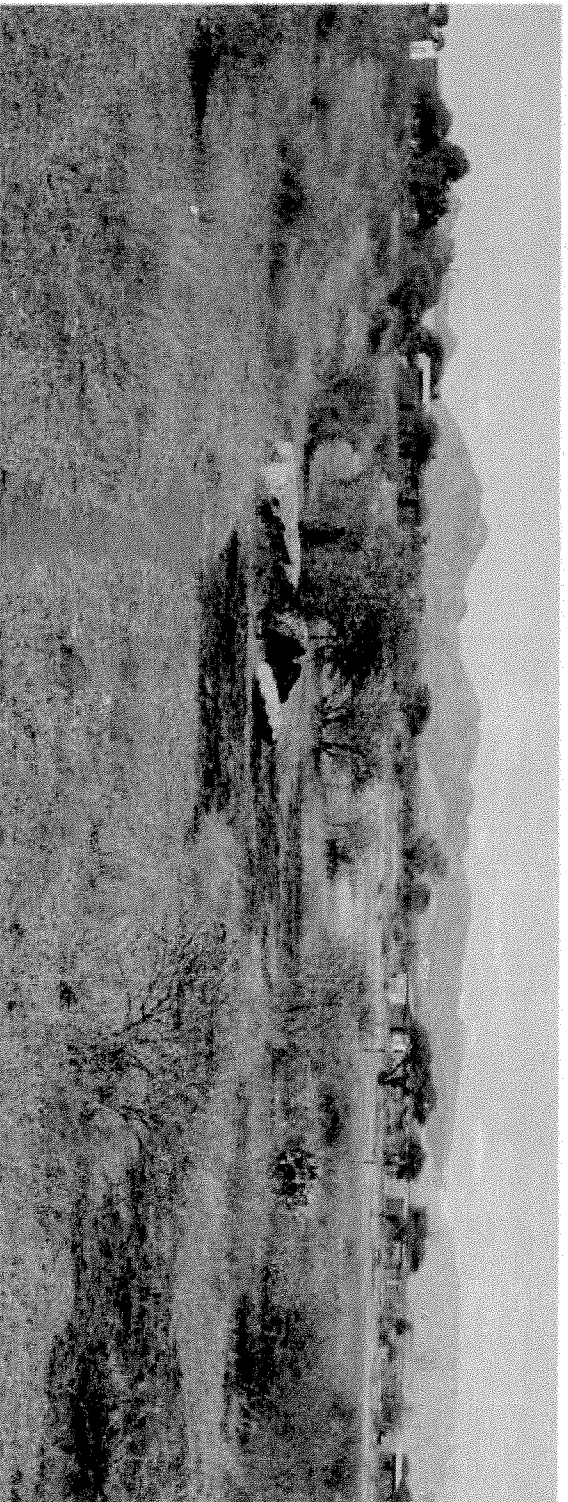


View 3b: View from Skemming (Village), northwest of the proposed site

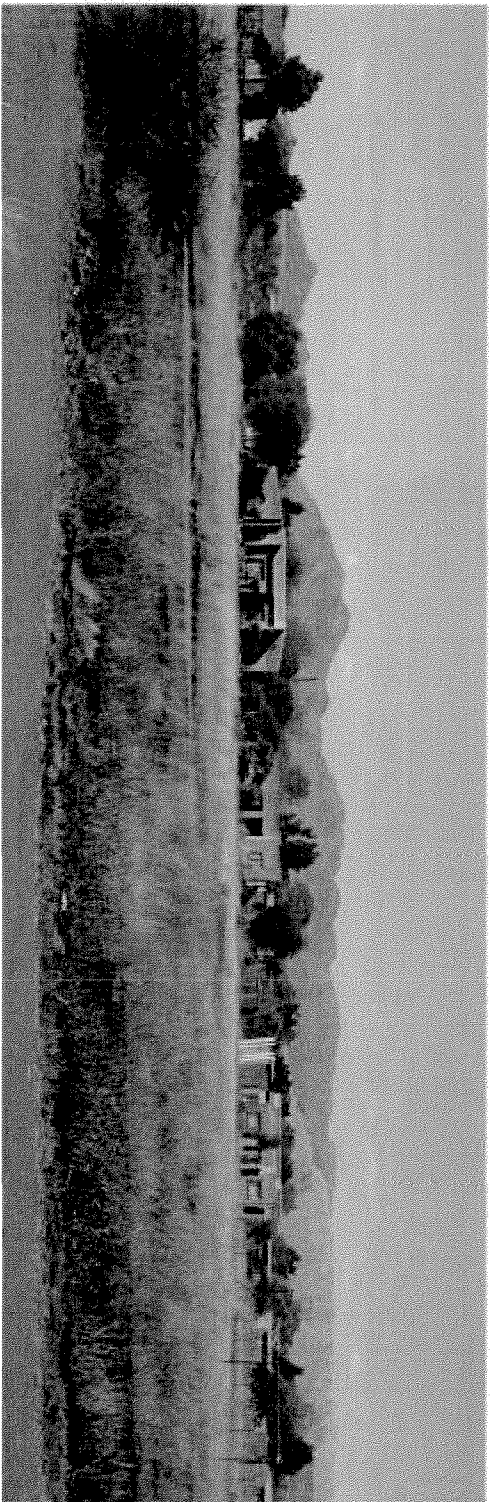
Refer to Figure 1 for location of view points

Figure 5: LANDSCAPE CHARACTER: Lonmin Akanani Exploration Shaft VIA





View 4a: View from Hans (Village), west of the proposed site



View 4b: View from Hans (Village), west of the proposed site

Refer to Figure 1 for location of view points.

Figure 6: LANDSCAPE CHARACTER: Lonmin Akanani Exploration Shaft VIA





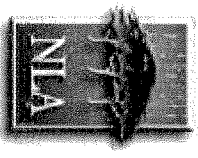
View 5: View from one of the local roads northwest of the proposed site

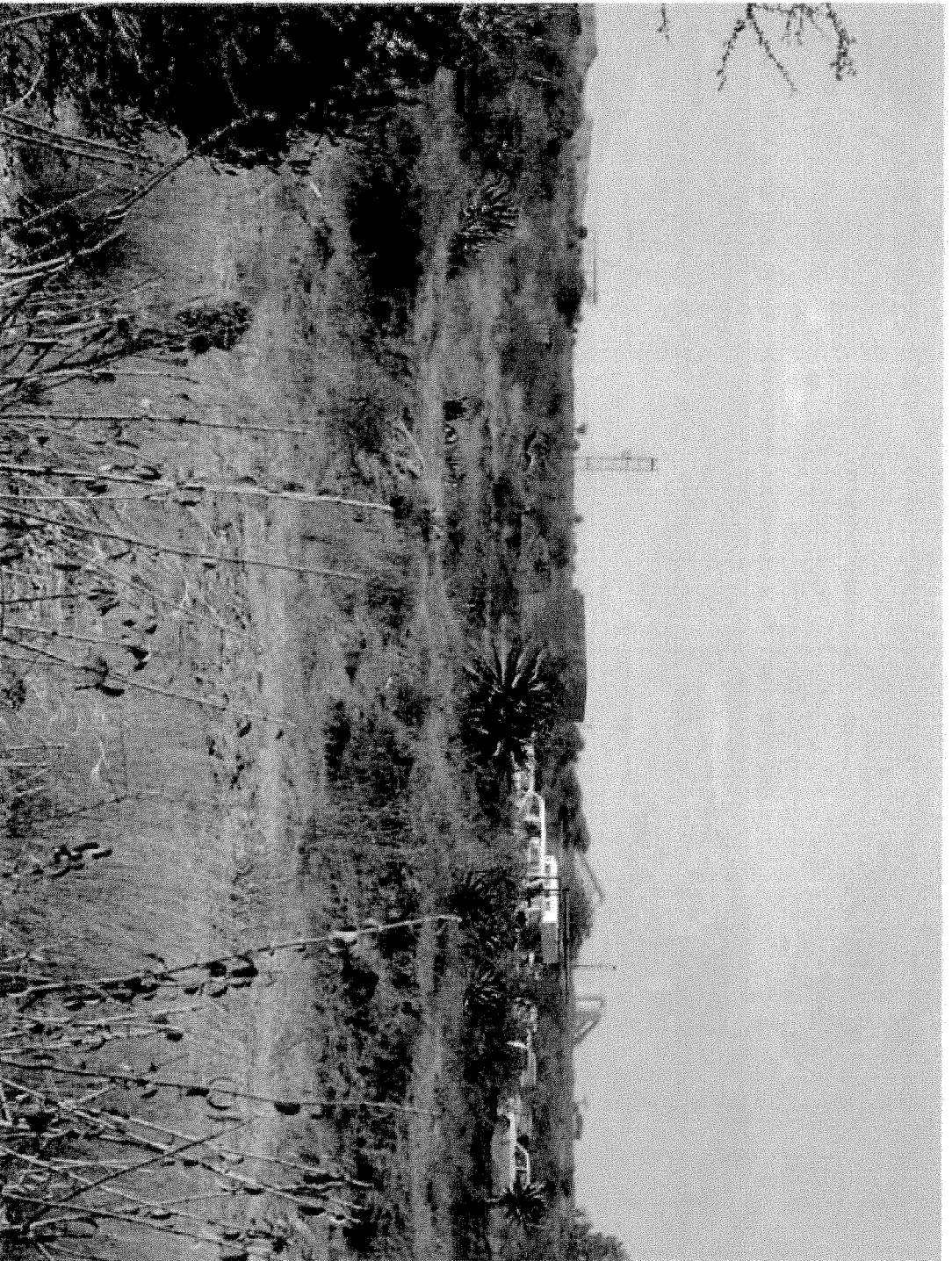


View 6: View from one of the local roads northwest of the proposed site

Refer to Figure 1 for location of view points

Figure 7: LANDSCAPE CHARACTER: Lonmin Akanani Exploration Shaft VIA

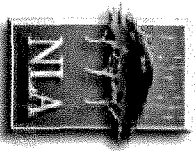




View 7: View from Masenya (Village), southwest of the proposed site

Refer to Figure 1 for location of view points

Figure 8: LANDSCAPE CHARACTER: Lonmin Akanani Exploration Shaft VIA



Appendix B.8
Socio-economic Impact Assessment for the proposed Lomlin
Akanani Prospecting Shaft Development, Mokopane, Limpopo
Province; Golder Associates

TECHNICAL MEMORANDUM



Golder Associates Africa (Pty) Ltd
P O Box 13776, Hatfield, 0028, South Africa

Telephone: + (27) (0)12 366 0100
Facsimile: + (27) (0)12 366 0111

TO: Lonmin Platinum – Akanani Operations **DATE:** 11 May 2008
FROM: R Hattingh / SAP Brown **JOB NO:** 11808
RE: 11808 – CLOSURE INPUT INTO LONMIN AKANANI EIA

1 PROJECT BACKGROUND

Lonmin Platinum (Lonmin) is presently investigating the feasibility of developing a platinum ore body approximately 25 km north of the town of Mokopane (formerly Potgietersrus) in the Limpopo Province, within the Akanani prospecting area.

A new order Prospecting Right and Environmental Management Programme (EMP) for the prospecting area have been approved. Currently, Lonmin intends sinking a prospecting shaft for bulk sampling purposes at the Akanani prospecting area to determine the metallurgical properties of the Platreef at the study area.

A bulk sample of 3 000 tons for testing purposes will be obtained by sinking the single prospecting shaft in the area over a three year period. The prospecting shaft will be 7 to 10 m in diameter, and approximately 1000 m deep. The ore will be transported by 35 ton trucks to Mintek in Johannesburg for test work. The prospecting shaft and associated infrastructure will be developed within the prospecting shaft site of approximately 2 ha in extent.

In terms of the requirements of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002), Lonmin needs to amend its existing approved Prospecting Right and EMP to include the proposed prospecting shaft development and related activities. As part of the Prospecting Right and EMP amendment application, an Environmental Impact Assessment (EIA) needs to be conducted, and an EMP for the proposed activities needs to be developed, based on the findings of the EIA. The EMP will thus be amendment to the existing approved Prospecting EMP. The proposed prospecting shaft development project is also subject to the EIA Regulations promulgated under the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998).

As part of the above amendment, the following closure-related input is provided:

- A summary of the closure objectives; and
- A closure cost summary indicating how the closure cost estimates were derived, including the associated costing spreadsheets.



2 CLOSURE PLANNING

2.1 Closure context

The overall context for closure for the Lonmin prospecting activities has taken the following into account:

- Operational prospecting infrastructure, including:
 - Shaft (7 m wide x 1 000 m deep);
 - Temporary steel headgear (45 m high);
 - Waste rock stockpile (footprint area of approximately 0.26 ha).
- Supporting infrastructure, including:
 - Batch plant;
 - Winder house (kibbler- and stage winder);
 - Administration buildings including offices and change house; and
 - Gravel access roads (5 m wide).

2.2 Approach to closure planning

Due to the uncertainties surrounding future mining opportunities posed by a prospecting project, closure planning would need to consider the following two scenarios:

- **Prospecting activities only:** at the end of the three year prospecting period, the project is deemed not feasible and all activities are stopped; or
- **Prospecting activities converted to full scale mining operations:** at the end of the three year prospecting period, the project is deemed feasible and is converted to full-scale mining operations.

The closure goal and objectives provided have been compiled with the above scenarios in mind.

2.3 Closure perspective

Bearing the above in mind, the closure perspective adopted for the Lonmin prospecting activities include, but are not limited to, the following:

- The steel headgear would be dismantled and disposed of, and the shaft would be in-filled and capped according to DME guidelines;
- Topsoil removed during development of the prospecting activities would be temporarily stored around the footprint of the waste rock stockpile, acting as a temporary water diversion berm;
- The waste rock stockpile would be developed to the west of the shaft, and it is foreseen that the over the three year period, a total of approximately 360 000 tons of waste rock would be disposed of on the

dump. Should prospecting activities be decommissioned after three years, a portion of the waste rock would be used to in-fill the shaft, and the remaining waste rock would be shaped, levelled and re-vegetated. Should the prospecting activities be converted to mining operations, the waste rock stockpile would be shaped and levelled to form the base terrace for ongoing waste rock deposition; and

- As most of the administration buildings would be temporary structures, dismantling and removal of these would be the responsibility of the relevant contractors.

3 OVERALL CLOSURE GOAL

Regardless of whether or not the prospecting activities are converted to long-term mining operations, the overall goal for reclamation and closure of the Lonmin Akanani prospecting site is:

To re-instate a wilderness state that is stable and safe to both humans and animals in the long-term, taking into account any unavoidable remaining residue and/or disturbances, albeit being reclaimed from either prospecting or mining activities that could remain after closure.

4 CLOSURE OBJECTIVES

The specific closure objectives that underpin the overall goal are the following:

4.1 Physical stability

To remove and/or stabilise surface infrastructure and unavoidable prospecting and/or mining residue and/or disturbances that remain on the site after closure in order not to compromise the post-closure land use, by:

- Should prospecting activities be converted to mining operations:
 - Shaping and levelling the temporary waste rock stockpile according to pre-determined detailed engineering designs to form the base terrace for future waste rock dump;
- Should activities on-site be stopped after prospecting:
 - Back-filling as much waste rock as possible from the temporary stockpile into the prospecting shaft;
 - Shaping, levelling and re-vegetating remaining waste rock that is not used for back-filling; and
 - Ripping and re-vegetating remaining footprint area.
- Ensuring all contractors' temporary surface infrastructure, including project office, change houses, etc., are removed;
- Closing, removing and disposing of all additional surface infrastructure that has no beneficial post-closure uses; and
- Reclaiming (ripping and vegetating) 5 m wide gravel roads to the final land use of the site.

4.2 Environmental quality

To ensure that local environmental quality is not adversely affected by possible physical effects and chemical contaminants arising from the site after closure, by:

- Conducting soil clean-up/reclamation of the unbunded laydown areas utilised for erection of the winder house and shaft headgear, once this infrastructure has been erected, to ensure that the planned land-use can be implemented; and
- Limiting/minimising the potential for long-term contamination on the reclaimed prospecting/mine site that could cause health effects to surrounding landowners and local animals.

4.3 Health and safety

To limit the health and safety threats to humans and animals using the reclaimed site after closure, by:

- Sealing the shaft according to acceptable practices, once prospecting/mining has ceased; and
- Collection and removing for safe off-site disposal of all potential contaminated soils.

4.4 Land capability/land-use

To re-instate suitable land capability over as large as possible a portion of the site to facilitate the return of the planned land use, by:

- Ensuring that the closed site is stable in the long-term;
- Shaping and levelling the reclaimed site to be free-draining towards local drainage lines;
- Ensuring that the closed site is not a threat to health and safety of people and animals; and
- Vegetating disturbed areas, after suitable preparation.

4.5 Aesthetic quality

To leave behind a reclaimed site with acceptable aesthetic quality/appearance, by:

- Achieving visual “harmony” of the reclaimed waste rock dump footprint area within the local landscape;
- Ensuring that the site is properly tidied-up, with no fugitive/scattered waste piles; and
- Landscaping and vegetating the reclaimed areas to blend into the surrounding topography.

4.6 Biodiversity

To encourage the re-establishment of local, natural vegetation and animal life on the areas surrounding the reclaimed prospecting site such that the pre-mining biodiversity is largely re-instated over time, by:

- Stabilising disturbed areas to prevent erosion in the short- to medium-term until suitable vegetation cover has been established;
- Establishing viable self-sustaining vegetation communities that will encourage the re-introduction of local fauna, in keeping with the surrounding natural vegetation; and
- Control exotic/invaser species that may be detrimental to site's overall biodiversity.

5 CLOSURE COSTING

The Lonmin Akanani prospecting project is assumed to take approximately three years to complete. As the prospecting activities would not have been initiated prior to compilation of this EMP, no unscheduled closure costs could be calculated.

Hence, the closure costs provided in this EMP represent the scheduled closure scenario, assuming that prospecting would be discontinued after three years. Should the prospecting activities prove viable and be converted to operational activities an updated closure cost assessment for both the scheduled and unscheduled long-term mining scenarios would need to be compiled. The scheduled closure cost for decommissioning, dismantling and reclamation of the prospecting shaft activities and related infrastructure, as at December 2008, is approximately R 8.2 million. A breakdown of this amount is provided in Table 1 that follows.

Trusting this is all in order.

GOLDER ASSOCIATES AFRICA (PTY) LTD

R Hattingh


SAP Brown

RH

G:\Projects\11808 - EIAEMP for bulk sample, Akanani Mine, Lonmin Plat\Reports\11808-Specialist Reports\11808-Specialist reports\11808 - Closure\Final\11808 - Lonmin Akanani - Closure Tech Memo for EIA - FINAL - 20090428.doc

Table 1: Scheduled closure costs for the prospecting shaft at Lonmin Akanani

LONMIN AKANANI PROSPECTING: Scheduled Closure Costs as at December 2008							
Closure component		Scheduled Closure					
		Quantity	Unit	Unit rate	Unit	Total cost	Notes
1	INFRASTRUCTURAL AREAS						
1.1	Dismantling of processing plant and related structures (including overland conveyors)						
1.1.1	Batch plant	495.00	m ²	R 95.00	/m2	R 47,025.00	Assumed 5 - 10 m high
	Sub-total for dismantling of processing plant and related structures					R 47,025.00	
1.2	Demolition of steel buildings and structures						
1.1.1	Shaft (support infrastructure)	1.00	sum	R 500,000.00	/sum	R 500,000.00	Nominal value
1.1.2	Temporary headgear	1.00	sum	R 850,000.00	/sum	R 850,000.00	Assumed nominal value
1.1.3	Stage winder	1.00	sum	R 300,000.00	/sum	R 300,000.00	Assumed nominal value
1.1.4	Kibble winder	1.00	sum	R 550,000.00	/sum	R 550,000.00	Assumed nominal value
1.1.5	Substation and transformer	64.00	m ²	R 400.00	/m2	R 25,600.00	Assumed not higher than 5m
	Sub-total for demolition of steel buildings and structures					R 2,319,650.00	
1.3	Demolition of reinforced concrete buildings and structures						
1.3.1	Shaft (support infrastructure)	1.00	sum	R 500,000.00	/sum	R 500,000.00	Assumed nominal value
1.3.2	Stage winder	180.00	m ³	R 1,100.00	/m3	R 198,000.00	Assumed nominal value
1.3.3	Kibble winder	625.00	m ³	R 1,100.00	/m3	R 687,500.00	Assumed nominal value
1.3.4	Compressor sinking	240.00	m ²	R 110.00	/m2	R 26,400.00	Assumed bunded area
1.3.5	Explosive incinerator slab	25.00	m ²	R 110.00	/m2	R 2,750.00	Assumed concrete slab.
1.3.6	Septic tanks					R 0.00	Contractors' responsibility - to be removed.
	Sub-total for demolition of reinforced concrete buildings and structures					R 29,150.00	
1.4	Rehabilitation of access roads, railway lines and powerlines						
1.4.1	Temporary road	2002.50	m ²	R 15.00	/m2	R 30,037.50	Gravel access roads, 5 m wide.
	Sub-total for rehabilitation of access roads, railway lines and powerlines					R 30,037.50	
1.5	Demolition of housing and facilities						
1.5.1	Container offices					R 0.00	Contractors' responsibility - to be removed.
1.5.2	Jumbo storage	36.00	m ²	R 85.00	/m2	R 3,060.00	Assumed brick structures
1.5.3	Banksmans cabin	36.00	m ²	R 85.00	/m2	R 3,060.00	Assumed brick structures
1.5.4	Temporary parking	280.00	m ²	R 85.00	/m2	R 23,800.00	Assumed not to be paved.
1.5.5	Temporary change house and project offices					R 0.00	Contractors' responsibility - to be removed.
	Sub-total for demolition of housing and facilities					R 29,920.00	
1.6	Stream diversions						

Directors : FR Sutherland, AM van Niekerk, SAP Brown, L G  AS Manyaka (non-executive)

LOCAL OFFICES IN DURBAN, FLORIDA, JOHANNESBURG, KIMBERLEY, PIETERMARITZBURG AND PRETORIA
GOLDER COMPANIES LOCATED IN GHANA, MOZAMBIQUE, ASIA, OCEANIA, EUROPE, NORTH AMERICA, SOUTH AMERICA

LONMIN AKANANI PROSPECTING: Scheduled Closure Costs as at December 2008							
Closure component		Scheduled Closure					
		Quantity	Unit	Unit rate	Unit	Total cost	Notes
1.6.1	Not applicable					R 0.00	Not applicable
	Sub-total for stream diversions					R 0.00	
1.7	Fencing						
1.7.1	Dismantling of security fence.	734.50	m	R 20.00	/m	R 14,690.00	Fence surrounding prospecting shaft activities
	Sub-total for fencing					R 14,690.00	
1.8	Demolition waste						
1.8.1	Not applicable.					R 0.00	Not applicable
	Sub-total for demolition waste					R 0.00	
	Sub-total for INFRASTRUCTURAL AREAS					R 2,470,472.50	
2	MINING AREAS						
2.1	Opencast rehabilitation including final voids and ramps						
2.1.1	Not applicable.					R 0.00	Not applicable
	Sub-total for opencast rehabilitation including final voids and ramps					R 0.00	
2.2	Sealing of shafts, adits and inclines						
2.2.1	Back-filling waste rock into prospecting shaft	38465.00	m ³	R 18.00	/m ³	R 692,370.00	Distance from waste rock stockpile to shaft is <1km
2.2.2	Capping of shaft	1.00	sum	R 1,800,000.00	/sum	R 1,800,000.00	For 7 m diameter shaft, as per DME guidelines
	Sub-total for sealing of shafts, adits and inclines					R 2,492,370.00	
2.3	Rehabilitation of overburden and spoils						
2.3.1	Not applicable.					R 0.00	Not applicable
	Sub-total for rehabilitation of overburden and spoils					R 0.00	
2.3	Rehabilitation of waste rock dump						
2.3.1	Dozing of remaining waste rock to form stable slopes	14300.00	m ³	R 8.50	/m ³	R 121,550.00	Dump: 15 m high; 130 m wide 1:5 side slope = 110 m ³ /m as per stage curve
2.3.2	Placement of topsoil cover on remaining shaped waste rock stockpile	8970.00	m ³	R 18.00	/m ³	R 161,460.00	Assumed 500 mm thick cover, new height 10m, new area is 70m plus 50m(1:5 slope @ 10m high), dome area is new footprint (130m wide X (70m + 50m) plus 15% larger than ground footprint area
2.3.3	Vegetation of cover	1.79	ha	R 12,500.00	/ha	R 22,425.00	New ground footprint area plus 15%
2.3.4	Ripping of remaining footprint area of removed waste rock and topsoil area	2.14	ha	R 12,500.00	/ha	R 26,750.00	3.7 ha (waste rock area plus topsoil area) minus new ground footprint area
2.3.5	Vegetation of remaining footprint area of removed waste rock and topsoil area	2.14	ha	R 12,500.00	/ha	R 26,750.00	
	Sub-total for rehabilitation of waste rock dump					R 358,935.00	
2.4	Rehabilitation of processing waste deposits and evaporation ponds						

LONMIN AKANANI PROSPECTING: Scheduled Closure Costs as at December 2008							
Closure component		Scheduled Closure					
		Quantity	Unit	Unit rate	Unit	Total cost	Notes
2.4.1	Not applicable.					R 0.00	Not applicable
	Sub-total for rehabilitation of processing waste deposits and evaporation ponds					R 0.00	
2.5	Rehabilitation of subsided areas						
2.5.1	Not applicable.					R 0.00	Not applicable
	Sub-total for rehabilitation of subsided areas					R 0.00	
	Sub-total for MINING AREAS					R 2,851,305.00	
3	GENERAL SURFACE RECLAMATION						
3.1	Shaping and levelling of disturbed areas	15.00	ha	R 65,000.00	/ha	R 975,000.00	Overall disturbed footprint area of 12 ha x 1.5
3.2	Vegetation of disturbed areas	15.00	ha	R 12,500.00	/ha	R 187,500.00	Overall disturbed footprint area of 12 ha x 1.5
	Sub-total for GENERAL SURFACE RECLAMATION					R 1,162,500.00	
4	WATER MANAGEMENT						
4.1	Not applicable.						Not applicable
	Sub-total for WATER MANAGEMENT					R 0.00	
	SUB-TOTAL 1 (for infrastructure and related aspects)					R 6,484,277.50	
5	POST-CLOSURE ASPECTS						
5.1	Surface water monitoring					R 0.00	Not applicable.
5.2	Water quality/other monitoring					R 0.00	Not applicable.
5.3	Reclamation monitoring	15.00	ha	R 2,250.00	/ha	R 33,750.00	Assumed over 5 years
5.4	Care and maintenance	15.00	ha	R 14,000.00	/ha	R 210,000.00	Assumed over 5 years
5.5	Ongoing water treatment					R 0.00	Not applicable.
5.6	Contingencies for post-closure aspects	1.00	sum	R 24,375.00	/sum	R 24,375.00	Assumed 10% of above post-closure aspects
	SUB-TOTAL 2 (for post-closure aspects)					R 268,125.00	
6	ADDITIONAL ALLOWANCES						
6.1	Preliminary and general	1.00	sum	R 778,113.30	sum	R 778,113.30	Assumed 12% of Sub-total 1
6.2	Contingencies	1.00	sum	R 648,427.75	sum	R 648,427.75	Assumed 10% of Sub-total 1
	SUB-TOTAL 3 (for additional allowances)					R 1,426,541.05	
	GRAND TOTAL (for sub-total 1 + 2 + 3)					R 8,178,943.55	

Appendix B.9
Closure Costing and Objectives for the proposed Akanani Prospecting
Shaft, Mokopane Limpopo Province; Golder Associate



October 2008

Socio-economic impact assessment for the proposed Lonmin Akanani prospecting shaft development, Mokopane, Limpopo Province

Submitted to:

Lonmin Akanani
Postnet Suite #63
Private Bag x2449
Mokopane
0600

REPORT

A world of
capabilities
delivered locally

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1.0 INTRODUCTION

Lonmin Platinum is investigating the feasibility of developing a platinum ore body some 30 km from Mokopane on the farms Moordkopje (813 LR) and Zwartfontein (814 LR) (approximately 25 km north of Mokopane, collectively referred to as the Lonmin Akanani farms – see Figure 1). For Lonmin Platinum to proceed with mining operations at Akanani, the necessary authorizations need to be obtained in terms of the Minerals and Petroleum Resources Development Act, the National Environmental Management Act and aspect specific legislation, such as the National Water Act in terms of the management of surface and ground water resources.

Lonmin proposes to sink a prospecting shaft for bulk sampling purposes at its Akanani prospecting area. The bulk sample is required to determine the metallurgical properties of the platinum reef in the study area. In terms of the requirements of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002), Lonmin needs to amend its existing approved Prospecting Right and EMP to include the proposed prospecting shaft development and related activities. As part of the Prospecting Right and EMP amendment application, an Environmental Impact Assessment (EIA) needs to be conducted, and an EMP for the proposed activities needs to be developed, based on the findings of the EIA.

One of the specialist studies that need to be conducted in support of the EIA is a Socio-economic Impact Assessment (SIA), which details the potential socio-economic impacts that may arise from the proposed prospecting shaft. This document provides a Socio-economic Impact Assessment for the proposed Lonmin Akanani prospecting shaft development near Mokopane in the Limpopo Province, conducted by Golder Associates Africa (Pty) Ltd.

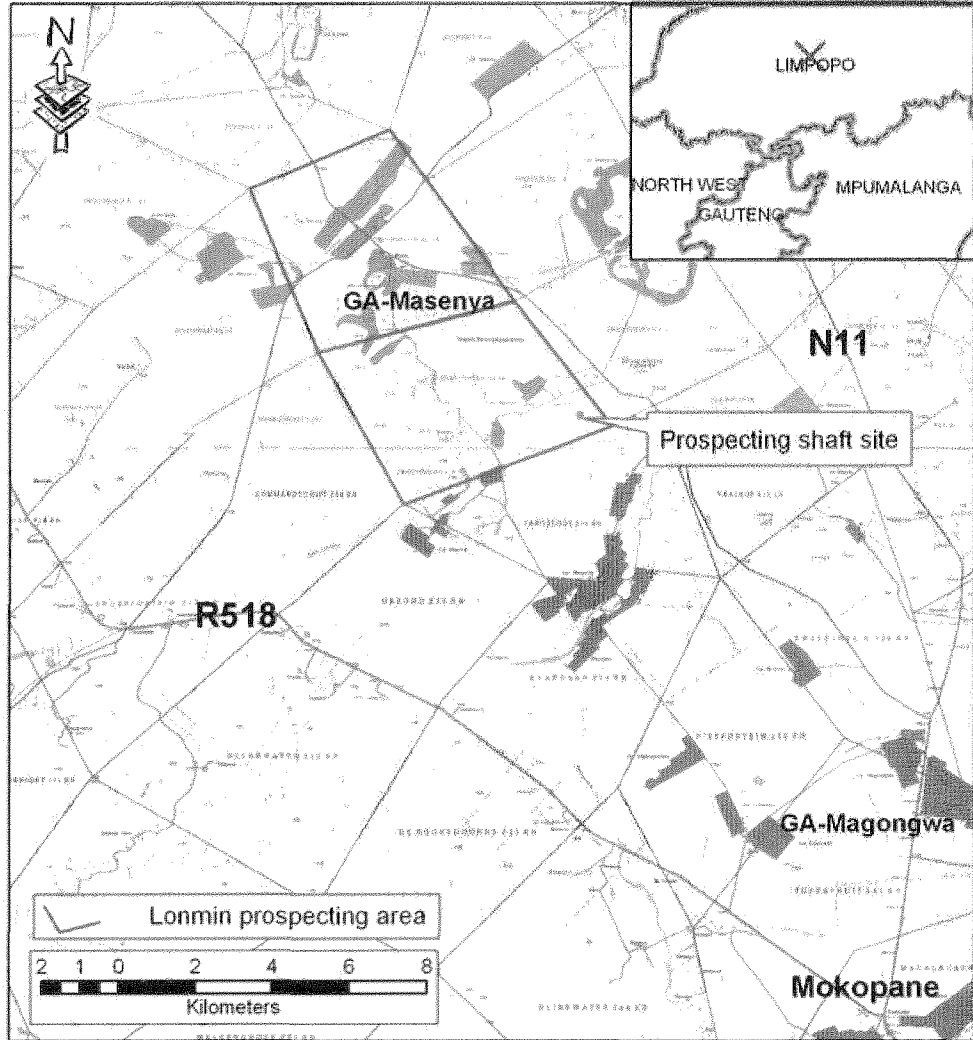


Figure 1: Locality of the Lonmin Akanani prospecting shaft site and the broader prospecting area covering the farms Zwartfontein 814 LR and Moordkopje 813 LR

2.0 OBJECTIVES AND SCOPE

The study area for the SIA is confined to the bulk sampling area of approximately 2 ha on which the prospecting shaft will be developed, which is located on the farm Zwartfontein 814 LR, as well as villages located within a radius of approximately 2 km from the prospecting shaft area. The closest villages are Leruleng/Skimming, located approximately 700 m to the north of the proposed prospect shaft site, and Hans/Masunya, located approximately 3 km to the west of the proposed prospect shaft site.

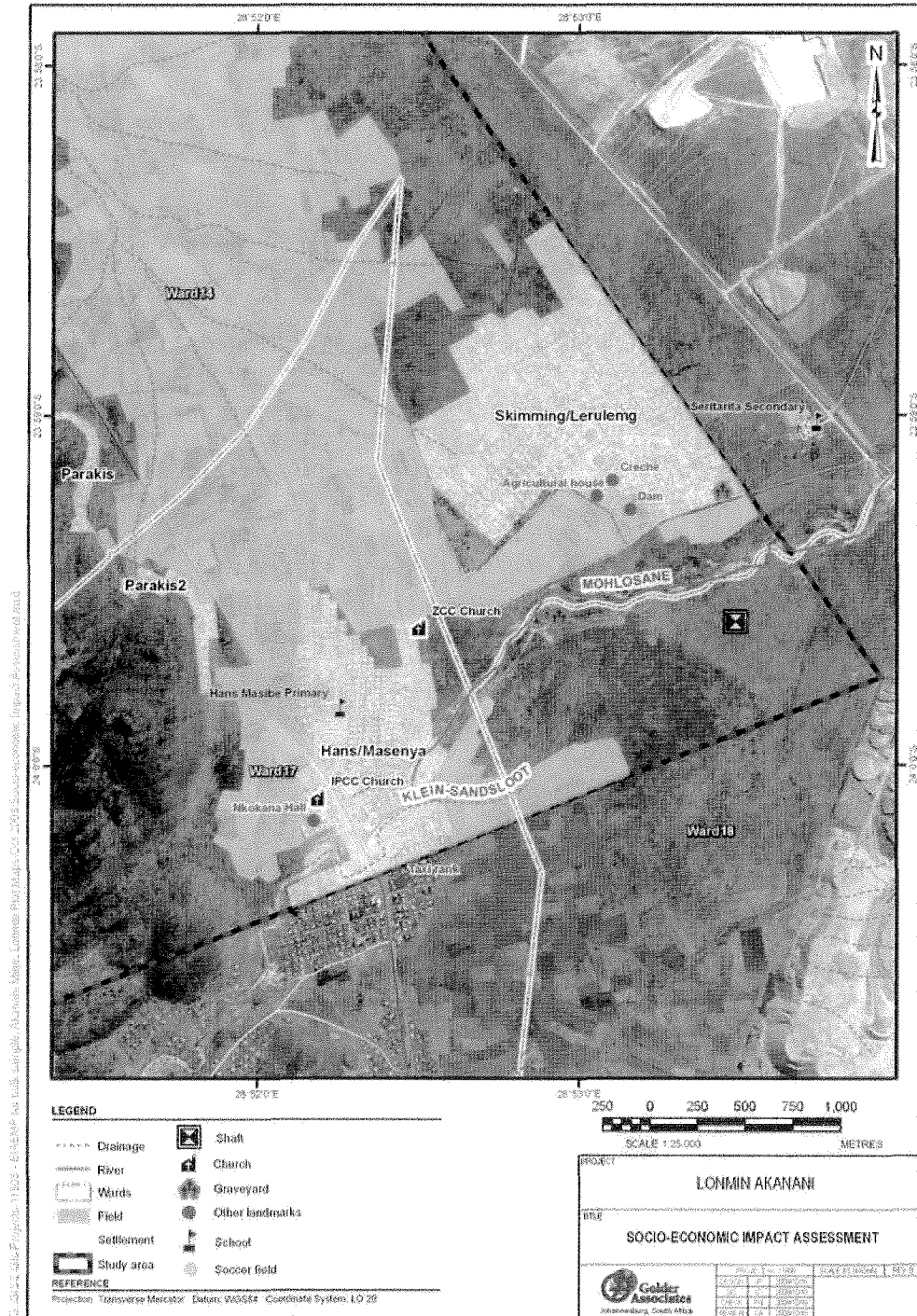


Figure 2: Villages and socio-economic infrastructure located in the study area¹

The objectives of the study are the following:

¹ Socio-economic baseline study for Lonmin Akanani near Mokopane, Limpopo Province (October 2008) compiled by Golder Associates Africa, report number 10651-8249-5.

- ξ To characterise the baseline socio-economic conditions in the study area in terms of the relevant socio-economic variables (population and demographics, economic activities, employment, occupations, infrastructure, services, etc.);
- ξ From this socio-economic baseline and an understanding of the proposed project, identify potential socio-economic impacts that may arise from the proposed project; and
- ξ To identify appropriate mitigation and management measures to avoid or minimise the severity of the identified impacts.

The goal of this report is to integrate the socio-economic impact assessment information into the overall EIA report.

3.0 APPROACH AND METHODOLOGY

The SIA study was based on existing information collected as part of the baseline socio-economic study (*Socio-economic baseline study for Lonmin Akanani near Mokopane, Limpopo Province, October 2008*²) that was conducted on the broader Akanani prospecting area. The relevant information from the baseline socio-economic study has been summarised for this report. Taking account of the socio-economic circumstances of the communities, the possible socio-economic impacts of the proposed prospective shaft and associated surface infrastructure were determined.

Following the identification of the impacts, these were then rated in terms of their occurrence and severity. The occurrence of an impact was assessed in terms of its probability and duration. The severity of an impact was assessed according to the impact's magnitude and scale or extent of the impact (see Table 1).

Table 1: Occurrence and severity of impacts

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Magnitude (severity) of impact	Scale / extent of impact

Table 2 provides the ranking scales to determine the probability, duration, magnitude and scale of a socio-economic impact.

² Report number 10651-8249-5

Table 2: Ranking scales for probability, duration, magnitude and scale/extent of impact

PROBABILITY	DURATION
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term
3 - Medium probability	3 - Medium-term (8-15 years)
2 - Low probability	2 - Short-term (0-7 years) (impact ceases after the operational life of the activity)
1 - Improbable	1 - Immediate
0 - None	
SCALE	MAGNITUDE
5 - International	10 - Very high/don't know
4 - National	8 - High
3 - Regional	6 - Moderate
2 - Local	4 - Low
1 - Site only	2 - Minor
0 - None	

The significance of an impact was calculated by means of the following formula:

$$\text{SP (significance points)} = (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability}$$

The final ratings that were assigned to an impact was determined by the total of the significance points (see Table 3).

Table 3: Impact significance values and interpretation

SP >60	Indicates high environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 60	Indicates moderate environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP <30	Indicates low environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.

Potential mitigation measures were also recommended, with a post-mitigation rating being assigned to each impact as well.

4.0 SOCIO-ECONOMIC PROFILE OF THE STUDY AREA

The proposed prospecting shaft site is located in Ward 18 of the Mogalakwena Local Municipality, situated within the Waterberg District Municipality in the Limpopo Province. According to the 2001 Census statistics, the Mogalakwena Local Municipality has a total population of approximately 298 400, which accounts for almost half of the District

Municipality's population. Taking into account a national population annual growth rate of 0.828%³, the 2008 population total is estimated to be 316 100.

The land on which the proposed prospecting shaft is to be constructed is owned by the Government of South Africa (Department of Land Affairs), and is used as communal grazing. No households are located in the 2 ha study site (see Figure 3).

³ CIA - The World Factbook -- South Africa (2008). Retrieved October 15, 2008, from <https://www.cia.gov/library/publications/the-world-factbook/print/sf.html>.

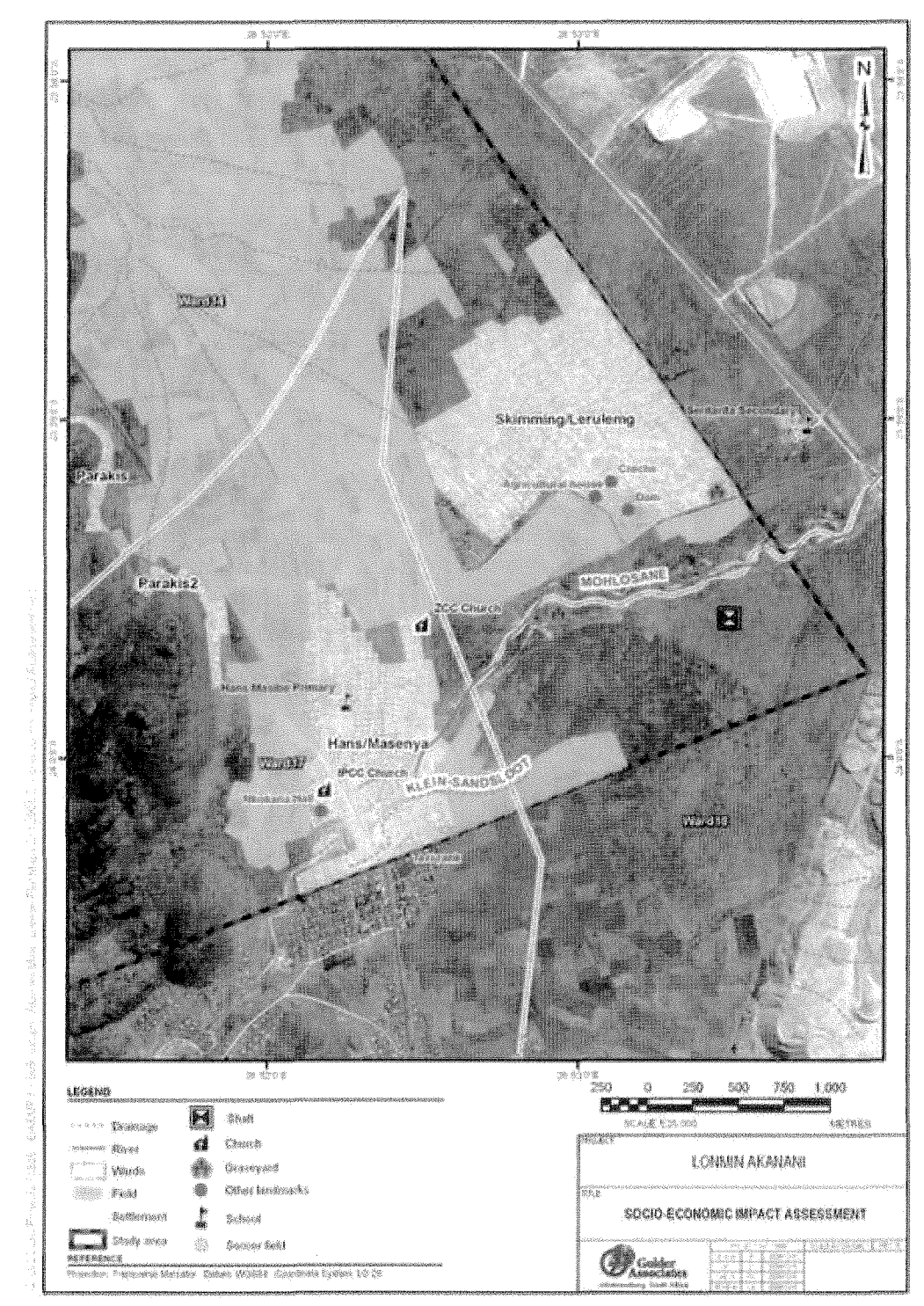


Figure 3: Villages and socio-economic infrastructure located in the study area

The closest residential areas to the proposed prospecting shaft site are Skimming and Leruleng (located in Ward 14 of the Mogalakwena Local Municipality, approximately 700 m to the north of the proposed prospecting shaft site) and Hans/Masenyia (located in Ward 17 of

the Mogalakwena Local Municipality, approximately 3 km to the west of the proposed prospecting shaft site).

The villages in the study area form part of the Mapela Traditional Authority, which presides over a total of 42 villages spread over a large geographical area. Skimming and Leruleng have an estimated combined population of approximately 3 710 with an estimated total of 530 households, whilst Hans/Masenya has an estimated population of approximately 2 170 with an estimated total of 310 households⁴. The villages in the study area are experiencing a growth in population.

The main economic activities in the area are mining and agriculture sectors, which accounts for the majority of the employment of the households in the study area. Subsistence agriculture is practiced as a secondary economic activity to supplement a household's income and sustenance. Unemployment rates are estimated to be in excess of 40%. Information that was gathered from desktop review of documents as well as the site visits indicates unemployment may not be as high as community members believe. This is corroborated by the continued influx of people into the area. However there is a shortage of skills and funds in the area, which hampers efforts to develop small enterprises. A large proportion (more than 75%) of the households in the study area are dependent on child grants or pension grants for partial household income, which typically has to sustain more than seven people in a household. Education levels in the study area is low, with nearly 50% of the population having no or limited primary education (which is the case throughout the entire province).

According to the Lonmin Akanani Stakeholder Landscape Report⁵, Leruleng has fertile soil, utilising gravity irrigation from an adjacent ground dam to optimise their farming activities. However, the extent of this is expected to be limited due to the particularly dry climate with limited water resources. Livestock husbandry is not prevalent in this area either, also as a result of the particularly dry and hot climate. It is estimated that approximately 5% of households keep cattle, with herd sizes varying between 20 and 50 head of cattle. The scarcity of water presents a significant limitation to agricultural activities in the study area as well as to water provision to households for domestic use. The proposed prospecting shaft site will be situated in an area that is currently used for grazing activities, no fields have been identified in the area.

Whilst all households have electricity supply to their houses, water supply and sanitation services are limited. Although two graveyards are located in Leruleng/Skimming, approximately 5 graves are located in or near the proposed prospecting shaft site⁶.

⁴ Socio-economic baseline study for Lonmin Akanani near Mokopane, Limpopo Province (October 2008) compiled by Golder Associates Africa, report number 10651-8249-5.

⁵ Lonmin/G³ business solutions (2007). Assessment of the Akanani stakeholder landscape.

⁶ A Phase 1 Heritage Impact Assessment for the proposed Akanani exploration/ventilation shaft near Mokopane in the Limpopo Province of South Africa (July 2008).

Communities in the study area have two main needs that they wish to be addressed – skills training (to obtain employment) and water provision. However, communities are highly mistrusting of mining activities in the area due to previous negative experiences during resettlement. The communities are also concerned that they will see a repetition of the disappointment that they experienced from undelivered past promises by mining houses. However, communities request that preferential employment be given to the local communities (with the potential of skills development programmes being implemented prior to the commencing of mining activities), rather than sourcing workers from other areas. Stakeholders also were concerned regarding the location of burial grounds close to the proposed prospecting shaft site, and the relocation of graves.

5.0 PROBABLE SOCIO-ECONOMIC IMPACTS AND MITIGATION

This section presents the socio-economic impacts that were identified and the proposed mitigation measures. The impacts are disaggregated according to project phase –namely construction, operation and decommissioning phases.

5.1 Construction phase

Each of the socio-economic impacts that could arise during the construction phase of the proposed project are discussed below together with the possible mitigation measures for each.

5.1.1 Employment creation

Impact description:

Lonmin will appoint a sub-contractor to conduct the proposed bulk sampling at Akanani. It is estimated that between 250 and 300 workers will be employed for the construction phase of the proposed project. The construction phase of the proposed project will last approximately 3 months (which includes site establishment).

It is expected that approximately 65% (approximately 160-195) of these 250-300 workers will be unskilled workers, whilst 35% (approximately 90-105) will be skilled. Lonmin Akanani estimates that approximately 60% of the workers will be local employees from the Mogalakwena Local Municipality.

The same subcontractor will be utilised to conduct drilling operations during the operational phase of the proposed project.

Optimisation of benefits:

The following measures are recommended to optimise the benefits associated with employment creation:

- ξ Establish a “labour and employment desk” as a contact point for local community members who wish to seek employment on the project.
- ξ One of the tasks of the labour and employment desk will be to create a skills register of the qualifications and work experience of local community members who apply at the desk for employment on the project. The relevant details of all applicants are to be recorded, regardless of whether or not they are successful in their applications. If future opportunities for employment arise in the operational phase of the project (should the project proceed to the operational phase, or through future Corporate Social Responsibility initiatives established by Lonmin Akanani in the area), these persons may be invited to apply for suitable positions.
- ξ In order to promote the creation of employment opportunities for women and youth, it is recommended 10% of local employment opportunities on the project be reserved for women and younger persons, respectively. These positions may only be filled with persons outside of these categories if it can be demonstrated that no suitable persons are recorded in the skills register to fill these positions. The performance indicator for the promotion of employment of women and youth would be the number of local women and persons under the age of 35 who are employed in the construction phase of the project.
- ξ Establish a monitoring system to ensure that the Contractor honours the specified employment policy.
- ξ Where possible use labour-intensive methods of construction.
- ξ Make multi-skilling of construction workers a priority, as employment opportunities during construction are only temporary. This would involve identifying skills that may be acquired during construction that can be built upon or supplemented through limited additional training to equip workers for jobs that would become available during the operational phase of the project, either through the project itself or through Corporate Social Investment initiatives that may be undertaken by Lonmin Akanani in the area.

5.1.2 Economic impacts

Impact description:

No information on capital expenditure and procurement totals for the proposed project was available at the time of the writing of the report.

Optimisation of benefits:

Not applicable.

5.1.3 Opportunities for local enterprises and emerging BEE companies

Impact description:

Lonmin Akanani does not expect any business opportunities for local enterprises and emerging BEE companies to arise from the proposed project.

Optimisation of benefits:

Not applicable.

5.1.4 Influx of job seekers

Impact description:

When news of exploration activities and potential employment opportunities become known to the general public, an influx of job seekers from other areas may arise. This influx is especially likely to occur due to the high levels of unemployment throughout the province. However, given the high number of residents in the study area (the villages in the study area have an estimated combined population of nearly 7 000 residents), this influx will not constitute a major increase in population numbers in the study area.

Mitigation measures:

In order to mitigate these impacts, the following measures are recommended:

- ξ Make use of local labour as far as possible, thereby reducing the need to allow outsiders into the study area.
- ξ Liaise with local community structures to identify local labour pool.

5.1.5 Labour camp and workers

Impact description:

It is currently envisaged that workers on the proposed project will be housed in a labour camp, located near the shaft site. The workers will remain in the area to work during the operational phase. The camp will house all workers who are not locals. Communities in the study area have voiced concerns regarding the location of labour camps close to their villages, which will require the labour camp to be managed efficiently so as to minimise any potential impacts that may arise from the camp. Local workers who require transport will be transported to and from the construction site by means of buses daily.

The sudden presence of additional people in the area will impact on the current social conditions in various ways. Social impacts that may result from the presence of a labour

camp include the proliferation of pollution (litter, waste water and unsanitary ablution facilities), destruction of vegetation (indigenous wood used for fuel) and negative aesthetic impacts. Other social impacts that may result from the presence of the labour camp include alcohol and drug abuse, the sex worker trade and, hence, STDs (notably HIV/AIDS).

Another possibility is that conflict may arise between local inhabitants and the occupants of labour camps as well as job seekers, especially if workers and job seekers are from a different part of South Africa and/or have different social or ethnic affiliations. The possibility for conflict would be increased if:

- ξ If there is a real or perceived increase in crime in the area, and responsibility for these criminal acts is pinned on the workers or job seekers; or
- ξ If the perception exists that the workers or job seekers are taking jobs that could have gone to locals.

However, given that approximately 40% of the workforce will be housed in the labour camp (which totals to approximately 120 people), and that the labour camp will be utilised during the entire duration of the construction phase (which will be short term - 3 months), the magnitude of this impact is expected to be limited.

A final risk remains that the labour camp may be occupied by squatters once it is vacated.

Mitigation measures:

In order to mitigate these impacts, the following measures are recommended:

ξ *Measures to be implemented prior to the establishment of labour camps:*

- **Lonmin should reconsider the requirement to establish a labour camp on site. The workforce should preferably be housed in existing accommodation in Mokopane and transported to the site by bus. The relevant potential socio-economic impacts identified in this document can be pro-actively prevented by not developing a labour camp on site.**
- If Lonmin decides to continue with the development of a labour camp, the following measures should be implemented:
 - o Lonmin Akanani must stipulate the camp site construction specifications and guidelines as part of the contract with subcontractors to be able to penalise subcontractors who do not comply with specifications such as minimum living standards etc.
 - o A Community Relations Management Plan and Labour camp Management Plan are to be developed by Lonmin Akanani. Potentially affected communities will be consulted in the development of these plans in advance of building of labour camps.

- The Contractor will be required not to locate labour campsites in any area where they could cause nuisance or safety hazards to surrounding landowners, inhabitants or the general public. Local communities must be consulted in the construction site selection process.
- The Contractor will be required to present to the developer's management team a method statement detailing how social and environmental requirements specified in the contract will be complied with. This would include measures to manage sewage, social pathologies, rehabilitation and others.

ξ ***Measures to combat the spread of STDs:***

- Implement HIV/AIDS and alcohol abuse campaigns in the communities and for the contractor employees.
- Align awareness campaigns with those of other organisations in the area (i.e. the Mogalakwena Local Municipality etc.).
- Access at the construction site should be controlled to prevent sex workers from either visiting and/or loitering at the labour camp.
- Provision of sufficient entertainment facilities in labour camps (e.g. lounge with TV, pool table, etc.) in order to limit the necessity for workers to interact with local villages.
- Allow workers sufficient opportunities to travel to Mokopane.
- The Contractor shall ensure that contract employees remain within the construction site or on approved roads providing access to the construction site.

ξ ***Measures to prevent conflict between workers, job seekers and locals:***

- The recruitment policy used to employ people on the project must be fair and transparent.
- This policy must be clearly communicated to local communities.
- Measures described below to control access to labour camps and movements of workers also apply in this regard.

ξ ***Measures to address crime:***

- Cease construction activities before nightfall.
- Workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Workers could also be issued with identification tags.

- The Contractor is to establish clear rules and regulations for access to the camp / site office to control loitering. Consult with the local SAPS to establish standard operating procedures for the control and/or removal of loiterers at the construction site.

ξ **Measures to prevent informal/illegal occupation of vacated labour camps:** Once construction is completed and a labour camp vacated, the camp must be demolished.

5.1.6 Increased pressure on service provision

Impact description:

It will be necessary to provide the labour camp with adequate basic services – water, electricity and sanitation facilities. The need to provide these services may place pressure on the local municipality – particularly in cases where the local municipality is resource-constrained and is experiencing large backlogs in the provision of basic services to households in its areas of jurisdiction.

The labour camp will source electricity from a nearby power substation, which will constitute an increase in electricity demand in the project area. Water will be sourced from boreholes, and will therefore place no additional strain on the limited municipal water supply. Sanitation facilities will be provided in the camp.

The presence of job seekers who require housing and services in the study area will generate an increased demand in municipal service provision (e.g. water, electricity and sanitation supply), housing and health services. In areas where this service provision is already lacking (such as water and sanitation in the study area), this increased strain will impact negatively on communities.

Mitigation measures:

In order to mitigate these impacts, the following measures are recommended:

- ξ If services for a labour camp are to be sourced from the local municipality, the latter must be informed well in advance of the anticipated timeframe and of the nature of services that will be required.
- ξ Lonmin Akanani can consider the possibility of implementing Corporate Social Responsibility programmes in support of health services or municipal service provision.

5.1.7 Loss of land

Impact description:

The footprint of the proposed prospecting shaft site is approximately 2 ha. This area will be lost during construction activities (as well as operation, and potentially during

decommissioning). The area is currently being used as communal grazing land, which is owned by Government of South Africa (Department of Land Affairs).

The total grazing area in the vicinity of Leruleng/Skimming and Hans/Masenya is approximately 245 ha. Therefore, a loss of 2 ha will constitute a loss of 0.8% to the total grazing area. Therefore, the reduction in grazing land is considered very low.

5.1.8 Social impacts derived from physical impacts

Impact description:

Once construction activities commence, a number of physical impacts may have an effect on the surrounding communities. Examples of these impacts include noise, dust and vibrations that are caused by blasting, vehicles, excavation activities etc.

Other specialist studies investigated the potential impacts of noise, vibrations and dust. These include:

- ξ Baseline air quality assessment for the proposed prospecting shaft development project at the Lonmin Akanani prospecting area north of Mokopane, Limpopo (September 2008) (Report number GOL_RN_08002).
- ξ Environmental noise and vibration impact assessment – exploration shaft – Lonmin Akanani project, Mapela, Limpopo Province (June 2008).

Mitigation measures:

See other specialist reports for proposed mitigation measures.

5.1.9 Impacts on graves and spiritual sites

Impact description:

The Heritage Impact Assessment (HIA) specialist study⁷ identified a number of graves that are situated in the vicinity of the proposed prospecting shaft site. Refer to the Heritage Impact Assessment for recommendations on these graves. The HIA reports that the possibility exists that more graves may be hidden in the area, or may be buried and only be uncovered during excavation. Graves that lie in the 2 ha footprint will require relocation to ensure continued access by families and to maintain the integrity of the grave site (blasting activities may disturb graves located close to the blasting site).

The closest church to the proposed prospecting shaft site is located in Hans/Masenya, approximately 1 km to the southwest.

⁷ A Phase I Heritage Impact Assessment (HIA) study for the proposed Akanani Exploration/Ventilation Shaft near Mokopane in the Limpopo Province of South Africa (July 2008).

Mitigation measures:

See the Heritage Impact Assessment report for proposed mitigation measures.

5.1.10 Safety impacts

Impact description:

Construction activities normally result in an increase in traffic in the area, especially if construction workers are housed off-site and need to be transported to and from the construction site daily. This increase in traffic flow may pose a potential safety risk to residents in the study area, especially children. Animals may also be at risk for collision by vehicles. The area adjacent to the project site is mined by Anglo PPL, which indicates that the area already is experiencing the movement of mining vehicles, and that the additional presence of construction vehicles will not constitute a major socio-economic impact.

The risk also exists that people and/or animals may fall into any construction excavations (for example, trenches).

Mitigation measures:

The following measures are recommended to mitigate the potential impacts associated with safety impacts:

- ξ Construction vehicles travelling in the area must obey speed limits and traffic laws;
- ξ Construction vehicles must be clearly identified as working for the contractor or Lonmin Akanani;
- ξ The construction site must be fenced off and security measures must be put in place to prevent people or animals from entering the construction site both during working hours and after-hours; and
- ξ Communities in the vicinity of the project area (Leruleng/Skimming and Hans/Masenya) must be provided with an education and awareness campaign to inform communities of the dangers associated with construction activities.

5.1.11 Community perceptions and responses

Impact description:

Communities in the study area are highly sensitised to the issue of relocation from previous negative experiences of resettlement. As a result, the communities are in favour of exploration activities (which they associate with no risk for resettlement), but opposed to mining operations (which they believe may result in resettlement). This has also resulted in mistrust and tension between the communities in the study area, as well as tension within the

communities. Communities in the study area are characterised by a turbulent political climate, with some groups challenging the established structures and norms of the Traditional Authority⁸. This has been evident in the EIA public participation process for the proposed project, where various groups have attempted to halt the public participation process from proceeding. Environmental activists have been approached by some of the stakeholder groups, and these groups have attempted to derail the environmental authorisation process on numerous occasions. The tension that exists in the communities (for example, in the villages of Leruleng/Skimming during the time of the writing of this report) has the potential to lead to social mobilisation against the proposed project and future activities by Lonmin Akanani.

Mitigation measures:

To improve relations with communities who are not in favour of mining projects, the following mitigation measures are proposed:

- ξ Continue to engage with stakeholders and the communities;
- ξ Implement mitigation measures that are recommended;
- ξ Provide for local employment opportunities; and
- ξ Maintain a transparent approach to the EIA process.

5.2 Operational phase

The socio-economic impacts that are expected to arise from the operational phase of the project are discussed below, with mitigation measures provided.

5.2.1 Employment creation

Impact description:

The same subcontractor that will be appointed by Lonmin Akanani to conduct the bulk sampling will be contracted during the operational phase. The operational phase of the project will last approximately 2 ½ years. The employee numbers will remain the same as that for the construction phase, with the same distribution of skilled/unskilled and local/non-local employees being present.

Optimisation of benefits:

Measures to optimise the benefits are the same as those recommended for the construction phase.

⁸ Lonmin/G³ business solutions (2007). Assessment of the Akanani stakeholder landscape.

5.2.2 Economic impacts

Impact description:

No information on capital expenditure and procurement totals for the proposed project was available at the time of the writing of the report.

Optimisation of benefits:

Not applicable.

5.2.3 Opportunities for local enterprises and emerging BEE companies

Impact description:

Lonmin Akanani does not expect any opportunities for local enterprises and emerging BEE companies to arise from the proposed project.

Optimisation of benefits:

Not applicable.

5.2.4 Accommodation of employees

Impact description:

Since the same employees will be utilised during the operational phase of the project as those of the construction phase, the impacts related to accommodation of the employees is the same as that for the construction phase.

Mitigation measures:

Mitigation measures are the same as those recommended for the construction phase.

5.2.5 Influx of job seekers

Impact description:

The possibility exists that the operational activities will result in the continued influx of job seekers into the area.

Mitigation measures:

Mitigation measures are the same as those recommended for the construction phase.

5.2.6 Increased pressure on service provision

Impact description:

This impact is expected to be similar as that discussed during the construction phase.

Mitigation measures:

Measures are similar to those recommended during the construction phase.

5.2.7 Social impacts derived from physical impacts

Impact description:

The social impacts derived from physical and has already been addressed in section 5.1.8, and will therefore not be repeated here.

Mitigation measures:

See other specialist reports for proposed mitigation measures.

5.2.8 Safety impacts

Impact description:

Operational activities normally result in an increase in traffic travelling in the area, especially if workers are housed off-site and need to be transported to and from the construction site daily. This increase in traffic flow may pose a potential safety risk to residents in the study area, especially children. Animals may also be at risk for collision by vehicles. It is estimated that three (3) 35 tonne trucks per month will transport ore for processing. Considering that the area adjacent to the project site is being utilised for platinum mining activities by Anglo PPRust, the presence of three additional trucks in the area per month constitutes a limited socio-economic impact.

The risk also exists that people and/or animals may fall into any mining excavations. Potential safety risks, such as injuries from machinery, also exist at the project site, if animals or people are allowed to enter the project site.

Mitigation measures:

Mitigation measures are similar to those recommended during the construction phase.

5.2.9 Community perceptions and responses

Impact description:

The potential impacts of community perceptions and responses has already been discussed during the construction phase, and is expected to be similar for the operational phase.

Mitigation measures:

Mitigation measures are similar to those recommended during the construction phase.

5.3 Closure phase

The socio-economic impacts that are expected to arise from the closure phase of the project are discussed below together with proposed mitigation measures:

5.3.1 Potential for alternative land uses

Impact description:

Following the decommissioning of the proposed project, one of two options may be followed regarding the proposed prospecting shaft site. Should the proposed project indicate that the Lonmin Akanani platinum project is economically viable, the prospecting shaft is intended to be used as the ventilation shaft for the future requirements of the Akanani mine. In this event, the land that was lost will remain unavailable for alternative use. A separate, full EIA process will be undertaken to assess potential impacts associated with the future mine development, should the mine development be economically viable.

However, should the proposed Lonmin Akanani platinum project prove not to be viable, the waste rock on the surface will be dumped back into the shaft and a concrete slab will be constructed over the mouth of the shaft. The rest of the disturbed area will be rehabilitated to its former state as far as practically possible. This will allow the land to become available again for other activities, such as expansion of residential areas or grazing. Since the area that was lost/disturbed is relatively small in comparison to the surrounding area, and taking into account that the covered shaft mouth will remain unavailable for development and/or vegetation as well as that the natural vegetation may not necessarily return to its prime state, this impact is expected to be limited.

Optimisation of benefits:

The following measures are recommended to optimise the development of alternative land uses:

- ξ Liaise with the Mapela Traditional Authority and the Mogalakwena Local Municipality timeously to allow them to integrate alternative land uses into their planning.

5.3.2 Safety impacts

Impact description:

As was mentioned in the previous section, should the proposed Lonmin Akanani platinum project prove not to be financially viable, the proposed prospecting shaft will be backfilled and covered with a concrete slab. Should this covering not be done effectively, potential safety impacts to communities in the area can reasonably be expected, especially with children and animals being at risk of falling into the shaft if it is not closed properly.

Mitigation measures:

The following mitigation measures are recommended to mitigate the impact of the safety impacts of closure of the proposed prospecting shaft:

- ξ Ensure that the contractor adheres to safety regulations and design of the cover over the shaft.
- ξ Conduct awareness campaigns in the communities to inform communities of the safety risks related to the decommissioned prospecting shaft site.

5.3.3 Loss of employment opportunities

Impact description:

Once the operational phase of the proposed project is completed after approximately 2 ½ years, the employment opportunities associated with the proposed project will be lost. Although it is possible that non-local employees (approximately 90-105 employees) may be utilised by the contractor on other projects, it is expected that the majority of the local employees (approximately 160-195 employees) will be retrenched. Retrenchments will lead to loss of income, loss of local expenditure as well as retrenchments of indirect job beneficiaries in other sectors.

This loss of employment will be a negative impact, as current socio-economic conditions in the area are quite poor with numerous unemployed individuals. Loss of employment could result in significant increases in social pathologies, such as crime, prostitution and substance abuse. However, as mining activities are continuing to expand as an economic sector in the Limpopo Province, the skills that are developed during the proposed project may be of value to employees to obtain other employment opportunities.

Should the Lonmin Akanani platinum project prove to be viable, the skills of these workers may be utilised in mining activities. A separate, full EIA process will be undertaken to assess potential impacts associated with the future mine development, should the mine development be economically viable.

Mitigation measures:

The following mitigation measures are recommended to mitigate the impact of the loss of employment opportunities:

- ξ Provide skills training to employees of Lonmin Akanani or the contractor to diversify the skills base in the area at least two months prior to retrenchment, to allow employees to obtain alternative employment when the proposed project is completed.

- ξ Provide retrenchment packages to staff employed by Lonmin Akanani or the contractor in accordance with conditions of employment and the labour law.
- ξ Re-allocate staff to other Lonmin mines where possible.

6.0 IMPACT ASSESSMENT

Table 4 provides an assessment of the socio-economic impacts that are expected to arise from the proposed project for the construction phase. Table 5 provides an assessment of the socio-economic impacts that are expected to arise during the operational phase of the proposed project, whilst Table 6 provides an assessment of the socio-economic impacts that are expected to occur during the closure phase of the proposed project. Note that only impacts that are expected to occur have been assessed (for example, since no opportunities for local enterprises and BEE companies are expected to occur, this impact has not been assessed, and similarly economic impacts were not assessed as no information was available on this impact).



Table 4: Assessment of socio-economic impacts during the construction phase

SP (significance points) = probability x (magnitude + duration + scale)

Impact	Pre-mitigation					Post-mitigation				
	P	D	S	M	SP	P	D	S	M	SP
Employment creation	5	2	3	6	55 (M)	5	2	3	8	65 (H)
Labour camp and workers	5	2	2	6	50 (M)	5	2	2	2	30 (L)
Population influx	4	2	2	2	24 (L)	3	2	2	2	18 (L)
Social pathologies arising from population influx	3	2	2	6	30 (M)	2	2	2	4	16 (L)
Increased pressure on service provision	4	2	2	4	32 (M)	4	2	2	2	24 (L)
Loss of land	5	2	1	2	25 (L)	5	2	1	2	25 (L)
Social impacts derived from physical intrusion	Refer to other specialist reports					Refer to other specialist reports				
Impacts on graves and spiritual sites	Refer to other specialist reports					Refer to other specialist reports				
Safety impacts	4	2	2	6	40 (M)	4	2	2	2	24 (L)
Community perceptions and responses	3	2	2	8	36 (M)	1	2	2	4	8 (L)

Table 5: Assessment of socio-economic impacts during the operations phase

Impact	Pre-mitigation					Post-mitigation				
	P	D	S	M	SP	P	D	S	M	SP
Employment creation	5	2	3	6	55 (M)	5	2	3	8	65 (H)
Labour camp and workers	5	2	1	6	45 (M)	5	2	1	2	25 (L)
Population influx	4	2	2	6	40 (M)	3	2	2	4	24 (L)
Social pathologies arising from population influx	3	2	2	6	30 (M)	2	2	2	4	16 (L)
Increased pressure on service provision	4	2	2	8	45 (M)	4	2	2	2	24 (L)
Social impacts derived from physical intrusion	Refer to other specialist reports					Refer to other specialist reports				
Impacts on graves and spiritual sites	Refer to other specialist reports					Refer to other specialist reports				
Safety impacts	4	2	2	6	40 (M)	4	2	2	2	24 (L)
Community perceptions and responses	3	2	2	8	36 (M)	1	2	2	4	8 (L)

Table 6: Assessment of socio-economic impacts during the closure phase

Impact	Pre-mitigation					Post-mitigation				
	P	D	S	M	SP	P	D	S	M	SP
Development of alternative land uses	2	2	3	2	14 (L)	3	2	3	2	27 (L)
Safety impacts	3	2	1	6	27 (M)	3	2	1	2	15 (L)
Loss of employment opportunities	5	2	3	6	55 (M)	5	2	3	2	35 (L)

7.0 CONCLUSION AND RECOMMENDATIONS

The proposed Lonmin Akanani Bulk Shaft project poses a number of socio-economic impacts that can be mitigated to low levels of impact. The most significant positive impact that will arise from the proposed project will be the creation of employment opportunities over a period of 2.5 years, whilst the most significant negative impact would be the presence of a labour camp in the vicinity of the villages, which may result in a number of negative socio-economic impacts, such as an increase in social pathologies. It is recommended that Lonmin should reconsider the requirement to establish a labour camp on site. The workforce should preferably be housed in existing accommodation in Mokopane and transported to the site by bus. This will pro-actively prevent the negative impacts associated with a labour camp, as identified in this document.

Report Signature Page

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Pierre Gouws
Social Researcher

Chris A Antrobus
Social Researcher

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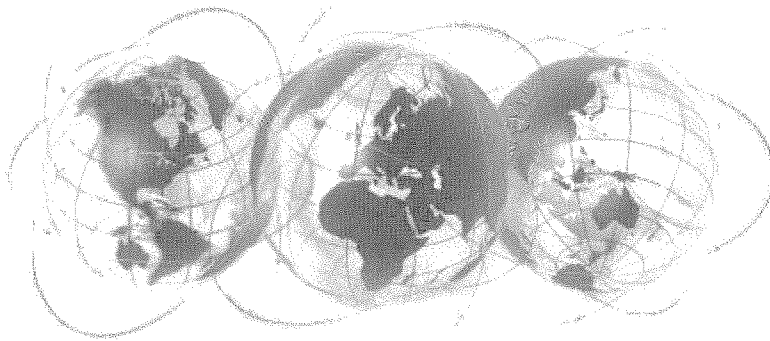
Directors: FR Sutherland, AM van Niekerk, SAP Brown, L Greyling, SM Manyaka

g:\projects\11808 - eiaamp for bulk sample, akanani mine, lonmin plat\reports\11808-specialist reports\11808-specialist reports\11808 - social\11808 - seia for proposed lonmin akanani prospecting shaft development-29april09.docx

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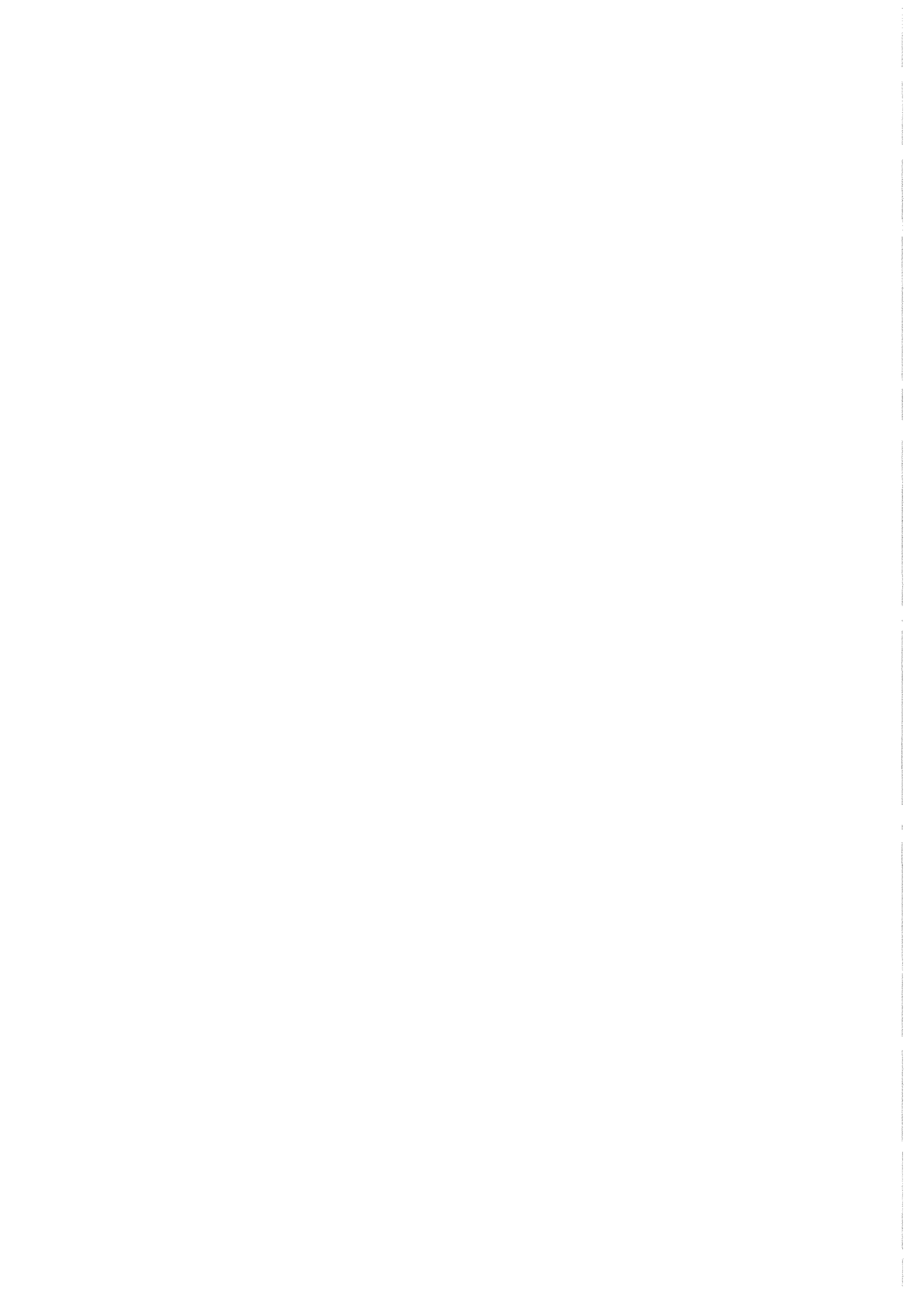
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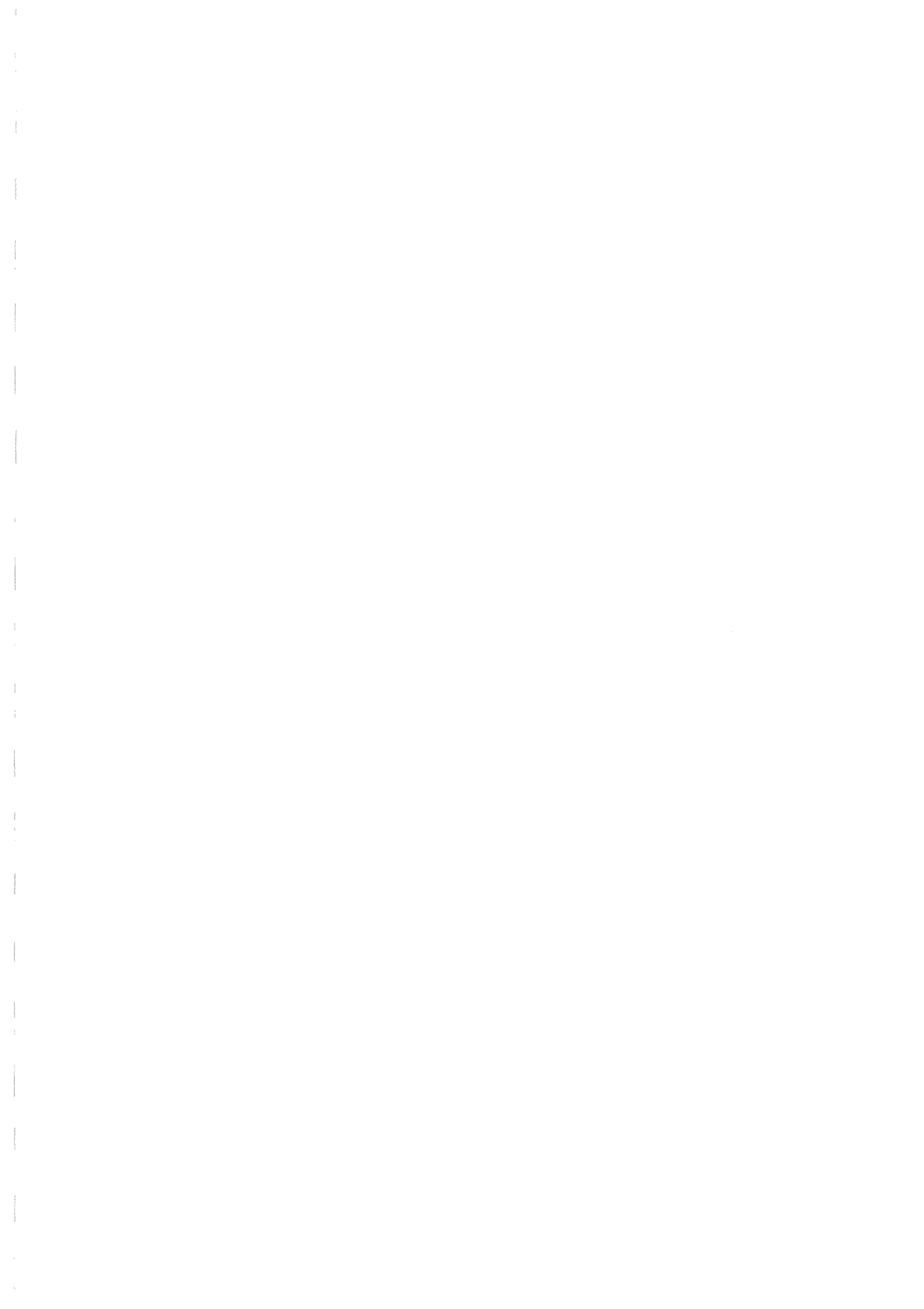
Appendix C

Public Participation documents



Appendix C.1

List of stakeholders



**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT
DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE,
LIMPOPO PROVINCE**

**FULL STAKEHOLDER DATABASE (239 entries)
May 2009**

FULL NAME	COMPANY	CITY
Agenbach, Coenrad	Department of Environmental Affairs and Tourism	PRETORIA
Baber, Rupert	Waterberg Conservancy	VAALWATER
Baberton, Felicity	Anglo Platinum	MOKOPANE
Badenhorst, Dirk	South African Chamber of Business (SACOB)	POLOKWANE
Baloi, Thomas	Department of Health	RUSTENBURG
Baloyi, Mokone	Opret Advice Office	MOKOPANE
Baloyi, Sylvia	Leruleng Community	
Barberton, Felicity	RPM - Mogalakwena Section	MOKOPANE
Bennett, Adam	Ngodwana Environmental Solutions	FLORIDA HILLS
Bezuidenhout, Eric	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Booyesen, Willie	Waterberg Farmers Association	MOOKGOPONG
Bosman, Joline	Northern Media Group	POLOKWANE
Bossenger, Ray	CHAMSA Mogalakwena	MOKOPANE
Buthelezi, Thami	Lonmin Platinum Mines	MARIKANA
Chaba, Francina		MAPELA
Chaba, Francina	Ga-Chaba	MAPELA
Chaba, Josephine	Ga-chaba Community	
Chaba, Maria	Ga-Chaba Community	MAPELA
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Fick, G W		
Fick, George	Department of Social Development	MODIMOLLE
Flynn, Allan	Lonmin Platinum Mines	MARIKANA
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Kekana, Pinky	Waterberg District Municipality	MODIMOLLE
Kekana, Priscilla	Modimolle Local Municipality	MODIMOLLE
Kgaphola, Tiou	Mogalakwena Local Municipality	MAPELA
Kharivhe, Aaron	Department of Minerals and Energy	KLERKSDORP
Khoza, Ivy	Waterberg District Municipality	MOKOPANE
Khwene, Moduku	Department of Land Affairs	POLOKWANE
Klopper, Charl	Lonmin Platinum Mines	PROTEAPARK
Koekemoer, Martin	Anglo Platinum	MOKOPANE
Koelmans, R.	Read Swatman and Voigt	MARSHALLTOWN
Koka, Alfred	Matopa Committee	MAPELA
Kotze, Abel	Bellevue Besproeingsraad	MOKOPANE
Kriel, D.	Read Swatman and Voigt	MARSHALLTOWN
Kutumela, Elizabeth	Skimming Committee	MAPELA
Kutumela, Martina	Skimming Committee	MAPELA
Laka	Mesopotamia Committee	MAPELA
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Langa, B.		MAPELA
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Langa, David	Mesopotamia Committee	MAPELA

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Mabusela, Adrina	Mapela Thusong Service	MOKOPANE
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Mashishi, Frans	GATACO	BRAMLEY
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Mojela, Moses	Matopa Community	MAPELA
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Moloto, Albert	Lonmin Akanani	MOKOPANE
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Mosibitla, Thabiso	Ga-Chaba Village	MAPELA
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Mosibitha, Ramokone	Ga-Chaba Village	MAPELA
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Ngoatje, Fawcett	Lepelle Northern Water Board	POLOKWANE
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Notoane, Johanna		MAPELA
Nyathi, Sipiwe	African News Service	NELSPRUIT
Oosthuizen, A C	Lonmin Platinum Mines	MOKOPANE
Otto, Danie	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Partridge, Tim	Partridge, Maud and Associates	PARKLANDS
Peens, Peet	Transvaalse Landbou Unie	MOKOPANE
Pelser, Dean	Anglo Platinum	POLOKWANE
Perkins, Luke	Wildlife and Environment Society of South Africa (WESSA) Limpopo Province	HAENERTSBURG
Pieterse, Frank	Anglo Platinum	MOKOPANE
Powell, C.	Modimolle Local Municipality	MODIMOLLE
Pulela, Isaac	Pulela and Pulela Construction	MAHWELERENG
Rabalao, Lesetja	Ga-Chaba	MAPELA
Rabalao, Magdeline	Ga-chaba Community	MAPELA
Ramakgolo, Leuba	Thobela FM	POLOKWANE
Ramathuba, Poppy	Voortrekker Hospital	MOKOPANE
Ramotshela, Elizabeth	Leruleng Community	MAPELA
Ramulwela, Ndifilane	Department of Economic Development, Environment and Tourism	MOKOPANE
Rasesepa, Grace	Department of Economic Development, Environment and Tourism	POLOKWANE
Sathekgi, Samuel	Ga-Chaba Village	MAPELA
Schwegman, Carolyn	Wildlife and Environment Society of South Africa (WESSA)	PENNINGTON
Seakamela, Alfred		MAPELA

FULL NAME	COMPANY	CITY
Seanego, Stephen	Nehwai Trading Enterprise	MAPELA
Sebata, Ashton	Kwakwalata Village	MAPELA
Sebola, Lesiba	Mogalakwena Local Municipality	MOKOPANE
Seefane, Virginia		MAPELA
Sefamela, Francinah	Mogalakwena Clinic	MOKOPANE
Sefanane, Virginia		MAPELA
Seko, Dan	Mogalakwena Local Municipality	MOKOPANE
Selamolela, Johannes	Modimolle Local Municipality	MODIMOLLE
Selemela, Richard	Department of Agriculture	POLOKWANE
Seloba, Phelicia	African National Congress (ANC)	MAPELA
Sema, Salome	Matopa Village	MAPELA
Semoga, Jacob	South African Communist Party	MAPELA
Semogo, Lesiba	Matopa Community	MAPELA
Sethoga, Jacob	Matopa Community	MAPELA
Sethoga, Mosima	Mogalakwena Local Municipality	MAPELA
Sethoga, Thabo		MAPELA
Sethokga, Christina	Mesopotamia Committee	MAPELA
Sethokga, Naume	Mogalakwena Local Municipality	MAPELA
Shiburi, John	Mokopane Red Cross	MOKOPANE
Shika, Madimetja	Modimolle Local Municipality	MODIMOLLE
Shiko, Perpetoa	Mabulela Community	MAPELA
Sikhu, Albert	Hans Ga-Masanya	MAPELA
Sikhwihilu, Ndivhuho	Modimolle Local Municipality	MODIMOLLE
Somo, Frans	Seritarita Secondary School	MAPELA
Spoor, Richard	Richard Spoor Attorney	WHITE RIVER
Steyn, Herman	Anglo Platinum	MOKOPANE
Sutherland, Simon	Protea Park Hotel	MOKOPANE
Tabane, Stanley	South African Post Office	MOKOPANE
Tefo, Isaac		MAPELA
Thaba, Rethabile	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Thabetha, Fred	Leruleng Community	MAPELA
Tloubatla, Paulina	Ga-Chaba Village	MAPELA
Tsebe, Dan	Mogalakwena Local Municipality	MOKOPANE
Tseka, Victor	Lonmin Platinum Mines	MARIKANA
Tshamiswe, Derrick	Department of Minerals and Energy	POLOKWANE
van der Merwe, Barend	dB Acoustics	ALLENSNEK
van der Merwe, Odette	Department of Agriculture	MODIMOLLE
van der Spuy, Melt	Bosvelder Newspaper	MOKOPANE
van der Veen, Gerrit	CHAMSA Mogalakwena	MOKOPANE
van Staden, Martiens	Lonmin Platinum Mines	MARIKANA
Venter, Andries	Lonmin Platinum Mines	SLOANNE PARK
White, Jeff	Lonmin Platinum Mines	MOKOPANE
Winter, Pieter	South African National Biodiversity Institute	PRETORIA

Appendix C.2 Issues and Response Report



Environmental Impact Assessment (EIA) for the Proposed Lonmin Akanani Bulk Sampling Prospecting Shaft Development, Mokopane, Limpopo Province

Issues and Response Report

Accompanying the Draft EIA Report and EMP Amendment

May 2009

This Issues and Response Report records the issues of concern, suggestions for enhanced benefits and other comments contributed by stakeholders and potentially directly and indirectly affected parties during the scoping phase of Lonmin's proposed Prospecting Shaft Development Project North of Mokopane, Limpopo Province. Issues were raised in writing, by telephone and at several meetings as listed below, thus far in the EIA process. The report also provides initial responses by the EIA team and the project proponent.

Pre-consultation meetings with relevant regulatory authorities and local and district municipalities:

- Limpopo Department of Minerals and Energy (8 July 2008; Office of the Department of Minerals and Energy, Polokwane)
- Limpopo Department of Economic Development, Environment and Tourism (8 July 2008; Office of the Department of Minerals and Energy, Polokwane)
- Waterberg District Municipality (8 July 2008; Office of the Department of Minerals and Energy, Polokwane)
- Mogalakwena Local Municipality (8 July 2008; Office of the Department of Minerals and Energy, Polokwane)
- Mapela Traditional Council (14 July 2008; Mapela Tribal Office, Mapela)

Focus Group Meeting:

- Mapela Mining Committee (29 July 2008; Mapela Tribal Office, Mapela)

Key Stakeholder Workshop:

- Mining, Industry, Business, Ward Councillors and Local Government (29 July 2008; Lonmin Akanani Division, Mokopane)

Other meetings/ one-on-one interviews with:

- Mr Frank Pieterse (19 June 2008; Anglo Platinum's Potgietersrust Platinum Mine Offices, Mokopane)

Public Meeting to discuss Draft Scoping Report:

- 14 October 2008; Mapela Tribal Hall



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Issues / Comments Raised	Commentator(s)	Reference	Response
1 NEED AND DESIRABILITY OF THE PROPOSED PROJECT			
What is the main reason for wanting to mine the bulk sample?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	The nature of the Platreef is significantly different to the Merensky Reef which makes it necessary for Lonmin to take a bulk sample to be able to refine the metallurgical process for the ore body.
2 AIR QUALITY			
Air pollution will lead to diseases like TB. People must be tested after two months to check if the dust from the project has had any impact on them.	Malesela Frans Langa, Mmamogao Construction and Projects	Written comment, 15 August 2008	<p>Potential impacts on air quality associated with the proposed prospecting shaft project were assessed by an air quality specialist during the impact assessment phase. The findings and recommendations of this specialist study are available in the Draft EIA Report (Appendix B.1 to the report; and Sections 5.6.9; 5.7.9, and Chapter 6 of the Draft EIA Report).</p> <p>The impact assessment found that dust-related impacts associated with the construction phase will have a temporary and low impact on surrounding communities (refer to Section 5.6.9 of the Draft EIA Report). The significance of this impact can be further-reduced if the mitigation measures proposed in Chapter 6 are implemented successfully.</p> <p>Blasting is seen as an intermittent (non-routine) source of emissions (dust and trace gases) and will occur once a day for a limited period of time during the operational phase. Blasting-related dust is regarded as a source of nuisance only, and was rated as moderately significant (Section 5.7.9 of the Draft EIA Report). If mitigated with dust suppression methods, the significance of this impact can be reduced to low.</p> <p>It can be concluded that the proposed project will contribute to a minimal amount of additional dust in the area with a moderate to low environmental significance, which will be further-reduced if the proposed mitigation measures are implemented successfully. The proposed project is therefore not expected to contribute significantly to dust-related health problems currently experienced in the area.</p>
<p>The potential impact of dust on the health of the community is of concern.</p> <p>The community is already suffering from the effects of the dust coming from current mining activity in the area. It is of concern that the proposed project might be the cause of more dust and might pollute the air further.</p>	<p>Agnes Makwiya, Matopa Community Development; Ntona Bently Langa, Leruleng Community; Virginia Seefane, Fothane Youth member; Salome Mokgaetji Langa, ANC Matopa ; Ramasela Johanna Makhafola, ANC Matopa; Ramasela Johanna Leballo, South African Red Cross Society; Salome Sema, ANC Matopa; Ramasela Lillian Langa, ANC Matopa</p>	<p>Written comment, 28 October 2008; Written comments, September 2008</p>	
Potential impacts associated with dust should be assessed during the Environmental Impact Assessment (EIA) process.	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	
The proposed project's potential impacts on air quality must be investigated.	Participant, Mapela community member	Public meeting, 14 October 2008	

Issues / Comments Raised	Commentator(s)	Reference	Response
The community is concerned about the impact of dust on the health of people.	George Langa, Leruleng Village	Public meeting, Tuesday, 14 October 2008	
Dust is contaminating water in the community and people and animals are getting sick as a result.	George Langa, Leruleng Village	Public meeting, Tuesday, 14 October 2008	
How will the potential dust contamination from the proposed project impact on the health of the community?	Johanna Mashishi, Zion Christian Church	Public meeting, Tuesday, 14 October 2008	
Has the relevant data related to baseline dust monitoring been submitted to the DME?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	The relevant baseline data is available for submission to the DME, should the Department wish to view this information.
3 WATER			
The Department of Water Affairs and Forestry should make sure that people and their animals have a reliable source of water.	Perpetoa Shiko, Mabuela community member	Written comment, 27 October 2008	Thank you for the comment. Provision of water supply to the communities is outside of the scope of this EIA and the proposed project.
The community needs proper water supply.	Jacob Sethoga, South African Communist Party	Written comment, September 2008	
The mine should drill boreholes so that people in the area and their livestock have a reliable water source.	David Leballo, ANC Matopa, Perpetoa Shiko, Mabuela community member	Written comment, 22 September 2008; Written comment, 27 October 2008	
It is of concern that the proposed project could use a lot of water, and that there will be no water left for the community and their livestock. There is already a shortage of water in the community.	David Leballo, ANC Matopa	Written comment, 22 September 2008	Lonmin initiated an extensive environmental baseline survey of the Akanani prospecting area during November 2007. Baseline surface and groundwater studies are underway, which will provide baseline data for future surface and groundwater monitoring.
The proposed project's potential impact on water sources should be examined.	Malose Reuben Langa, ANC Matopa; Baetsi Jack Langa, Fothane Village	Written comment, 26 September 2008; Written comment, 26 September 2008	Water required for the development of the proposed Akanani prospecting shaft will be obtained from existing boreholes in the area. The abstraction of water is not anticipated to impact negatively on surrounding groundwater users.
Water supply should be planned in cooperation and consultation with the Bellevue Irrigation Board and irrigation farmers from the surrounding environment.	Abel Kotzè, Bellevue Irrigation Board	Written comment, 3 August 2008	Thank you for the recommendation. Lonmin will consider liaising with irrigation boards and representatives once the company is certain about its long-term involvement in the project area.

Issues / Comments Raised	Commentator(s)	Reference	Response
Water needs to be sampled at strategic points prior to any undertaking of mine activities so that the quality is analysed and recorded. This will assist in determining whether any pollution can later be attributed to the mining activities or not.	Lilly Mokonyane, Waterberg District Municipality	Written Comment, 24 July 2008	Lonmin initiated an extensive environmental baseline survey of the Akanani prospecting area during November 2007. Baseline surface and groundwater studies are underway, which will provide baseline data for future surface and groundwater monitoring.
The proposed project's potential impacts on water must be investigated.	Participant, Mapela community member	Public meeting, 14 October 2008	Two specialist studies were conducted to determine the impacts of the proposed project on water in the area, namely a groundwater specialist study and a surface water specialist study. The findings and recommendations of these specialist studies are contained in Chapters 5 and 6 of the Draft EIA Report. No contamination of water sources (surface and groundwater) should occur if the mitigation measures discussed in Chapter 6 of the Draft EIR are implemented.
How will the potential water contamination from the proposed project impact on the health of the community?	Johanna Mashishi, Zion Christian Church	Public meeting, 14 October 2008	
3.1 Groundwater			
What measures will Lonmin take to make sure that no harm is done to the groundwater system?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	A groundwater specialist study was conducted as part of the EIA to identify potential impacts of the proposed project on the groundwater system. The assessment also identified measures to mitigate potential impacts. Please refer to Chapter 6 of the Draft EIA Report for the mitigation measures proposed to mitigate and/or prevent potential impacts on groundwater. Proposed mitigation measures include sizing the stormwater management facilities appropriately and lining settling and pollution control dams.
4 VISUAL			
The waste rock from the mining activities will have a negative impact on the natural environment and will not be visually pleasing.	Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa	Written comment, 1 October 2008	The views from the surrounding villages have already been influenced negatively by the neighbouring PP Rust mine. The prospecting shaft structure will reach more than 30 m above ground level and is proposed to be constructed between the existing PP Rust overburden stockpile and the surrounding villages. It would therefore result in little change to the landscape as viewed from the villages, since it would be visually 'absorbed' by the overburden stockpile which forms the background to these views. The significance of the potential visual impacts resulting from the construction and operation of the proposed prospecting shaft and associated structures (such as the waste rock dump) will be low. Please also refer to Sections 5.6.13 and 5.7.13 Draft EIA Report. The specialist Visual Assessment Report is appended to the Draft EIA Report as Appendix B.7.

Issues / Comments Raised	Commentator(s)	Reference	Response
5 AGRICULTURE			
5.1 Cultivated land			
The community depends on its farming land for a living and if the mine is going to occupy this land, they should be compensated accordingly. How will they survive if the mining company places its big machines on their land?	Perpetoa Shiko, Mabuela community member; Moses Mojela, Matopa Community; Alfred Seakamela, NGO Mapela	Written comment, 27 October 2008; Written comment, 23 September 2008; Written comment, October 2008	The total grazing area in the direct vicinity of Leruleng, Skimming and GaMasenya Villages (Hans) is approximately 245 ha. The land capability of the proposed prospecting shaft site was rated as grazing land. The loss of approximately 2 ha of land associated with the proposed prospecting shaft, will therefore constitute a loss of approximately 0.8% of the total surrounding grazing area. No arable agricultural land will be disturbed as part of the proposed Akanani prospecting shaft development project. Please also refer to Sections 5.6.4 and 5.6.14 of the Draft EIA Report.
How will the proposed project affect the soil and farming in the area?	Malose Reuben Langa, ANC Matopa	Written comment, 26 September 2008	
5.2 Grazing Land			
The location of the waste rock dump for the proposed project should be well thought out as the proposed site is also used as grazing land for animals.	George Langa, Leruleng Village	Public meeting, 14 October 2008	The loss of approximately 2 ha of land associated with the proposed prospecting shaft will constitute a loss of approximately 0.8% of the total surrounding grazing area. The significance of the impact associated with the reduction in grazing land is considered to be very low. Please refer to Sections 2.5 and 5.6.4 of the Draft EIA Report.
Natural vegetation is important to the community as it provides food for livestock.	Ramasela Johanna Makhafola, ANC Matopa	Written comment, 22 September 2008	
Mines usually occupy large pieces of land and destroy farming and grazing land. It is suggested that, before the project commences, protected grazing camps are established to ensure that livestock have enough grazing land.	Moses Mojela, Matopa Community; Perpetoa Shiko, Mabuela community	Written comment, 23 September 2008; Written comment, 27 October 2008	
The potential impacts of the proposed project on grazing land should be determined.	Stephen Seanego, Mapela community; Salome Sema, ANC Matopa; Agnes Makwiya, Matopa Community Development	Written comment, 3 September 2008; Written comment, 26 September 2008; Written comment, 28 October 2008	
6 NOISE AND VIBRATIONS			
Possible noise pollution as a result of the proposed project will impact on the community and young children.	Agnes Makwiya, Matopa Community Development	Written comment, 28 October 2008	A noise and vibration specialist study was conducted to determine the potential impact of the proposed project on local villages. The

Issues / Comments Raised	Commentator(s)	Reference	Response
The community is concerned about houses cracking and / or collapsing as a result of the proposed project.	Ntona Bently Langa, Leruleng Community; Salome Mokgaetji Langa, ANC Matopa; Virginia Seefane, ANC	Written comment, 10 September 2008; Written comment, 22 September 2008; Written comment, 16 October 2008	specialist study is attached to the Draft EIA Report as Appendix B.4. The significance of the potential noise impact associated with vehicles on site during the construction phase is low. Please refer to Section 5.6.10 of the Draft EIA Report.
Potential noise disturbance as a result of the proposed project should be investigated. The possibility that noise might lead to hearing problems for community members is also of concern.	Ntona Bently Langa, Leruleng Community	Written comment, 10 September 2008	Although the significance of the anticipated impact associated with blasting activities during the first few weeks of shaft development (operational phase) could be seen as moderate, the effect of this impact will be reduced to low if the mitigation measures proposed in Chapter 6 of the Draft EIA Report are implemented successfully. Please refer to Section 5.7.10 of the Draft EIA Report. Structural damage is only expected to occur at a vibration level in excess of 5.0 mm/s. Due to the distance from the proposed site to surrounding residences (more than 700 m) and the expected low vibration impacts during blasting, no structural damage is expected at surrounding villages. Refer to Section 5.7.10 of the Draft EIA Report.
How will noise and vibrations affect the local villages?	Makwena Nong, Hans Masibe Primary School; Virginia Seefane, ANC	Key Stakeholder Workshop, 29 July 2008; Written comment, 16 October 2008	
The proposed project's potential impacts on noise levels must be investigated.	Participant, Mapela community member	Public meeting, 14 October 2008	
The noise and vibrations from the heavy machinery and blasting activities are of concern.	George Langa, Leruleng Village	Public meeting, 14 October 2008	Lonmin initiated an extensive environmental baseline survey of the area during November 2007. These include determining background noise levels. Existing and potential noise pollution sources and levels have been measured and will be monitored.
Noise pollution levels must be researched and monitored.	Abel Kotzé, Bellevue Irrigation Board	Written comment, 3 August 2008	
People's houses have cracks as a result of the current mining activities in the area.	Ramasela Johanna Leballo, South African Red Cross Society; Ramasela Lillian Langa, ANC Matopa	Written comment, 22 September 2008; Written comment, 24 September 2008	Thank you for the comment. Cracking of houses due to current mining activities should be discussed with the relevant mining company.
There is a concern about cracks that might appear on walls and even in the foundation structures of houses.	George Langa, Leruleng Village	Public meeting, 14 October 2008	A noise and vibration specialist study was conducted to determine potential impacts of the proposed project on local villages. The specialist study is attached to the Draft EIA Report as Appendix B.4. Structural damage is only expected to occur at a vibration level in excess of 5.0 mm/s. Due to the distance between the proposed site and surrounding residences (more than 700 m) and the expected low vibration impacts during blasting, no structural damage is expected at surrounding villages. Please refer to Section 5.7.10 of the Draft EIA Report.
What will the difference in impact be between blasting on the Lonmin project and that already being done by Anglo Platinum's	Makwena Nong, Hans Masibe Primary School	Key Stakeholder Workshop, 29 July 2008	Blasting on the Lonmin project will be on a much smaller scale, since it will comprise an underground, vertical prospecting shaft, developed to a depth of approximately 1,000 m. PP Rust is an open

Issues / Comments Raised	Commentator(s)	Reference	Response
Potgietersrust Platinum Mine (PP Rust)?			cast mine.
7 CULTURAL AND HERITAGE ASPECTS			
Will the burial grounds close to and around the site need to be relocated?	MF Langa, Mapela Traditional Council	Meeting with the Mapela Traditional Council, 15 July 2008	The Heritage Specialist identified six graves in the vicinity of the project area. Please refer to Appendix B.6 of the Draft EIA Report for the Phase I Heritage Specialist Assessment undertaken as part of this EIA.
Will the traditional authority be required to assist with the identification of graves and the tracing of the relatives?	MF Langa, Mapela Traditional Council	Meeting with the Mapela Traditional Council, 15 July 2008	<p>The potential impact of developing the proposed prospecting shaft on the graves is of high significance. This significance rating could however be reduced to low, if the recommended mitigation measures as described in Chapter 6 of the Draft EIA Report are successfully implemented. Recommended mitigation measures include actions such as conserving graveyards <i>in situ</i> by demarcating them with brick walls and/or fences.</p> <p>The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. If relocation of grave sites are required, this task should be undertaken by forensic archaeologists or by reputable undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes public consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains has to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.</p> <p>It is a good suggestion to include the traditional authority in further grave identification activities. Lonmin will furthermore strongly consider including the traditional authorities in identification of graves of relatives should grave relocation be required.</p>
8 SOCIO-ECONOMIC ISSUES			
How will Lonmin assist the community once the shaft has been closed?	David Lebelo, Matopa community member	Written comment, 22 October 2008	The proposed project only involves the development of a prospecting shaft as part of Lonmin's prospecting activities in the area. The outcome of the prospecting activities in the area will direct Lonmin's long-term involvement in the project area. Long-

Issues / Comments Raised	Commentator(s)	Reference	Response
			term job opportunities will be created for people from the local community if prospecting indicates that mining would be feasible and Lonmin decides to develop a mine at Akanani.
It is important that the community is consulted by Lonmin so that there can be agreements on possible compensation where necessary.	Agnes Makwiya, Matopa Community Development; Perpetoa Shiko, Mabueta community member	Written comment, 28 October 2008	An extensive Public Participation process is being conducted as part of the EIA for the proposed prospecting shaft. Lonmin furthermore has monthly meetings with a Community Forum representing the Villages situated within the prospecting area. The Forum representatives were democratically elected by the relevant Villages. The loss of approximately 2 ha of land associated with the proposed prospecting shaft, will constitute a loss of approximately 0.8% of the total surrounding grazing area. In the event of a loss of agricultural land Lonmin will enter discussions with the Tribal Authority to discuss any compensation issue.
The high child birth-rate currently existing in the community will be reduced as a result of the job opportunities that will be created.	Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa	Written comment, 1 October 2008	Thank you for these comments.
The proposed project will help in reducing crime in the community if people are able to get jobs.	Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa	Written comment, 1 October 2008	
What is the possibility of the community becoming shareholders in the proposed project?	Leruleng Community	Written comment, 11 September 2008	It is important to realise that the proposed project only involves the development of a prospecting shaft as part of Lonmin's prospecting activities in the area. Lonmin will not be profiting financially from the proposed project. All the ore mined will be strictly for testing purposes.
Where will the contractors for the prospecting shaft project be accommodated?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	Lonmin has raised the possibility that some contractors might, in future, be accommodated in a labourers' camp at the project site. In Chapter 6 of the Draft EIA Report it is suggested that Lonmin should reconsider the requirement to establish a labourers' camp on site. The workforce should preferably be housed in existing accommodation in Mokopane and transported to the site by bus.
Which communities will be affected by the project?	George Matabane, Mogalakwena Local Municipality	Meeting with Authorities, 8 July 2008	The nearest villages to the prospecting shaft site include the Skimming and Leruleng Villages (which are joined together). Hans (Ga-Masenya) is located further from the site.
In the past, communities have been disappointed by promises made to them by mining houses. In many cases these promises are never delivered on.	Ray Bossenger, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	Lonmin is committed to build a good relationship with the community and once the mine becomes operational community interactions will increase.

Issues / Comments Raised	Commentator(s)	Reference	Response
Lonmin should put the community first, and work hand-in-hand with the community. Lonmin shouldn't use the community to get what it wants and then leave them to suffer.	Malose Reuben Langa, ANC Matopa	Written comment, 26 September 2008	
The community should be consulted and involved in all processes/ activities that will take place, not just in the EIA but with the proposed project as well.	Baetsi Jack Langa, Fothane Village	Written comment, 28 September 2008	
How will Lonmin ensure that people's houses do not sink after the mine closes?	Frans Somo, Seritarita Secondary School	Key Stakeholder Workshop, 29 July 2008	For the prospecting shaft project, there will only be a single, vertical shaft, 1,000 metres deep. The shaft will be 700 metres from the nearest house so there is no chance of any houses sinking as a result of this.
8.1 Health			
Lonmin should work closely with the Department of Health to ensure that the proposed project does not have any impact on the health of the community.	Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa	Written comment, 1 October 2008	Thank you for the suggestion.
8.2 Local Economic and Community Development			
Lonmin should respect the community's wishes and do as the community requests so that there can be a good working relationship between Lonmin and the community.	Mmakgabo Laka, Mapela community member	Public meeting, 14 October 2008	It is important to realise that the proposed project only involves the development of a prospecting shaft as part of Lonmin's prospecting activities in the area. Lonmin will not be profiting financially from the proposed project. All the ore mined will be strictly for testing purposes. If prospecting indicates that future mining would be feasible at Akanani, a Mining Right application will have to be submitted to the Department of Minerals and Energy. Before granting a Mining Right, Lonmin will have to prepare, submit and obtain approval on documentation such as a Social and Labour Plan, Environmental Impact Assessment and Environmental Management Programme. The Social and Labour Plan will describe Lonmin's potential community development initiatives for the project area.
Lonmin should provide funds for each community so that people can have a better life with less crime.	Mmakgabo Laka, Mapela community member	Public meeting, 14 October 2008	
The community would like to have an agreement with Lonmin so that the community can benefit directly from Lonmin's activities.	Participant, Mapela community member	Public meeting, 14 October 2008	
Is there room for shared benefits on the proposed project?	Participant, Mapela community member	Public meeting, 14 October 2008	
The youth in the community needs access to information technology (computers).	Jacob Lesiba Sethoga, Matopa community; Johannes Mkhumane, Matopa community	Written comment, October 2008; Written comment, 27 October 2008	A socio-economic assessment was conducted to assess the potential positive and negative impacts of the proposed prospecting shaft project on communities in the project area. The socio-economic assessment is attached to the Draft EIA Report as Appendix B.8.
Lonmin should assist the community with sustainable development projects like food gardening, chicken and dairy farming.	Alfred Seakamela, NGO Mapela	Written comment, October 2008	The main project-related benefit for the local community associated with the proposed prospecting shaft project is job creation. Between 160 and 195 local employment opportunities will be created during the construction and operational phases of the proposed project.
The communities should enjoy economic benefits from the proposed project. The potential economic benefits of the proposed	Ramasela Johanna Makhafola, ANC Matopa	Written comment, 22 September 2008	

Issues / Comments Raised	Commentator(s)	Reference	Response
project will ensure development in the communities.			
Will the proposed project assist the community with basic facilities and services such as schools, a health care centre, a community hall, street lights, water supply and sanitation?	Leruleng Community; David Ntjatjamejja Lebelo, Matopa community member; Ramakanta Magdeline Langa, ANC Matopa; Lydia Ramadimetja Makweya, ANC	Written comment, 11 September 2008; Written comment, 28 September 2008; Written comment, 26 September 2008; Written comment, 24 September 2008	
The community would like to see the development of recreational facilities.	Leruleng Community; Baetsi Jack Langa, Fothane Village	Written comment, 11 September 2008; Written comment, 28 September 2008	
Lonmin should assist in the development of social infrastructure as well as the provision of community services.	Baetsi Jack Langa, Fothane Village ; Lesiba Jacob Sethoga, Matopa community member	Written comment, 28 September 2008; Written comment, 26 September 2008	
The mine should develop the community and empower community members with skills that will help in eradicating poverty.	Virginia Seefane, Fothane Youth member; Beauty Makweya, Matopa community member	Written comment, 22 September 2008; Written Comment, October 2008	
The proposed project should assist with establishing community projects, business training and marketing of local products.	Leruleng Community	Written comments, 11 September 2008	
It is hoped that the EIA process will ensure that the community will benefit from the proposed project and mining development in the area.	Jacob Sethoga, South African Communist Party	Written comment, September 2008	
Poverty alleviation programmes are needed in the community.	Baetsi Jack Langa, Fothane Village ; Ramakanta Magdeline Langa, ANC Matopa; Jacob Lesiba Sethoga, Matopa community	Written comment, 28 September 2008; Written comment, 26 September 2008; Written comment, October 2008	
Lonmin should help in developing local small businesses so that they can in turn help in creating jobs for the community.	Abram Molomo, Mapela community member	Public meeting, 14 October 2008	It is important to realise that the proposed project only involves the development of a prospecting shaft as part of Lonmin's prospecting

Issues / Comments Raised	Commentator(s)	Reference	Response
If the proposed project will be contributing to local economic development programmes, a committee must be set up to manage and monitor the funding for such programmes.	Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa	Written comment, 1 October 2008	activities in the area. Lonmin will not be profiting financially from the proposed project. All the ore mined will be strictly for testing purposes.
Will the proposed project develop, empower and provide business opportunities for local entrepreneurs?	Leruleng Community	Written comment, 11 September 2008	The proposed project will mainly hold benefits for the community through job creation. Business opportunities for local entrepreneurs are therefore expected to be minimal.
The mine should help in developing cultivated land since the community needs it for survival.	Moses Mojela, Matopa Community	Written comment, 23 September 2008	Comment noted.
8.3 Training and Skills Development			
Lonmin should provide a training course at one of the local schools so that people can learn skills that are relevant to the mining industry.	Mmakgabo Laka, Mapela community member	Public meeting, 14 October 2008	Thank you for these suggestions. Murray and Roberts, who will conduct the shaft sinking, has a training facility and will utilise this facility to train workers. Unspecialised workers will be sourced from the local communities. It is important to keep in mind that very little workforce will be needed during the sinking of the prospecting shaft and formal training programs will only be developed once the mine is shown to be economically feasible.
A training centre should be established to develop skills in young people so that they can get jobs at the mines.	George Langa, Leruleng Village	Public meeting, 14 October 2008	
To ensure that the community benefits from the job opportunities that will arise as a result of the proposed project, they should be equipped with the skills that are relevant to the mining industry.	Baetsi Jack Langa, Fothane Village ; Lesiba Jacob Sethoga, Matopa community member; Ramasela Johanna Leballo, South African Red Cross Society; Ramasela Lillian Langa, ANC Matopa; Agnes Makwiya, Matopa Community Development	Written comment, 28 September 2008; Written comment, 26 September 2008; Written comment, 22 September 2008; Written comment, 24 September 2008; Written comment, 28 October 2008	
Skills development programmes targeted at the youth will empower them and assist them in getting jobs.	Ramasela Johanna Makhafola, ANC Matopa; David Ntjatjamatja Lebelo, Matopa community member; Maria Mkanyane community development	Written comment, 22 September 2008; Written comment, 28 September 2008; Written comment, 26 October 2008	
Skills development programmes should be established for the community. These should include Adult Basic Education and Training (ABET) and training programmes focusing on scarce skills (technical, engineering etc). A bursary scheme for children of community members should also be established.	Leruleng Community	Written comment, 11 September 2008	
Lonmin should establish a learnership programme for the	David Ntjatjamatja Lebelo,	Written comment,	

Issues / Comments Raised	Commentator(s)	Reference	Response
community.	Matopa community member	28 September 2008	
<p>Lonmin should identify suitable young people for available positions based on language levels, minimum qualifications, medical examinations and aptitude tests.</p> <p>Approximately 20 students should be identified by Lonmin to be trained in the mining sector. Regular personnel reports should be produced on progress of the students.</p> <p>Failure to comply with the preset minimum standards required by Lonmin should result in disqualification. There is a means of identifying natural aptitude as well as future long-term dedicated employees who would serve to uplift the community and Lonmin's image as a benefactor.</p>	Ray Bossenger, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	
If Lonmin receives the necessary authorisation to go ahead with the project, could a workshop be arranged to explain to the community what the shaft will look like before construction starts?	Angelina Mathato, Mapela Mining Committee	Focus Group Meeting with the Mapela Mining Committee, 29 July 2008	Lonmin can arrange a trip to their Marikana mine for a few community members so that they can get first hand information on what a shaft looks like and how it works.
8.4 Employment			
Local people must be employed at the proposed prospecting shaft site.	Participant, Mapela community member; Francinah Chaba, Ga-Chaba Village; Johanna Maboyane, Mapela community member	Public meeting, 14 October 2008	It is estimated that up to a maximum of 300 temporary workers will be employed at any given time during the construction phase of the prospecting shaft. Approximately 65% these workers will be unskilled and sourced from within the Mogalakwena Local Municipality.
Job opportunities at the mine are a concern seeing that people from other areas are usually employed while local people continue to struggle.	Phelecia Ledile Seloba, ANC Matopa Village	Written comment, 23 September 2008	Murray and Roberts, who will conduct the shaft sinking, has a training facility and will utilise this facility to train workers. Unspecialised workers will be sourced from the local communities.
Will the proposed project provide job opportunities for the local community?	Leruleng Community	Written comment, 11 September 2008	
How many people are expected to be employed by the proposed project?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	

Issues / Comments Raised	Commentator(s)	Reference	Response
Local and neighbouring people and institutions should be employed as part of the proposed project. Where possible, contractors and labourers should not be brought in from other regions.	Abel Kotzé, Bellevue Irrigation Board; Lydia Ramadimefja Makweya, ANC	Written comment, 3 August 2008; Written comment, 24 September 2008	
The project will help with the creation of jobs.	Malesela Frans Langa, Mmamogao Construction and Projects; Lesiba Abram Mphela, Gun-Free South Africa/ Disabled People of South Africa; Salome Sema, ANC Matopa	Written comment, 15 August 2008; Written comment, 1 October 2008; Written comment, 26 September 2008	
Lonmin Akanani should focus on development and the creation of jobs for the community.	Malose Reuben Langa, ANC Matopa	Written comment, 26 September 2008	
The community is eagerly awaiting the proposed project as it will assist with employment and improve the economy.	Stephen Seanego, Mapela community	Written comment, 3 September 2008	
The lack of job opportunities often leads to unrest within communities. It is hoped that the proposed project will create employment opportunities for the community.	Ntona Bently Langa, Leruleng Community	Written comment, 10 September 2008	
Lonmin should not only give job opportunities to the youth who have successfully completed Grade 12 with maths and science. Those that have not been able to complete their Grade 12 must also be considered.	Francinah Chaba, Ga-Chaba Village	Public meeting, 14 October 2008;	Appointments done will be conducted in line with Lonmin's recruitment policy. There are different requirements for different levels of work. If a position requires a Grade 12 with Math and Science, then those people will be recruited. Some positions do not require a Grade 12 at all.
Lonmin should not only consider the youth or people with a certain level of education for jobs. Many of the people who are suffering in this community are people who are older with families to look after and many of them never had the opportunity to get an education or to further their education.	Christina Molekoa, Ga- Chaba Village; Perpetoa Shiko, Mabuella community member	Public meeting, 14 October 2008; Written comment, 27 October 2008	
Those people employed at the shaft development project should be permanently employed by Lonmin once the mine starts.	David Lebelo, Matopa community member; Lydia Ramadimefja Makweya, Matopa community member; Lesiba Sethoga, Matopa community	Written comment, 22 October 2008; Written comment, October 2008; Written comment, 26 October 2008	Comment noted.
There is a mine in our community, but there is still a high level of	Ramasela Johanna Leballo, South African Red Cross Society;	Written comment, 22 September 2008;	Thank you for this comment. The proposed prospecting shaft project will create some employment opportunities for local people,

Issues / Comments Raised	Commentator(s)	Reference	Response
unemployment because there are no jobs for the local people.	Ramasela Lillian Langa, ANC Matopa	Written comment, 24 September 2008	as discussed above.
Unemployment is a serious issue in our community. Our people do not have any mining skills.	Virginia Seefane, Fothane Youth member	Written comment, 22 September 2008	Murray and Roberts, who will conduct the shaft sinking, has a training facility and will utilise this facility to train workers. Unspecialised workers will be sourced from the local communities.
8.5 Relocation			
Where necessary, people living closest to the project should be relocated to a safe place.	Ramasela Johanna Makhafola, ANC Matopa	Written comment, 22 September 2008	It will not be necessary to relocate any people as a result of this proposed project seeing that the nearest residents to the site is situated approximately 700 m from site.
Will any of the communities be relocated as a result of the prospecting shaft project?	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	
Will any of the communities be relocated during the operation of the Akanani Mine project?	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	
It is not safe to have people living on top of a mine shaft. The possibility of relocations as a result of the shaft is a real concern for the community.	Ntona Bently Langa, Leruleng Community	Written comment, 10 September 2008	
Mining activities are destroying the community as villages are always relocated when mines want their land. Lonmin is not telling the truth about the proposed project in this regard.	Participant, Mapela community member	Public meeting, 14 October 2008	
If communities are not going to be relocated, does it mean that they will not be affected by the project?	George Matabane, Mogalakwena Local Municipality	Meeting with Authorities, 8 July 2008	
8.6 Community Relations			
Is Lonmin prepared to accept a Memorandum of Understanding (MoU) from the community? Even though the proposed project might not have any benefits at this point, the community would like to have a clear understanding of what the possible benefits will be if Lonmin goes ahead with full scale mining.	Participant, Mapela community member	Public meeting, 14 October 2008	The request will be put forward to the Lonmin Vice President: External Affairs, Mr. Barnard Mokwena.
Lonmin was warmly welcomed into the community, but things seem to have gone wrong in the relationship that the community had built with Lonmin. Lonmin must explain to the community what it is that has	Participant, Mapela community member	Public meeting, 14 October 2008	Lonmin is committed to building a good relationship with the community and has therefore established a community forum that meet monthly or bi-monthly to liaise with and listen to the concerns

Issues / Comments Raised	Commentator(s)	Reference	Response
gone wrong.			of the community and to provide feedback on a regular basis. Lonmin has also appointed a Community Liaison Officer who is available to meet with community members to listen to their concerns and to convey their concerns to the appropriate person at Lonmin.
What Lonmin is promising the community about the specialist studies is not true. Previously, another mining company came to the community and promised people that studies will be conducted to address their concerns, and to this day, no one ever came. The mining has gone ahead and all the community is getting in return is dust and sickness.	Participant, Mapela community member	Public meeting, 14 October 2008	Specialist studies were conducted by independent specialists. The findings and recommendations of the specialist studies are contained in the Draft EIA Report that is now available for public comment. The recommendations of the specialist studies are contained in the environmental management plan (EMP). The EMP will be legally binding and will be monitored by the DME.
The mining forums elected to act as a link between the community and Lonmin are ineffective as they do not provide any feedback to the community.	Participant, Mapela community member	Public meeting, 14 October 2008	The information will be conveyed to the Community Forum.
The current mining forums must be changed.	Participant, Mapela community member	Public meeting, 14 October 2008	
The mining forums do not represent the community.	Participant, Mapela community member	Public meeting, 14 October 2008	
The traditional leadership should represent the views and interests of the people, and not only their own interests, when dealing with Lonmin.	Participant, Mapela community member	Public meeting, 14 October 2008	The community should preferably discuss this matter with the traditional leadership.
The tribal leaders must realise that they are there because of the community. Whatever Lonmin is giving them behind the community's back, they must share with the rest of the community.	Johanna Makoela, Skimming Village	Public meeting, 14 October 2008	
The traditional leadership should be giving Lonmin the directive and not the other way round.	Participant, Mapela community member	Public meeting, 14 October 2008	Information noted.
The community leadership must be informed on every step of the proposed project.	Participant, Mapela community member	Public meeting, 14 October 2008	Information noted.
Mining companies collude with the traditional leadership at the expense of the community. If the proposed project affects 16 villages, the community wants to see 16 Section 21 documents, not just the agreements that Lonmin has with the traditional leadership.	Participant, Mapela community member	Public meeting, 14 October 2008	Information noted.
Lonmin must know that the community will not be cheated of their rights without a fight.	Participant, Mapela community member	Public meeting, 14 October 2008	Information noted. Lonmin always endeavour to have good relationships with its neighbours.

Issues / Comments Raised	Commentator(s)	Reference	Response
Lonmin must involve the community in its negotiations regarding the proposed project.	Participant, Mapela community member	Public meeting, 14 October 2008	The current process is achieving this.
There must be a good working relationship between Lonmin, the community, the traditional committees and the mining forums.	Francinah Chaba, Ga-Chaba Village	Public meeting, 14 October 2008	Information noted.
The ward councillors have finally managed to establish a relationship with the traditional council. Lonmin is affected by historical issues with mining in the area. The community must give Lonmin an opportunity to explain who they are and what they want from this community.	Ward Councillor, Skimming Village	Public meeting, 14 October 2008	Thank you for the comment.
The indunas, ward councillors and mayors are letting the community down as they do not follow up and ensure that promises made to communities by mining companies are indeed delivered on. Leaders must take responsibility for their people.	Participant, Mapela community member	Public meeting, 14 October 2008	It is suggested that this issue is taken up with the relevant community leaders.
If the ore mined during the proposed project is found to contain other minerals other than the PGMs, will Lonmin consider sharing the benefits from these with the community?	Participant, Mapela community member	Public meeting, 14 October 2008	Lonmin's Mining Right will stipulate the specific mineral(s) the company will be allowed to mine. In this case it would most probably be only the Platinum Group Metals.
The community of Skimming Village was promised that representatives from Lonmin would be coming to the community to address them. To this day, no one has come.	Participant, Mapela community member	Public meeting, 14 October 2008	The request will be put forward to the Vice President: External Affairs, Mr. Barnard Mokwena.
Why is it necessary for people to disclose their names and details on the comment sheets or when they give comments in this meeting?	Participant, Mapela community member	Public meeting, 14 October 2008	The relevant authorities require details of those consulted during the public participation process. The authorities also require proof that comments had been raised by actual stakeholders and not merely made up by the consultant and the proponent. Disclosing your name will also assist you in verifying that your comment was captured correctly when reports become available for public review.
Is it fair for Lonmin to destroy the Mapela community like this? Lonmin is not following up on the feedback process from the mining forums to the communities. People are anxious and are growing more suspicious of Lonmin's intentions.	Participant, Mapela community member	Public meeting, 14 October 2008	Information noted.
Will the mining committees established for the prospecting shaft project still be active after the shaft has been closed, and will they remain the same when the mine starts?	Lydia Ramadimetja Makweya, Matopa community member; Moses Mojela, Matopa community member; Lesiba Sethoga, Matopa community	Written comment, October 2008; Written comment, October 2008; Written comment, 26 October 2008	The Social and Labour Plan (not yet commenced) will clearly indicate the role, responsibilities and structures to be in place. It is too early to speculate on the issue.
What role will the mining committees play when the shaft development project starts?	Lesiba Sethoga, Matopa community	Written comment, 26 October 2008	The same as their current roles.

Issues / Comments Raised	Commentator(s)	Reference	Response
How will the mining committee members earn a living if the shaft is closed?	David Leballo, ANC Matopa	Written comment, 26 October 2008	Lonmin's commitment is to keep the community forum in existence for the duration of the prospecting activities.
What will happen to the promises Lonmin made to the community (roads, water, toilets) when the shaft is closed?	David Leballo, ANC Matopa	Written comment, 26 October 2008	Lonmin will endeavour to honour all commitments made.
Lonmin should fulfil its promise with regard to the roads and cemeteries they promised the community.	Lydia Ramadimetja Makweya, Matopa community member	Written comment, October 2008	Lonmin will endeavour to honour all commitments made.
We thank the chairperson of the Matopa Mining Committee for educating the community about the proposed project and the EIA process.	David Lebello, Matopa community member; Maria Mkanyane, Matopa community	Written comment, 22 October 2008	Thank you for this comment.
The mining committees are the eyes and ears of the community and should remain in place after the completion of the EIA and the prospecting shaft project.	Moses Mojela, Matopa community member	Written comment, October 2008; Written comment, 26 October 2008	Thank you for this comment.
9 PROJECT-SPECIFIC ISSUES			
The roads in Leruleng Village have been damaged by the trucks belonging to the Lonmin drilling contractors. What is Lonmin planning to do about this as people have difficulty using these roads in the rainy seasons?	Gert Ledwaba, Mapela community member	Public meeting, 14 October 2008	The issue should be taken to the monthly community forum meeting.
Is it possible that the ore that is mined at the prospecting shaft be processed in Mapela to create jobs for the community?	Participant, Mapela community member	Public meeting, 14 October 2008	Unfortunately, the test work has to be done in a specialised laboratory and the ore will therefore be taken to Mintek in Gauteng.
What will the duration of the shaft development project be?	Lesiba Sethokga, Matopa Community; David Lebelo, Matopa community member	Written comment, October 2008; Written comment, 22 October 2008	Approximately 3 years.
What is the size of Lonmin's approved prospecting area and will prospecting also take place outside this approved prospecting area?	Ray Bossenger, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	The Akanani prospecting area covers 4,000 hectares. At the moment, all prospecting activities are taking place within this area. The proposed prospecting shaft site of approximately 2 ha in extent will be situated within the 4,000 ha approved Akanani prospecting area.
Which approved prospecting methods were included in the Prospecting Work Program?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	The approved prospecting methods include diamond drilling, trenching, pitting and bulk sampling obtained from drilling deflections. When the Prospecting Right was received, the properties (e.g. depth, gradient, etc) of the reef were relatively

Issues / Comments Raised	Commentator(s)	Reference	Response
			unknown. Subsequently, it has been found that the nature of the reef is rather unique and the only viable method of obtaining the bulk sample is via the sinking of a shaft.
How many boreholes has Lonmin drilled to date and is Lonmin still within the drilling limits set out in the permit?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Boreholes are being drilled in accordance with the approved Prospecting Work Program.
When does Lonmin plan to start sinking the proposed prospecting shaft?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	The sinking of the shaft will depend on the outcome and approval of the EIA process, as well as other internal financial considerations.
When will the proposed project commence?	Stephen Seanego, Mapela community	Written comment, 3 September 2008	
If the project proves to be viable, when do you plan to start mine construction?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	After environmental authorisation, should the project prove feasible and Lonmin decide to continue with mine development, mine construction is expected to begin in 2012 and production in 2015.
Once the prospecting shaft has been closed, how long will it be before mine construction commences?	Lydia Ramadimetja Makweya, Matopa community member	Written comment, October 2008	A Mining Right application will have to be submitted to the Department of Minerals and Energy. Before granting a Mining Right Lonmin will have to prepare, submit and obtain approval additional documentation, e.g. Social and Labour Plan, Environmental Impact Assessment and Environmental Management Programme.
What happens if Lonmin receives the required authorisation to mine a bulk sample, and the results from the test are positive?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	
What mineral will Lonmin be mining?	Makwena Nong, Hans Masibe Primary School	Key Stakeholder Workshop, 29 July 2008	The Platinum Group Metals (PGMs).
What is Merensky?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	<p>The Merensky Reef is a layer of igneous rock in the Bushveld Igneous Complex (BIC) which together with an underlying layer, the Upper Group 2 Reef (UG2), contains most of the world's known reserves of platinum group metals (PGMs) or platinum group elements (PGEs) - platinum, palladium, rhodium, ruthenium, iridium and osmium.</p> <p>The UG2 Reef, the composition of which is relatively consistent throughout the BIC, is rich in chromite, but lacks the Merensky's gold, copper and nickel by-products, though its PGM reserves may be almost twice those of the Merensky Reef.</p>
How much platinum is actually in the Platreef?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	The potential life-of-mine at the Akanani project area is estimated to be 40 years.
What type of mining will Lonmin use for the bulk sample?	Participant, Mapela community member	Public meeting, 14 October 2008	A single prospecting shaft will be sunk about 1 000 m below ground. The shaft will be between 7 and 10 m in diameter. After the bulk sample has been mined, the shaft will be closed and rehabilitated.

Issues / Comments Raised	Commentator(s)	Reference	Response
9.1 Mine closure and rehabilitation			
After the bulk sample has been mined and the land is rehabilitated, what possible dangers will there be for the community?	Johanna Mashishi, Zion Christian Church; Participant, Mapela community member	Public meeting, 14 October 2008	Should the Akanani platinum project not be viable, the waste rock on the surface will be dumped back into the shaft and a concrete slab will be constructed over the mouth of the shaft. The rest of the disturbed area will be rehabilitated to its former state, as far as practically possible. No potential dangers to the community are anticipated if the prospecting shaft site is closed and capped successfully.
There should be no problem with the proposed project if the shaft will be closed and the land rehabilitated.	Alfred Koka, Matopa community		<p>Thank you for the comment.</p> <p>The prospecting shaft is intended to be used as the ventilation shaft for the future requirements of the Akanani Mine, should the feasibility studies indicate that the Akanani platinum project is economically viable. A separate, full EIA and EMP process must be conducted and approved by the relevant decision-making authorities before full-scale mining activities may commence.</p> <p>Should the Akanani platinum project not be viable, the waste rock on the surface will be dumped back into the shaft and a concrete slab will be constructed over the mouth of the shaft. The rest of the disturbed area will be rehabilitated to its former state, as far as practically possible</p>
9.2 Location of the project site			
How far will the prospecting shaft be from the nearest community?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	The nearest community is located roughly 700 m from the proposed prospecting shaft site.
How far is the prospecting shaft from Anglo Platinum's Potgietersrust Platinum Mine ("PPRust")?	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	Anglo Platinum's Potgietersrust Platinum Mine ("PPRust") is located adjacent to the proposed site.
9.3 Infrastructure			
If Lonmin gets the required authorisation and the results from the tests on the bulk sample are positive, where will the smelter for the mine be located?	Ray Bossenger, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	The exact location of a smelting facility has not yet been established. Lonmin has embarked on a site selection process.
What access roads will be used for this project?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Lonmin will use the existing access roads. The existing gravel road will be graded to provide direct access to the prospecting shaft site.
What infrastructure will be on site for the prospecting shaft project?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	There will be a construction camp for material as well as headgear, a winder, admin buildings, etc. The total area of surface disturbance will be approximately 2 hectares. Please also refer to

Issues / Comments Raised	Commentator(s)	Reference	Response
			Chapter 4 of the Draft EIA Report.
Will the rock be crushed on site?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Yes. There will be a crusher on site and the crushed ore will be transported by trucks to Mintek in Johannesburg for testing.
9.4 Waste Management			
How will waste from the proposed project be managed?	Jacob Sethoga, South African Communist Party	Written comment, September 2008	Minimal volumes of domestic and industrial waste will be generated during the shaft sinking operations. Domestic and industrial waste generated on-site will be stored in skip containers, removed by a licensed waste contractor and disposed of at the Mokopane municipal waste disposal site.
What method of waste disposal will Lonmin use during the prospecting shaft development project?	George Matabane, Mogalakwena Local Municipality	Meeting with Authorities, 8 July 2008	
How will the waste from the mining activity be disposed of?	Participant, Mapela community member	Public meeting, 14 October 2008	
9.5 Monitoring Systems			
The Waterberg District Municipality has its own monitoring programme in place to ensure that industries / mines are complying with their monitoring programmes.	Lilly Mokonyane, Waterberg District Municipality	Meeting with Authorities, 8 July 2008	Thank you for this comment. The project team would like to make contact with the officials responsible for this monitoring.
9.6 Wind Direction			
Does Lonmin have any information regarding the dominant wind direction in the area?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	The dominant wind direction is east-north-east. Lonmin has bought two meteorological stations that will be installed within the project area to measure on-site weather conditions.
10 PROCEDURAL, LEGAL AND PERMITTING ISSUES			
Does Lonmin have a Record Of Decision (ROD)?	Participant, Mapela community member	Public meeting, 14 October 2008	No. An ROD will only be issued by the Department of Minerals and Energy (DME) once the EIA and Environmental Management Programme (EMP) Amendment have been submitted and the DME has reached a decision about the proposed project.
Is it fair for the government, especially the DME, to issue mining licenses to mining companies when the communities are the ones that suffer from the impacts of mining activities and taxes are paid to the government?	Jonas Moja, ANC	Public meeting, 14 October 2008	Thank you for this comment. The intention of the environmental impact assessment process is, amongst others, to identify potential impacts of proposed mining activities on communities, and to suggest measures to prevent or minimise negative impacts and to optimise potential positive impacts. Refer to Appendix B.8 of the Draft EIA Report for the socio-economic assessment undertaken as part of this project.
The Department of Land Affairs is the legal owner of the state	Moduku Khwene, Department of	Public meeting,	During a meeting held on 31 March 2009, and in a subsequent

Issues / Comments Raised	Commentator(s)	Reference	Response
<p>farms. The community or land rights holders of the affected properties should be consulted and consent for the proposed development should be obtained from them, as required as part of an EIA application in terms of the National Environmental Management Act (Act 107 of 1998). To confirm such a consultation or agreement with the community, a land rights holders or community resolution must be taken. This should be done in line with the Interim Protection of Informal Land Rights Act, 1996 (Act 31 of 1996).</p>	<p>Land Affairs</p>	<p>14 October 2008</p>	<p>confirmation letter, the Limpopo Department of Economic Development, Environment and Tourism (LEDET) advised that all environmental authorisations related to the prospecting activities associated with the bulk sample site are regulated in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), and would fall within the jurisdiction of the Department of Minerals and Energy (DME). Consequently, Lonmin are not required to submit an application for authorisation in respect of the National Environmental Management Act (Act 107 of 1998, NEMA), read together with the EIA Regulations, GN R 385, GN R386 and GN R 387, for any listed activities associated with the prospecting shaft whilst still within the prospecting phase of the project.</p> <p>Lonmin is therefore not required to obtain land owner consent in terms of the NEMA to undertake the EIA.</p>
<p>It is important to determine the extent to which the proposed project will impact on the daily activities of the land rights holders if the shaft is constructed on the portion of land used by the community. The community should be compensated for their temporary loss of rights on the land, as indicated by the Interim Protection of Informal Land Rights Act (Act 31 of 1996).</p>	<p>Moduku Khwene, Department of Land Affairs</p>	<p>Public meeting, 14 October 2008</p>	<p>The total grazing area in the direct vicinity of Leruleng, Skimming and GaMasenya Villages (Hans) is approximately 245 ha. The loss of approximately 2 ha of land associated with the proposed prospecting shaft will therefore constitute a loss of approximately 0.8% of the total surrounding grazing area.</p> <p>Compensation for the loss of land will be discussed with the Tribal Authorities.</p>
<p>The Department of Land Affairs does not have any objections to the proposed project. A Land Right Holders' or Community Resolution should be undertaken in line with the Interim Protection of Informal Land Rights Act (Act 31 of 1996).</p>	<p>Moduku Khwene, Department of Land Affairs</p>	<p>Public meeting, 14 October 2008</p>	<p>The proposed project only involves the development of a prospecting shaft as part of Lonmin's prospecting activities in the area. If prospecting proves that full scale mining would be feasible, a Land Right Holders' or Community Resolution will be undertaken in line with the Interim Protection of Informal Land Rights Act (Act 31 of 1996) before Lonmin proceeds with full-scale mining activities in the area.</p> <p>The community and other interested and affected parties have been involved in this EIA process for the proposed prospecting shaft from the start of the EIA. Several meetings were held throughout the EIA process and stakeholders were provided with several opportunities to participate. This Issues and Response Report captures all the issues raised by the communities and interested and affected parties thus far and provides responses to these issues.</p>

Issues / Comments Raised	Commentator(s)	Reference	Response
Why has the Mining Rights Application not been lodged yet? The separate submissions of the Prospecting Amendment and Mining Rights Application might create confusion amongst the communities.	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Lonmin is amending the Prospecting Right to include a bulk sample. This is purely part of prospecting. The Prospecting Right expires in 2011. If the project proves to be viable, (to be confirmed during the Feasibility Phase) a Mining Right application will be submitted.
Is there currently sufficient information available with regards to the Mining Rights Application for the Akanani Mine project for submission to the DME?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	No. The ore reserve needs to be confirmed and a mine works plan has not yet been completed.
All potential Listed Activities (EIA Regulations 386 and 387, dated April 2006) should be included in the relevant Application Form.	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	During a meeting held on 31 March 2009, and in a subsequent confirmation letter, the Limpopo Department of Economic Development, Environment and Tourism (LEDET) advised that all environmental authorisations related to the prospecting activities associated with the bulk sample site are regulated in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), and would fall within the jurisdiction of the Department of Minerals and Energy (DME). Consequently, Lonmin are not required to submit an application for authorisation in respect of the National Environmental Management Act (Act 107 of 1998, NEMA), read together with the EIA Regulations, GN R 385, GN R386 and GN R 387, for any listed activities associated with the prospecting shaft whilst still within the prospecting phase of the project. All EIA documentation will be submitted to LEDET for comment.
Although the Department of Minerals and Energy (DME) will forward some documents to the Limpopo Department of Economic Development, Environment and Tourism (LEDET), Golder still needs to submit all the EIA documents directly to the LEDET.	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	
What processes have been followed thus far in terms of Section 20 and Section 102 of the MPRDA?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	A motivational letter in terms of Section 20 of the MPRDA has been submitted to the DME. The amendment of the prospecting EMP forms part of the Section 102 application.
It would have been better to have submitted the motivational letter subsequent to Public Participation, and to have attached the amended EMP to the letter.	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	During the meeting held between Lonmin and the DME in April 2008, it was confirmed that the motivational letter in terms of Section 20 of the MPRDA, along with the amended Prospecting Work Program, could be submitted initially; this would then be followed by confirmation from the DME of the receipt of the documentation, and the submission of the amended EMP, subsequent to the completion of the EIA process. The two processes could thus be run in parallel.
Will an application for a Water Use Licence in terms of the National Water Act run parallel with the EIA process for submission to the Department of Water and Forestry (DWAF)?	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	A Water Use License Application will be submitted to the Department of Water Affairs at a later stage, after completion of the EIA process.

Issues / Comments Raised	Commentator(s)	Reference	Response
Does the DME process require a locality alternative to be indicated in terms of the Scoping and EIA reports?	Grace Rasesepe, Limpopo Department of Economic Development, Environment and Tourism	Meeting with Authorities, 8 July 2008	Mining sites are determined by geology and not by surface characteristics. Only land use alternatives are required to be included. Extensive research has been undertaken in the determination of the location of the prospecting shaft. Alternatives in terms of the method of bulk sampling are included Chapter 3 of the Draft EIA Report.
11 ENVIRONMENTAL IMPACT ASSESSMENT			
The findings of the EIA should explain how the community will benefit from the proposed project, especially regarding job opportunities.	Phelecia Ledile Seloba, ANC Matopa	Written comment, 23 September 2008	During the Impact Assessment Phase of the EIA, specialists determined what the potential negative and positive impacts of the proposed project might be. The results of these studies were combined in a Draft EIA Report. The specialist studies are available for public review, as Appendices to the Draft EIA Report, and stakeholders are welcome to comment on these reports, which are available from 28 May to 25 June 2009 at the following public places: <ul style="list-style-type: none"> • Mapela Thusong Service Centre • Mapela Post Office • Seritarita Secondary School • Hans Masibe Primary School • Mapela Tribal Office • Lonmin Akanani Division, Reception • Golder Associates Africa, Midrand
The community should be informed of all the potential negative impacts of the proposed project	Moses Mojela, Matopa Community	Written comment, 23 September 2008	
It is very important to investigate all potential impacts before the project commences as this will ensure that people are safe.	Salome Mokgaetji Langa, ANC Matopa	Written comment, 22 September 2008	
How independent can Golder be if they are appointed by Lonmin? What alternative does the community have in terms of appointing their own specialists and will Lonmin assist in funding this?	Lesetja Rabalao, Ga-Chaba Mining Committee	Focus Group Meeting, 29 July 2008	The National Environmental Management Act (Act 107 of 1998) requires that companies to appoint independent environmental assessment practitioners (EAPs) to conduct an EIA before certain developments can go ahead.
The EIA should be done honestly and transparently without other agendas that can create problems in the surrounding environment later on.	Abel Kotzé, Bellevue Irrigation Board	Written comment, 3 August 2008	
11.1 Public Participation			
The EIA process will ensure that the community is actively involved in determining how the proposed project can benefit them.	Magdeline Langa, ANC Matopa	Written Comment, 26 September 2008	Thank you for the comment. Please note that the main benefits to the community from the proposed prospecting shaft will be job creation. Approximately 300 temporary jobs will be created during the sinking of the shaft.
Why were some indunas not invited to this meeting?	Participant, Mapela community member	Public meeting, 14 October 2008	A letter of invitation was sent to the tribal office as requested by the traditional authority. No induna was sent a personal invitation.

Issues / Comments Raised	Commentator(s)	Reference	Response
What report are you presenting when the community does not even know about the proposed project?	Participant, Mapela community member	Public meeting, 14 October 2008	The report presented to the community at the Public Meeting was the Draft Scoping Report that outlined initial issues for investigation during the specialist studies and the Terms of Reference of the specialist studies. More information about the potential impacts of the proposed project is contained in the Draft EIA Report.
The community would like to see Golder Associates' profile so that their credentials can be investigated.	Participant, Mapela community member	Public meeting, 14 October 2008	Golder Associates is an independent consulting firm with offices globally. Information about Golder Associates is available on request and can also be accessed on the following website: www.golder.com .
Can the community hire their own environmental specialists to review the reports produced during the EIA process?	Participant, Mapela community member	Public meeting, 14 October 2008	The community is welcome to give the documents to who ever they feel they trust to explain the content to them.
How can one tell that the reports presented to the community are not altered before they are submitted to authorities?	Participant, Mapela community member	Public meeting, 14 October 2008	The reports submitted to the authorities are accessible to the public and can be requested from the Lonmin Community Office and the Public Participation Office. Lonmin Community Office: Mr Victor Tseka – tel: 014 571 4209 Public Participation Office: Mrs Alet Fell – tel: 011 254 4978
The community was invited to this meeting by Golder Associate, and was not expecting to be addressed by Lonmin.	Participant, Mapela community member	Public meeting, 14 October 2008	As the project proponent, Lonmin is in the best position to present to the communities information about the proposed project and answer any questions that the community may have regarding the proposed project. Golder Associates is only responsible for the EIA process, and the public participation process that forms part of the EIA.
If Lonmin wants the proposed project to go ahead, it must come to the communities and not just consult the tribal office.	Participant, Mapela community member	Public meeting, 14 October 2008	Thank you for the suggestion.
The EIA process should continue to inform people about the various elements and consequences of mining activities.	Beauty Makweya, Matopa Community	Written comment, October 2008	Thank you for this comment. The purpose of the Public Participation process is to inform stakeholders about the proposed project and to provide them with opportunities to participate in the EIA process. The EIA and relevant Public Participation process for the proposed prospecting shaft project will end after the Department of Minerals and Energy has decided whether this project may proceed or not.
In future, Golder Associates should work through the mining forums and ask the community to elect 15 to 20 representatives to attend the public meeting. This will help in avoiding the scenes seen at the public meeting on 14 October 2008 at the Mapela Tribal Hall.	Lesiba Sethokga, Matopa Community	Written comment, October 2008	Thank you for the suggestion. The Public Participation Office strives to interact with the community through the various community structures, including the mining forums and the traditional authorities.
The South African Heritage Resource Agency (SAHRA) and the	Azwi Mulaudzi, Department of	Meeting with Authorities,	Thank you for this comment. All relevant authorities, including

Issues / Comments Raised	Commentator(s)	Reference	Response
Department of Agriculture should also be consulted during the public participation process.	Minerals and Energy (Limpopo)	8 July 2008	SAHRA and the Department of Agriculture, have been included on the I&AP database and are being consulted throughout the public participation process.
It needs to be made very clear during public participation that mining will not be taking place by means of the prospecting shaft, but that the shaft is necessary for prospecting activities only. In addition, any information regarding the activities / infrastructure associated with the prospecting shaft (e.g. access roads, admin buildings, winder, etc.) should also be conveyed to the communities during the public participation process.	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Thank you for these valuable points. Golder is committed to providing I&APs with all available information to ensure that they can participate meaningfully in the public participation process.
Community participation in the EIA process should be encouraged.	Jacob Sethoga, South African Communist Party	Written comment, September 2008	All potentially affected communities are being consulted as part of the public participation process. The communities of Leruleng, Skimming and Hans (Ga- Masenya) have been identified as potentially affected communities. We have however, also consulted members of other communities that fall under the authority of the Mapela Traditional Council. If anyone is aware of other communities that should be consulted, they must please let the Public Participation Office know.
Direct consultation with the local communities should be done prior to any advertising of the project or public meetings to avoid a situation where individuals feel they were not consulted.	Azwi Mulaudzi, Department of Minerals and Energy (Limpopo)	Meeting with Authorities, 8 July 2008	Thank you for the valuable point. Golder is taking into account the tribal structure of the local communities and their requirements. The correct protocol is being followed. Golder is committed to providing I&APs with all available information to ensure that they can participate meaningfully in the public participation process.
The affected communities must be consulted and involved in all activities especially those which require public comments.	Lilly Mokonyane, Waterberg District Municipality; Lesiba Jacob Sethoga, Matopa community member	Written Comment, 24 July 2008; Written comment, 26 September 2008	All potentially affected communities are already being consulted as part of the public participation process. The communities of Leruleng, Skimming and Han (Ga- Masenya) have been identified as potentially affected communities. Golder has however also consulted with members of other communities that fall under the authority of the Mapela Traditional Council. If anyone is aware of other communities that should be consulted, they must please let the Public Participation Office know.
If the site is where the Ga-Maila people once lived, then it is appropriate that Golder consults the communities of Leruleng, Skimming and Hans (Ga-Masenya). Involving too many communities (other than those that might be affected) will create confusion and might cause problems.	M.M Masebe, Mapela Traditional Council	Meeting with the Mapela Traditional Council, 15 July 2008	Thank you for the valuable input.
It is very important that people who know about the heritage of the site be consulted.	T.J Mashishi, Mapela Traditional Council	Meeting with the Mapela Traditional Council, 15 July 2008	All potentially affected communities are already being consulted as part of the public participation process. The communities of Leruleng, Skimming and Han (Ga- Masenya) have been identified as potentially affected communities. We have however, also consulted members of other communities that fall under the authority of the Mapela Traditional Council. If anyone is aware of other communities that should be consulted, they must please let

Issues / Comments Raised	Commentator(s)	Reference	Response
			the Public Participation Office know.
Will all the reports from the specialist studies and the EIA be available for public review?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	<p>Yes. The Draft EIA Report and Specialist Reports are available at the following public places:</p> <ul style="list-style-type: none"> • Mapela Thusong Service Centre • Mapela Post Office • Seritarita Secondary School • Hans Masibe Primary School • Mapela Tribal Office • Lonmin Akanani Division, Reception • Golder Associates Africa, Midrand
We have been asked permission to use our schools as public places to display the project documents. What benefits will the project have for the schools?	Frans Somo, Seritarita Secondary School	Key Stakeholder Workshop, 29 July 2008	The request to use the schools as public places was based on the need to allow the general community to have access to important documents throughout the EIA process. Making the documents easily accessible to the public is a requirement of the EIA Regulations. The request by the EIA consultant to display the documents does not necessarily result in benefits to a public place; it is a service to the community.
Who should fill in the comment sheet?	Participant, Mapela Mining Committee	Focus Group Meeting with the Mapela Mining Committee, 29 July 2008	Anyone who is interested in or potentially affected by the proposed project can fill in the form to register and to comment. Please note that interested and affected parties can also call the public participation office with comments and/or email or fax comments to the public participation office. You are also encouraged to write your comments on a separate sheet of paper if the one provided is not sufficient.
Please keep the Waterberg District Municipality informed of all developments on this project. We are concerned about all the possible negative impacts that the project might have on the community.	Lilly Mokonyane, Waterberg District Municipality	Meeting with Authorities, 8 July 2008	Potential impacts associated with the proposed project were identified and evaluated during the EIA. The findings of the EIA as well as recommendations of how to mitigate negative impacts are contained in the Draft EIA Report that is now available for public comment.
<p>The following groups must be consulted:</p> <ul style="list-style-type: none"> - Youth organisations - Women's groups - Community Policing Forum - Home-based care groups 	Malesela Frans Langa, Mmamogao Construction and Projects	Written comment, 15 August 2008	Thank you for the valuable input. Although these groups were not targeted specifically during the public participation process, all potentially affected communities are being consulted as part of the public participation process. The communities of Leruleng, Skimming and Hans (Ga- Masenya) have been identified as potentially affected communities. We have however, also consulted members of other communities that fall under the authority of the Mapela Traditional Council.
Proper communication channels, as stipulated by the Mapela Traditional Council, should be followed when conducting public	Leruleng Community	Written comment, 11 September 2008	The Public Participation team will strive ensure that the proper communication channels are followed in future.

Issues / Comments Raised	Commentator(s)	Reference	Response
participation in Mapela.			
Golder Associates must keep up the good work of providing the community with information through public meetings and by visiting the various community meetings.	Beauty Makweya, Matopa Community	Written comment, October 2008	Thank you for the comment.
12 OTHER			
The community is concerned about the impact that smells coming from chemicals used and/or produced at the mine might have on the health of the community.	Moses Mojela, Matopa Community; George Langa, Leruleng Village	Written comment, 23 September 2008; Public meeting, 14 October 2008	No odour-causing chemicals will be used at the proposed prospecting shaft site.
The impact of the chemicals used at mines is of concern.	Ramasela Johanna Makhafola, ANC Matopa	Written comment, 22 September 2008	Storage and usage of chemicals at the proposed prospecting shaft site will be in accordance with the Material Safety Data Sheets (MSDS) of the relevant chemicals, as well as the Environmental Management Plan (EMP) that will be developed for the prospecting shaft site.
The natural environment should be preserved.	Ramasela Johanna Makhafola, ANC Matopa	Written comment, 22 September 2008	Thank you for the comment.
Which other areas is Lonmin active in?	Gert van der Veen, Mokopane Chamber of Business	Key Stakeholder Workshop, 29 July 2008	Lonmin has operations in Marikana, Lebowakgomo and existing exploration activities in Gabon, Tanzania, Kenya and Canada.
Practical promises and decisions should be made and monitored, also in future.	Abel Kotzé, Bellevue Irrigation Board	Written comment, 3 August 2008	Thank you for this input.
Anglo Platinum's Potgietersrust Platinum Mine ("PP Rust") would like to suggest holding a structured meeting with Lonmin in order to discuss protocol in terms of information sharing. This will help in paving the way forward regarding consolidation of the information that both companies will be providing to the community.	Frank Pieterse, PPRust, Mokopane	One-on-one meeting, 19 June 2008	Thank you for this suggestion. This meeting will be scheduled in the near future.

Appendix C.3
Background Information Document, Announcement Letter and Reply
Sheet (English and Sepedi)

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT
PROJECT AT THE LONMIN AKANANI PROSPECTING AREA
NORTH OF MOKOPANE, LIMPOPO PROVINCE



BACKGROUND INFORMATION DOCUMENT

(This document is available in English and Sepedi)

INVITATION TO REGISTER AND COMMENT
July 2008



Project 1180

PURPOSE OF THIS DOCUMENT

This Background Information Document (BID) forms part of the scoping phase of an Environmental Impact Assessment (EIA) process and provides stakeholders with initial information about a proposed prospecting shaft development and mining of a bulk sample at the Lonmin Akanani Project prospecting area north of Mokopane in the Limpopo Province. It also outlines the EIA process and opportunities for public participation. Further documents will be available at various stages of the process for your information and comment. You are encouraged to contribute issues of concern and suggestions for enhanced benefits and will be given an opportunity to verify that your contributions have been captured for consideration in the specialist studies that will be undertaken during the impact assessment phase of the EIA.

You will also be able to comment on the findings of the impact assessment as contained in the EIA and amendment to the existing Environmental Management Programme (EMP) Report which will be made available once the specialist studies have been completed. Both reports will be submitted to the Department of Minerals and Energy and other relevant Departments for consideration and decision-making once they have undergone public review.

In addition to providing information about the proposed project and the EIA Process, this document also offers you an opportunity to:

- Register as stakeholders in the public participation process; and
- Make initial comments and suggestions about the proposed project.

YOUR COMMENT BY 15 AUGUST 2008, PLEASE

Your comments will ensure that all relevant issues are evaluated in the EIA/EMP process. Should you wish to comment on the proposed project, please complete the enclosed registration and comment sheet, write a letter, call or e-mail the public participation office.

Please also contact the public participation office if you require a copy of relevant legislation, or any other material that will assist you to comment on the project.

Public Participation Office

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rthaba@golder.co.za

Technical enquiries about the EIA

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WHO IS LONMIN PLATINUM?

Lonmin is the third largest Platinum Group Metal (PGM) producer in the world, with a primary listing on the London Stock Exchange. The group owns an 82% stake in Lonplats. Lonplats mines, smelters and refineries are located in South Africa while the group's prospecting activities extend into Africa and Canada. Lonmin's current platinum producing operations are all situated within the Republic of South Africa. Lonmin also owns 23.56% in South African based Incwala Resources (Propriety) Limited. Incwala was specifically incorporated for the purposes of enabling broad-based equity participation by Historically Disadvantaged South Africans (HDSA's) in Lonmin Platinum.

DESCRIPTION OF PROPOSED PROJECT

Lonmin Platinum (Lonmin) intends to amend its approved Prospecting Right to include the development of a prospecting shaft for bulk sampling purposes at its Akanani Project prospecting area north of Mokopane in the Limpopo Province. This prospecting shaft is required to determine the metallurgical properties of the Platreef at the Akanani Project area. A bulk sample of 3 000 tons for testing purposes will be obtained by sinking the single prospecting shaft in the area over a three year period.

Location

The Akanani project is located approximately 25km north of the town of Mokopane (formerly Potgietersrus) in the Limpopo Province of South Africa.

The broader prospecting area consists of 2 farms, namely Zwartfontein 814 LR and Moordkopje 813 LR (as shown in figure 1), which together cover an area of about 4 000 hectares adjacent to Anglo Platinum's Potgietersrus Platinum Mine ("PPRust"), an open pit operation. The prospecting shaft site will be approximately 2 hectares in extent. The area earmarked for the prospecting shaft is roughly 700 m from the nearest residential property and 300 m from the Mohlesane River.

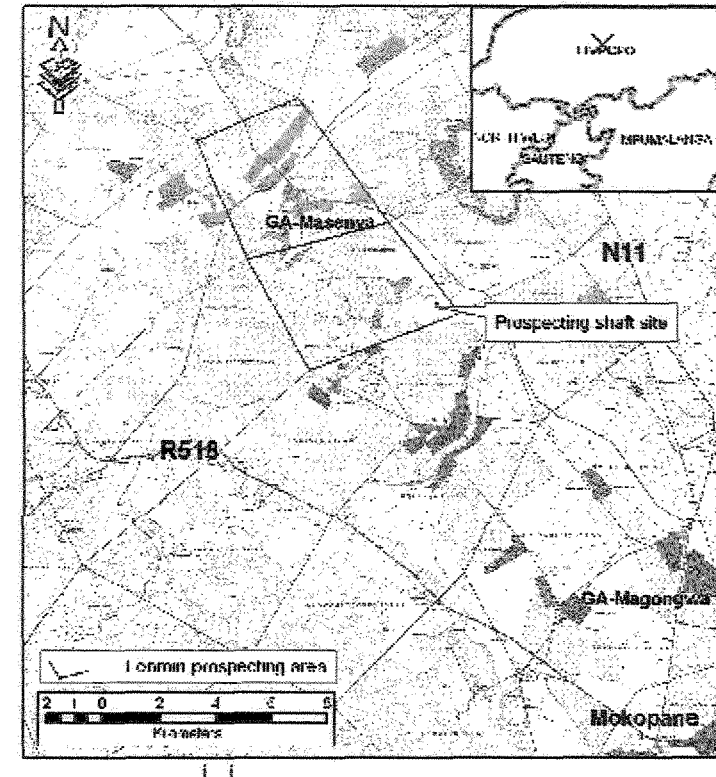


Figure 1: Locality of the site and the broader prospecting area covering Zwartfontein 814 LR and Moordkopje 813 LR

Components of proposed project

□ Surface infrastructure

The prospecting shaft infrastructure will be developed within the project footprint of approximately 2 hectares, and will comprise the following:

- Shaft infrastructure including winders and a batch plant;
- An electrical substation;
- Temporary waste and ore storage areas; and
- Offices, workshops, stores, first aid facilities and change houses will be provided in temporary structures.

Temporary access roads will be developed to the prospecting shaft site.

Why a bulk sample?

Lonmin is looking at the possibility of mining and processing ore at Akanani north of Mokopane. Lonmin has experience in mining and processing other platinum reefs in South Africa, but not Platreef in the Akanani area. Lonmin must, however, first learn more about the ore at Akanani which comes from an orebody called Platreef.

To learn more about the ore characteristics at Akanani, Lonmin wants to mine a section of the Platreef to obtain material to test. A smaller amount of ore that is mined for testing purposes is called a *bulk sample*. A bulk sample will be mined via a prospecting shaft which, in this case, will be about 7 to 10 metres in diameter. The size of the bulk sample required for test work is about 3 000 tonnes.

The sinking of the prospecting shaft will be over a 3 year period, while the bulk sample will be mined over the last 3 to 6 months of this period and will be transported by 35 ton trucks to Mintek in Johannesburg for the test work.

Temporary Waste Rock Storage

The proposed project will include the creation of a temporary waste rock storage. The storage will cover an area of about 0.5 hectares. Should the project not be viable, the waste rock on surface will be dumped back into the shaft and a concrete slab will be constructed in the mouth of the shaft. The rest of the area will then be rehabilitated to its former state and in accordance with best practice.

Underground infrastructure (shaft)

The prospecting shaft will be approximately 1000 m deep and 10m in diameter.

Water and electricity

The shaft sinking operations will require approximately 1 mega litres of water per day. This water will probably be sourced from boreholes on or in the direct vicinity of the site. The water source for the shaft sinking operation will be confirmed during the EIA process.

Electricity will be supplied to site by means of electricity transmission line that will be constructed by Eskom.

Health and Safety

Lonmin is committed to Zero Harm and as such the Lonmin Health and Safety Principles and Policies will apply for this project.

Employment

The preferred shaft sinking contractor will be encouraged to recruit from the local community for all unskilled labour that may be needed during the construction phase. The contractor will also be encouraged to recruit women for the construction phase. A minimal number of new job opportunities will be created by this proposed prospecting shaft project.

Production Schedule

Should Lonmin receive authorisation from the DME and other authorities, the following milestones have been set for the prospecting shaft project:

- Commence access and terrace construction: Third quarter of 2009
- Commence sinking of prospecting shaft: Fourth quarter of 2009
- Commence with obtaining bulk sample: Second quarter of 2012

THE ENVIRONMENTAL ASSESSMENT PROCESS

The environmental assessment process will be conducted in terms of the **Mineral and Petroleum Resources Development Act (Act 28 of 2002)** and the **National Environmental Management Act (Act 107 of 1998)**. The lead authorities for the EIA are the Department of Minerals and Energy (DME) as well as the Limpopo Department of Economic Development, Environment and Tourism (LDEDET). A Water Use Licence Application in terms of the National Water Act (Act No. 36 of 1998) might also be required as part of this proposed project.

The Scoping Phase of the EIA process will be conducted from June to November 2008. The Impact Assessment Phase will be conducted from June 2008 to March 2009. Both phases will include public participation to ensure that stakeholders' contributions are considered in the studies.

In order to meet the statutory and regulatory requirements of the legislation mentioned above, Lonmin Platinum is required to submit an Environmental Impact Assessment (EIA) and an amendment to the existing Environmental Management Programme (EMP) to the DME. Lonmin Platinum is required to appoint independent consultants to undertake the EIA and prepare the EMP.

The EIA will ensure that the negative and positive biophysical and social consequences of the proposed project and related activities are considered.

The EIA process is divided into two phases: a Scoping Phase and an Impact Assessment Phase.

Scoping: During Scoping, issues for investigation during the impact assessment phase are identified and the scope of studies defined. This information is compiled into a Scoping Report, which is submitted for review by the public and authorities.

Impact Assessment: The Impact Assessment Phase is conducted after finalisation of the Scoping Phase. During Impact Assessment, the impacts of the proposed project are determined and mitigation measures are identified. The findings of the Impact Assessment are then compiled into an EIA and EMP Report. The report is submitted to the authorities, after a public review period, to enable an informed decision to be made as to whether or not the proposed project should receive environmental authorisation to proceed.

Who is preparing the EIA?

Golder Associates Africa has been appointed as Independent Environmental Consultants to conduct the Environmental Impact Assessment (EIA) and public participation process for the proposed project. Various sub-consultants will be appointed by Golder to undertake specialist studies.

The Public Participation Process

Public participation offers stakeholders the opportunity to learn about the project and the EIA/EMP, to raise issues they are concerned about, ask questions related to either the project or the EIA/EMP, and to voice their views on the project. These issues are then used to guide the scope of studies conducted during the impact assessment.

The proposed steps and timing of the public participation process are as follows:

July 2008

- Announcement of the project through the BID (this document), an announcement letter, on-site notices and by placing an advertisement in a local newspaper to inform the public of the opportunity to comment on the proposed project.

July to September 2008

- Focus group meetings with key stakeholders during July / August 2008.
- Compilation of an Issues and Response Report in which all issues and suggestions raised by stakeholders are captured, together with

responses from the proponent and the consultants.

- Progress feedback to all stakeholders.
- Draft Scoping Report (DSR), including Terms of Reference for specialist studies and the Issues and Response Report made available for public review in various public places in the project area and sent to stakeholders that request it.
- Public review period for the Draft Scoping Report.
- Public meeting to identify outstanding issues. The meeting will be open to all interested and affected parties, including key stakeholders, community representatives and the relevant authorities.

September to October 2008

- Prepare Draft EIA and EMP Report, incorporating the findings of the specialist studies.

October to November 2008

- Public review of Draft EIA and EMP Report.
- Public meeting to present the draft findings and obtain comment on the Draft EIA and EMP Report.

November to December 2008

- Finalise EIA and EMP Report and accompanying reports on the basis of comments during the public review phase and submit to the authorities for a decision.

First half of 2009

- Advise all stakeholders of the authorities' decision.

YOUR COMMENT IS IMPORTANT PLEASE

Your comment on any aspect of the proposed project, including the scoping and public participation processes, and issues that need to be investigated, will help to focus the EIA Specialist Studies, and will ultimately assist the authorities to make a decision.

Please complete the enclosed registration and comment sheet, write a letter, provide a written submission, call or email the Public Participation Office with your contributions.

Golder Associates Africa (Pty) Ltd
Reg. No. 2002/007104/07

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Thandanani Park, Matuka Close
Halfway Gardens, Midrand
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Fax + (27) 011 315-0317
<http://www.golder.com>



22 July 2008

Dear Stakeholder

INVITATION TO REGISTER AND PARTICIPATE: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE

Lonmin Platinum (Lonmin) intends to amend its approved Prospecting Permit to include the development of a prospecting shaft for bulk sampling purposes at its Akanani Mine prospecting area approximately 25 km north of Mokopane, Limpopo Province.

In order to amend its Prospecting Permit, Lonmin intends to apply for environmental authorisation by undertaking an Environmental Impact Assessment (EIA) and an amendment to its existing Environmental Management Programme (EMP), which will be submitted to the Department of Minerals and Energy and other Departments for their consideration in accordance with the requirements of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) and the National Environmental Management Act (Act 107 of 1998), and other legislation. A Water Use Licence Application in terms of the National Water Act (Act No. 36 of 1998) might also be required as part of this proposed project.

Lonmin's approved prospecting area consists of 2 farms, namely Zwartfontein 814 LR and Moordkopje 813 LR, which together cover an area of about 4 000 hectares adjacent to Anglo Platinum's Potgietersrust Platinum Mine ("PPRust"), an open pit operation. The prospecting shaft site will be approximately 2 ha in extent.

The prospecting shaft is required to determine the metallurgical properties of the Plat reef at the Akanani Project area. Lonmin is therefore proposing to sink a single shaft over a three year period to collect a bulk sample of 3 000 tonnes. The mined ore will be transported by 35 tonne trucks to Mintek in Johannesburg for test work.

Golder Associates has been appointed as Independent Environmental Consultants to conduct the EIA and EMP processes for the proposed project.

The purpose of this letter and the enclosed Background Information Document is to provide you with initial project information and to invite you to become involved in the EIA process and to raise any concerns and suggestions about the proposed project. You will have a number of opportunities to make contributions throughout the EIA process, including commenting on the findings of the environmental impact assessment studies, before the EIA/EMP Report is submitted to the authorities for consideration.

Your comment is important

Stakeholders can comment on the Background Information Document in any of the following ways:

- Completing the enclosed registration and comment sheet
- Writing a letter, or producing additional written submissions
- By email or telephone to the Public Participation Office
- Attending one of the Focus Group Meetings that will be held in the project area towards the end of July 2008.

We enclose a registration and comment sheet for your use, and will appreciate your comments on the Background Information Document by **15 August 2008**.

Your participation will be appreciated. Please feel free to contact us if you have queries or if you require further information.

Alet Visser: tel 011 254 4978 / email avisser@golder.co.za / fax 011 315 0317

Rethabile Thaba: tel 011 313 1072 / email rthaba@golder.co.za / fax 011 315 0317

Sincerely

A handwritten signature in black ink that reads 'Alet Visser'.

Public Participation Office:

Environmental Assessment Process for the Lonmin Akanani Prospecting Shaft EIA

Project Number: 11808



**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED
PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI
PROSPECTING AREA NORTH OF MOKOPANE,
LIMPOPO PROVINCE**

**REGISTRATION AND COMMENT SHEET
JULY 2008**

Please complete and return to the address below by 15 August 2008.

Ms Alet Visser / Ms Rethabile Thaba
Public Participation Office
Golder Associates Africa
P O Box 6001
Halfway House
1685

Tel: (011) 254 4978 / (011) 313 1072
Fax: (011) 315 0317
E-mail: avisser@golder.co.za / rthaba@golder.co.za

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
ADDRESS			POSTAL CODE
TEL NO		FAX NO	
E-MAIL		CELL NO	

COMMENTS (please use separate sheets if you wish)

1. Environmental, social and/or economic issues that require further consideration in the environmental studies are:

.....

2. My comment on the EIA process is as follows:

.....

3. Please add the following of my colleagues/friends to your mailing list. Their contact details are:

.....

4. The following group/s should be consulted during the Focus Group Meetings that will be held towards the end of July 2008:

.....

Date	Signature
-------------------	------------------------

THANK YOU FOR YOUR CONTRIBUTION

Appendix C.4
Published Newspaper Advertisement

OPPORTUNITY TO COMMENT

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED PLANNING SMART DEVELOPMENT PROJECT AT THE COMMUNAL AREA PROCEEDING AREA NORTH-126 MOKHOTLONG LIBOTLO PROVINCE

Letameng Libotlong Province is invited to approach Stakeholders, Permit to Issue the proposed project of a proposed smart development project at the Communal Area Proceeding Area North-126 of Mokhotlong, Limpopo Province. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project.

The Libotlong Province is invited to approach Stakeholders, Permit to Issue the proposed project of a proposed smart development project at the Communal Area Proceeding Area North-126 of Mokhotlong, Limpopo Province. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project.

Stakeholders are invited to register to receive the proposed smart development project at the Communal Area Proceeding Area North-126 of Mokhotlong, Limpopo Province. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project. The proposed smart development project is a residential development of the first phase of the proposed smart development project.

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Gosler Mafeni: Mafeni, Thaba
P. O. Box: 10000
Mafeni, Limpopo, 10000
Tel: 011 511 1111
Fax: 011 511 1111
Email: mafeni@mafeni.co.za

14th 2016

SEBANA SA GO SWAZELA

DMWASIBO MAZEMALE DIBE PROJE YE E BISHINWANG YA GO AZA SHAYO YA GO KOPOLA BETHING LA GO KOPOLA LIA LOMI AMAMINI KA LEBOWA LA MOKHOTLONG PROVINSE YA LIMPOPO, E LIA LOMI BATHO LE THABO SHAYO

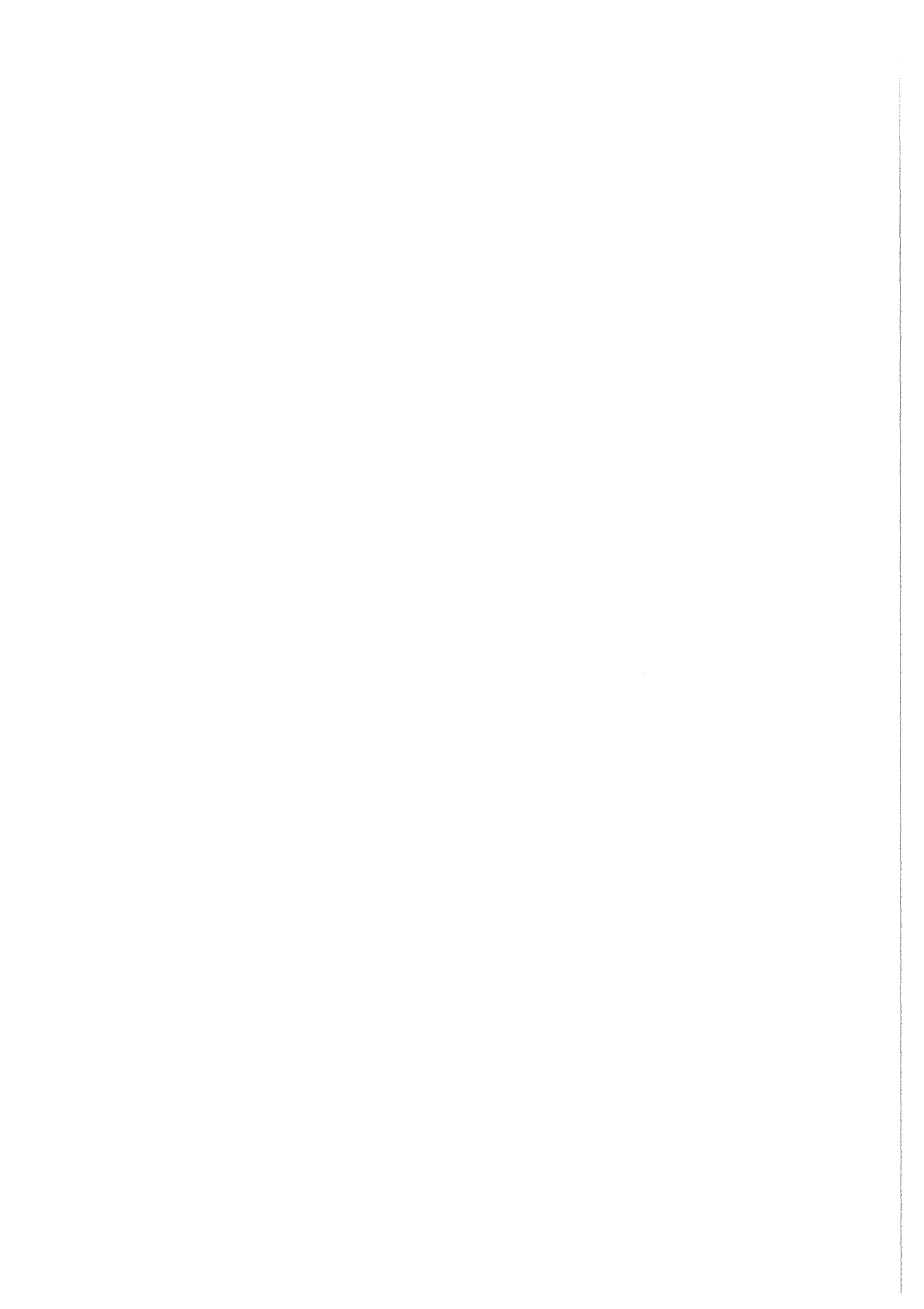
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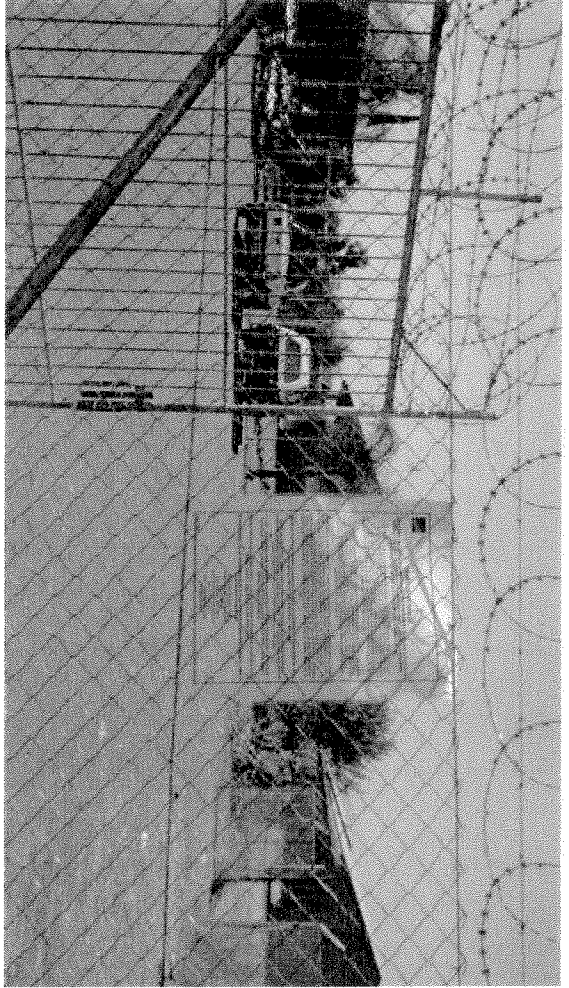
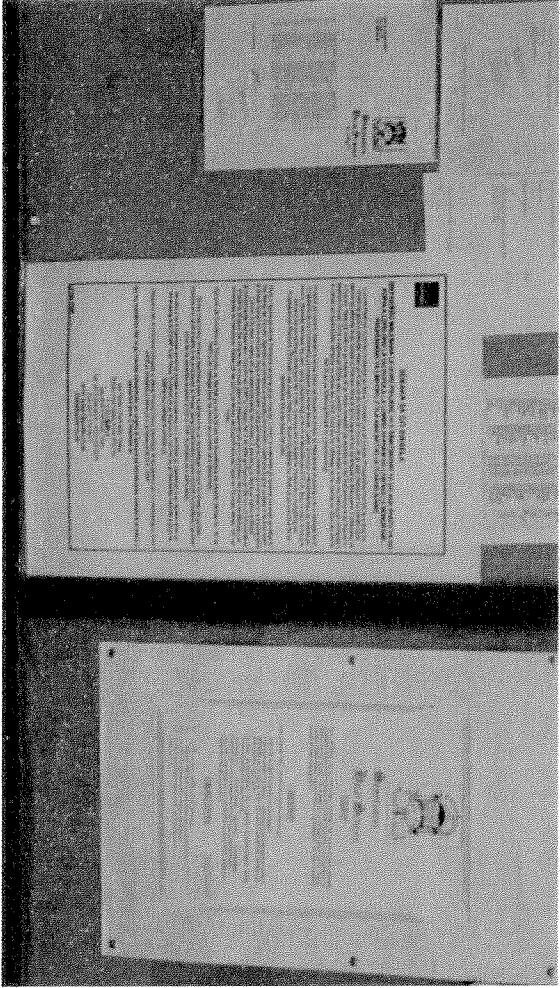
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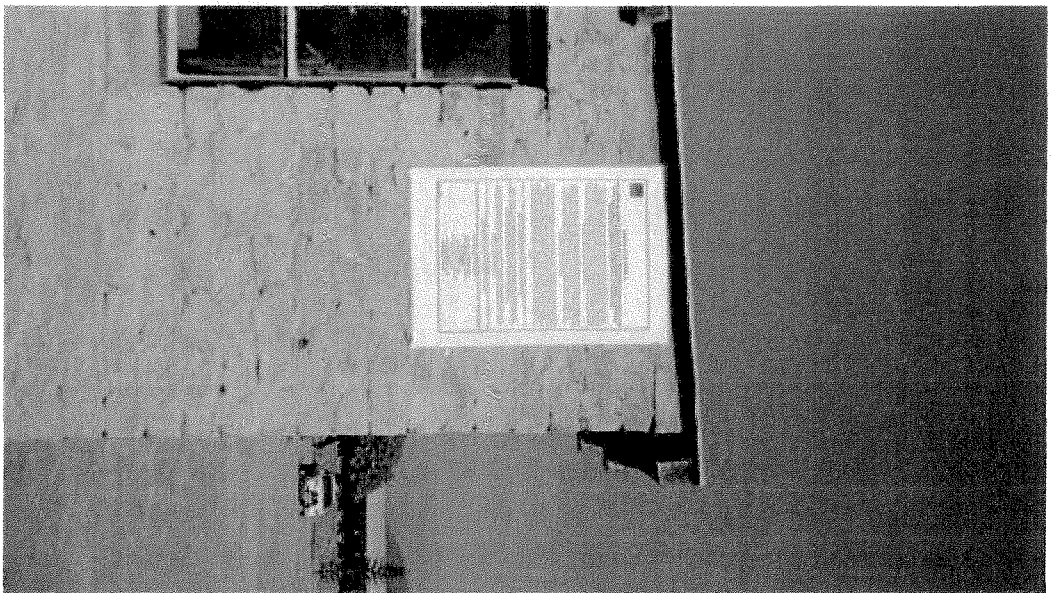
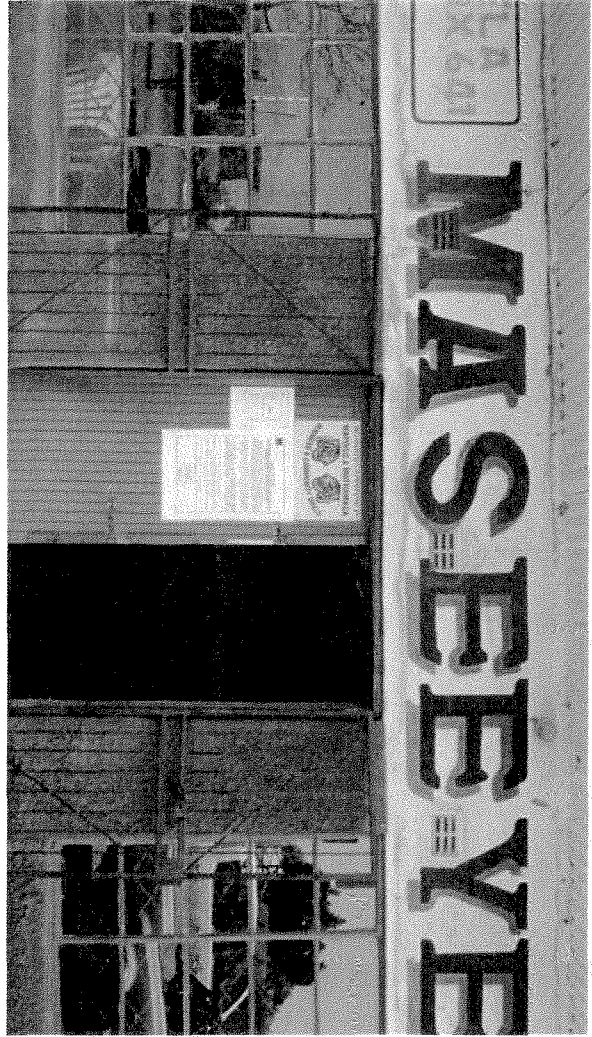
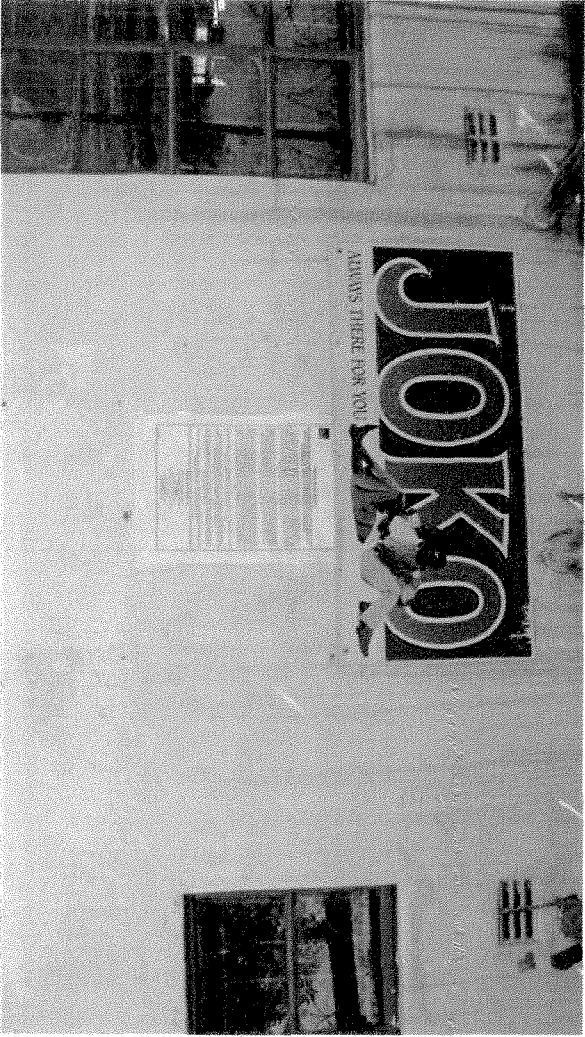
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Fax: 011 511 1111
Email: mafeni@mafeni.co.za

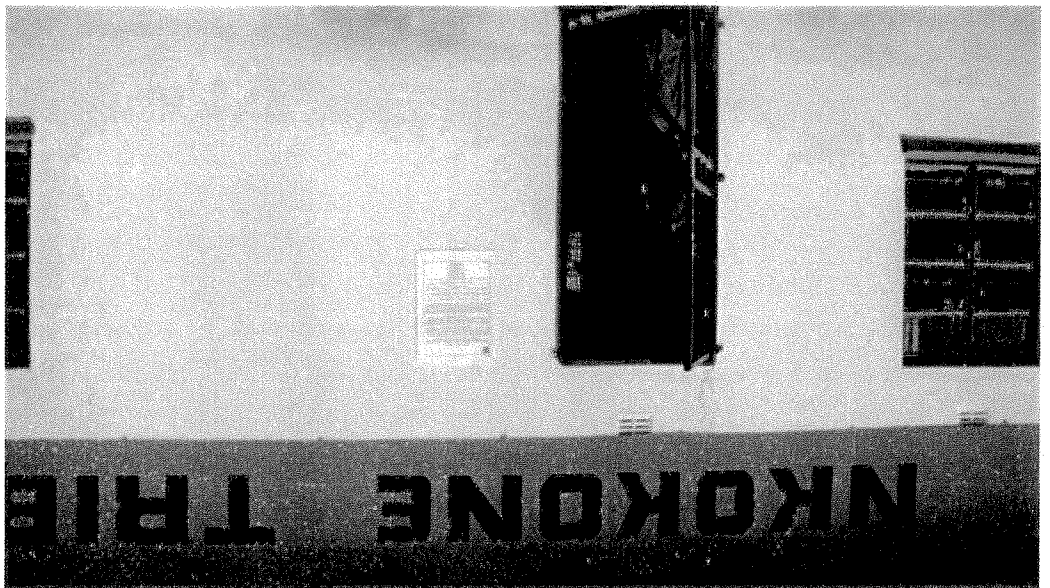
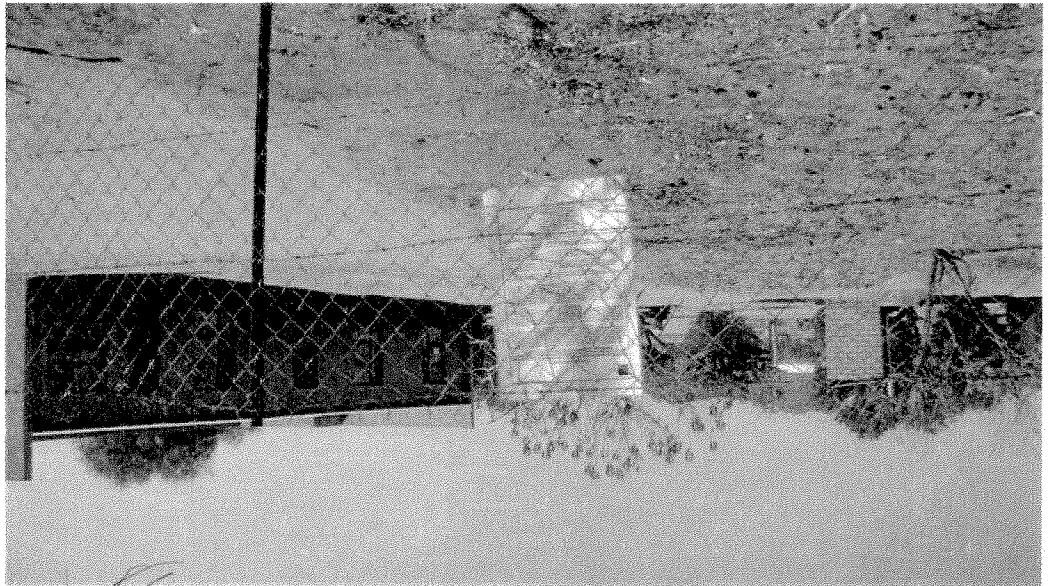
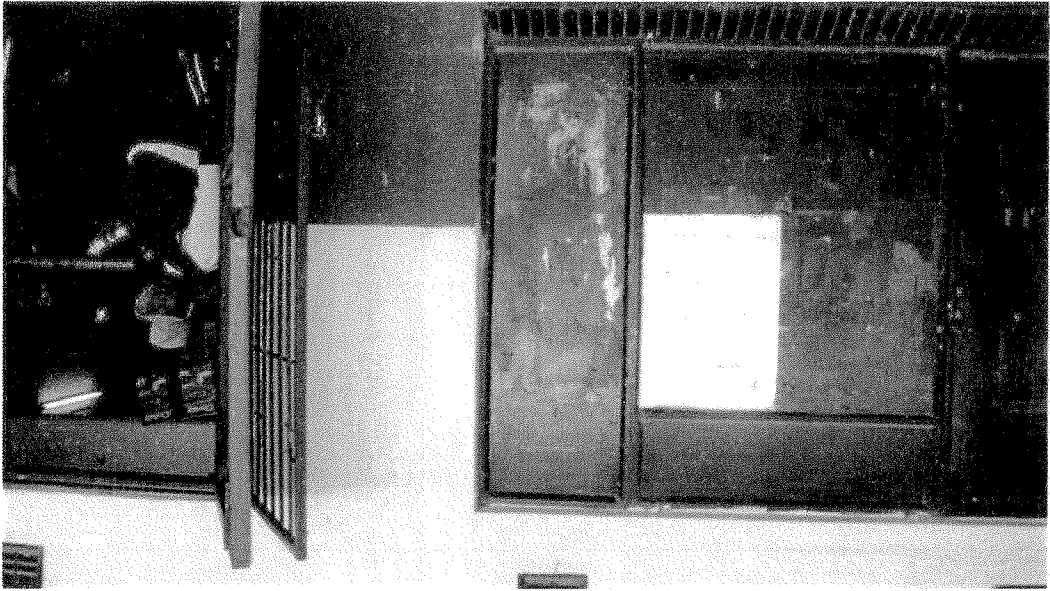
14th 2016



Appendix C.5
Photos of site notices







Appendix C.6
Authority Meeting: Attendance List (8 July 2008)

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN
AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE - 11808****Attended Authorities Meeting****08 July 2008**

(10 Attendees)

<u>Name:</u>	<u>Company</u>	<u>City</u>
Chapman, Olivia	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Matabane, George	Mogalakwena Local Municipality	MOKOPANE
Mokonyane, Lilly	Waterberg District Municipality	MODIMOLLE
Moshapa, Jeanette	Waterberg District Municipality	MODIMOLLE
Mulaudzi, Azwi	Department of Minerals and Energy	POLOKWANE
Prinsloo, Mari	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Rasesepa, Grace	Department of Economic Development, Environment and Tourism	POLOKWANE
Thaba, Rethabile	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Tshamiswe, Derrick	Department of Minerals and Energy	POLOKWANE
Venter, Andries	Lonmin Platinum Mines	SLOANNE PARK

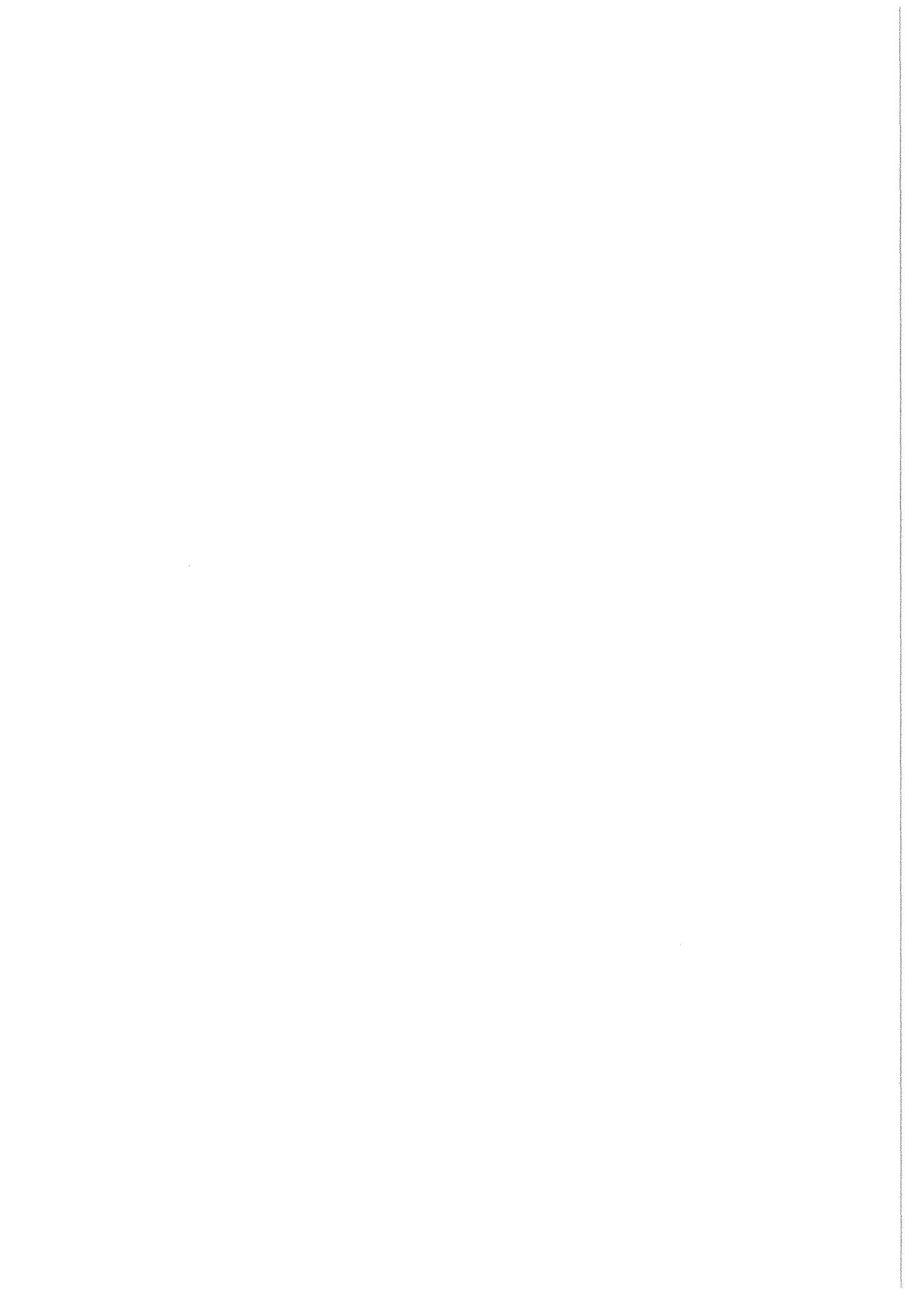
Appendix C.7
Meeting with the Traditional Authority: Attendance List
(14 July 2008)



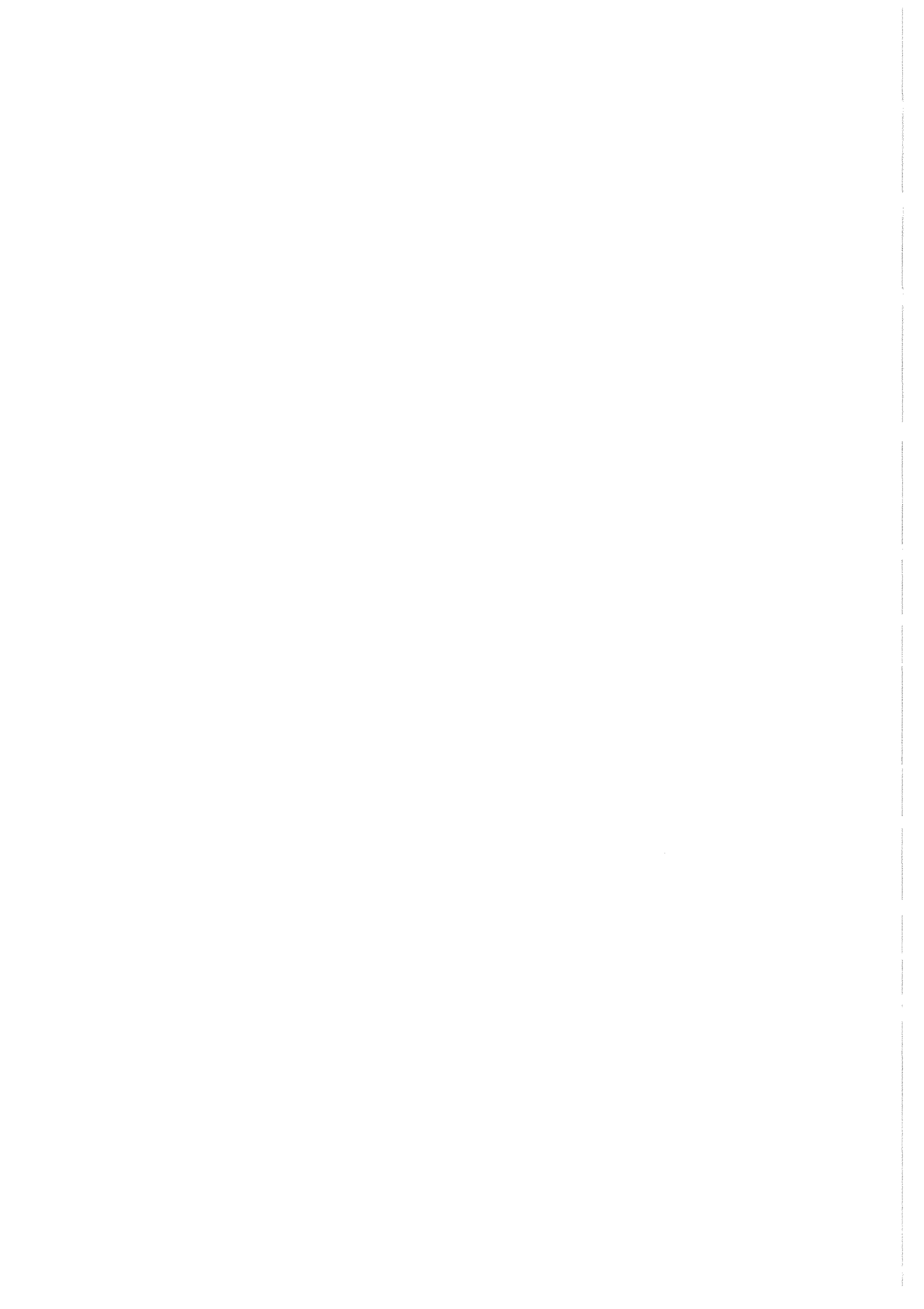
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN
AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE - 11808
Attended Pre Consultaiton Meeting with Traditional Authorities
14 July 2008

(8 Attendees)

<u>Name:</u>	<u>Company</u>	<u>City</u>
Langa, M A	Mapela Traditional Council	MAPELA
Langa, M F	Mmamogao Construction and Projects	MAPELA
Langa, M J	Mapela Traditional Council	MAPELA
Masebe, M M	Mapela Traditional Council	MAPELA
Mashishi, Thetudi	Mapela Traditional Council	MAPELA
Mogogane, L J	Mapela Traditional Council	MAPELA
Ndou, Godfrey	Lonmin Platinum Mines	MOKOPANE
Thaba, Rethabile	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE



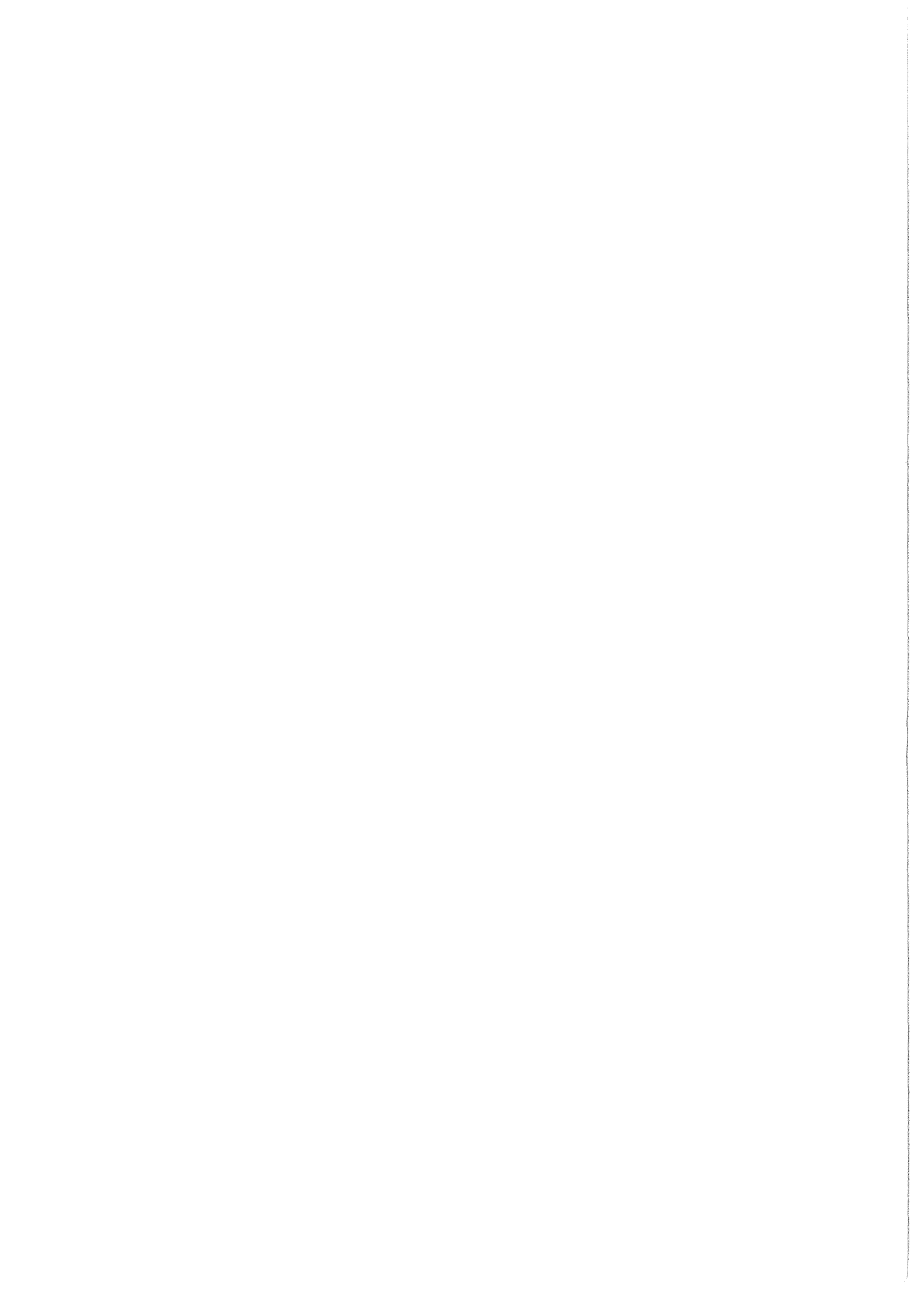
Appendix C.8
Focus Group Meeting: Attendance List (29 July 2008)



**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN
AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE - 11808
Attended Focus Group Meeting with Tribal Authorities
29 July 2008**

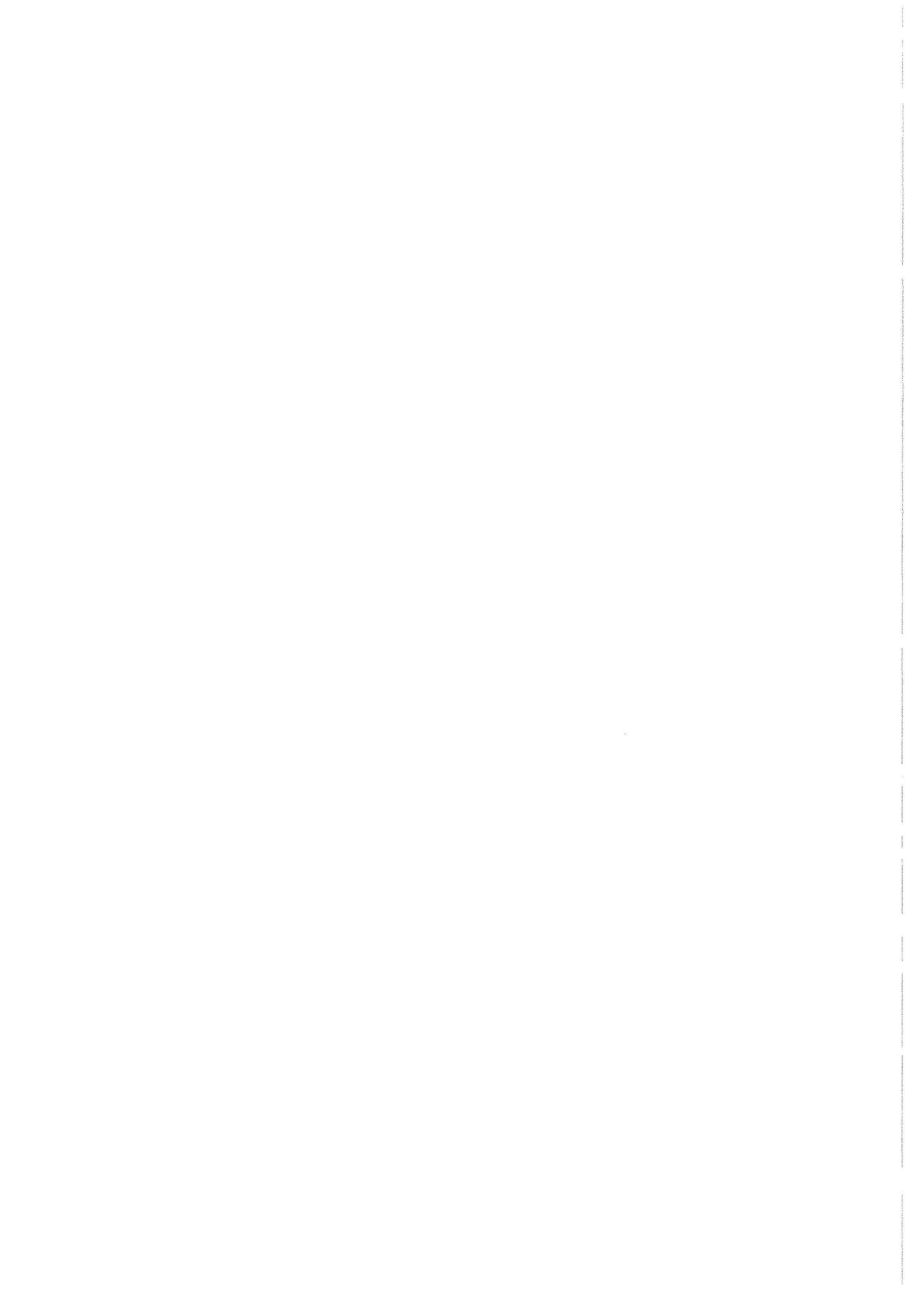
(30 Attendees)

<u>Name:</u>	<u>Company</u>	<u>City</u>
Chaba, Francina	Ga-Chaba	MAPELA
Fatane, Samuel	Ga-Mabusela	MAPELA
Fourie, Ben	Lonmin Platinum Mines	MARIKANA
Koka, Alfred	Matopa Committee	MAPELA
Kutumela, Elizabeth	Skimming Committee	MAPELA
Kutumela, Martina	Skimming Committee	MAPELA
Laka	Mesopotamia Committee	MAPELA
Langa, David	Mesopotamia Committee	MAPELA
Langa, Ebrahim	Ga-Mabusela	MAPELA
Langa, Maphefo	Matopa Community	MAPELA
Lehutso, Elias	Ga-Leruleng	MAPELA
Lekoto, Jones	Skimming Committee	MAPELA
Mabusela, Daniel	Mesopotamia Committee	MAPELA
Mabusela, Harry	Ga-Mabusela	MAPELA
Mahlahlani, Piet	Ga-Chaba	MAPELA
Makhafola, Elizabeth	Matopa Community	MAPELA
Masebe, Michael	Matopa Mining Committee	MAPELA
Mashishi, Frans	Ga-Chaba	MAPELA
Mashishi, Johanna	Mesopotamia Committee	MAPELA
Mathatho, Angie	Leruleng Village	MAPELA
Mojela, Julia	Matopa Community	MAPELA
Moloto, Albert	Lonmin Akanani	MOKOPANE
Mothiba, Godfrey	Mapela Traditional Council	MAPELA
Prinsloo, Mari	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Rabalao, Lesetja	Ga-Chaba	MAPELA
Sethoga, Jacob	Matopa Community	MAPELA
Sethokga, Christina	Mesopotamia Committee	MAPELA
Tseka, Victor	Lonmin Platinum	MARIKANA
van Staden, Martiens	Lonmin Platinum Mines	MARIKANA
Venter, Andries	Lonmin Platinum Mines	SLOANNE PARK



Key Stakeholder Workshop: Attendance List (29 July 2008)

Appendix C.9



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN
AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE - 11808

Attended Key Stakeholder Workshop

29 July 2008

(15 Attendees)

<u>Name:</u>	<u>Company</u>	<u>City</u>
Barberton, Felicity	RPM - Mogalakwena Section	MOKOPANE
Bossenger, Ray	CHAMSA Mogalakwena	MOKOPANE
Kgaphola, Tlou	Mogalakwena Local Municipality	MAPELA
Ledwaba, Julia	Anglo Platinum	MOKOPANE
Mothibi, Raisibe	Waterberg District Municipality	MAPELA
Mutabazi, Charles	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Nong, Makwena	Hans Masibe Primary School	MAPELA
Oosthuizen, A C	Lonmin Platinum Mines	MOKOPANE
Sethoga, Mosima	Mogalakwena Local Municipality	MAPELA
Somo, Frans	Seritarita Secondary School	MAPELA
Thaba, Rethabile	Golder Associates Africa (Pty) Ltd	HALFWAY HOUSE
Tsebe, Dan	Mogalakwena Local Municipality	MOKOPANE
van der Veen, Gerrit	CHAMSA Mogalakwena	MOKOPANE
Venter, Andries	Lonmin Platinum Mines	SLOANNE PARK
White, Jeff	Lonmin Platinum Mines	MOKOPANE

Appendix C.10
Draft Scoping Report Announcement Letter, Reply Sheet and
Provisional Public Meeting Programme



Golder Associates Africa (Pty) Ltd
Reg. No. 2002/007104/07

JOHANNESBURG
PO Box 6001 Halfway House 1685
South Africa
Thandanani Park, Matuka Close
Halfway Gardens, Midrand
Tel + (27) 011 254-4800
Fax + (27) 011 315-0317
<http://www.golder.com>



Proj No 11808

15 August 2008

Dear Stakeholder

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE

- **Draft Scoping Report available for comment**
- **Public review period for Draft Scoping Report: Friday, 22 August 2008 to Tuesday, 23 September 2008**
- **Public Meeting: Mapela Tribal Hall on Thursday, 28 August 2008**

Our sincere thanks to all the stakeholders who have commented on the Background Information Document, distributed in July 2008, for the proposed prospecting shaft development project EIA at Lonmin Akanani near Mokopane. We would also like to express our gratitude to all stakeholders who attended the focus group meeting and the key stakeholder workshop for the project at the end of July 2008.

The comments, issues and suggestions received thus far have been captured in an Issues and Response Report accompanying the Draft Scoping Report. During the Scoping Phase of the EIA, interested and affected parties are given the opportunity to comment on the proposed project and the proposed scope of the EIA specialist studies.

Draft Scoping Report available for public comment

The Draft Scoping Report and its accompanying Issues and Response Report are now available for public comment, for stakeholders to verify that their comments are captured correctly and to raise additional issues and suggestions. **Should you be interested in receiving a copy of the report**, please complete and return the enclosed reply sheet. Note that the report is available in paper or electronic format. Kindly note that the report will also be available on the following website: www.golder.co.za.

Copies of the Draft Scoping Report will be available for public review from **Friday, 22 August 2008 to Tuesday, 23 September 2008** at the following public places:

PLACE	CONTACT PERSON	TELEPHONE
Mapela Thusong Service Centre	Ms Andrina Mabusela	015 413 0000
Mapela Post Office	Mr J. Ledwaba	015 413 0001
Seritarita Secondary School	Mr Frans Somo	082 936 5160
Hans Masibe Primary School	Mr Makwena Nong	082 881 0516
Mapela Tribal Office	Mr Godfrey Mothiba	015 413 0036
Lonmin Akanani Division, Reception	Mr Godfrey Ndou	015 491 8146
Golder Associates Africa, Midrand	Ms Rethabile Thaba	011 313 1072

Your comment is important, please

Stakeholders can comment on the Draft Scoping Report in any of the following ways:

- completing the comment sheet enclosed with this letter
- writing a letter, or producing additional written submissions
- by email, fax or telephone to the public participation office
- By attending the public meeting on Thursday, 28 August 2008.

Directors : P Onley (Australia) FR Sutherland, AM van Niekerk, SAP Brown

LOCAL OFFICES IN JOHANNESBURG AND PIETERMARITZBURG
GOLDER COMPANIES LOCATED IN AFRICA, ASIA, AUSTRALASIA, EUROPE, NORTH AMERICA, SOUTH AMERICA



Public Meeting

A public meeting will be held on:

Date: Thursday, 28 August 2008
Time: 10:00 to 13:30
Venue: Mapela Tribal Office (Mapela, Mokopane)

A map to the venue will be sent to everyone that has indicated that they will attend the meeting.

The contents of the Draft Scoping Report will be presented at the public meeting to provide stakeholders with an opportunity to comment and raise further issues of concern and verify that issues and suggestions raised during the initial consultation process were captured correctly. Stakeholders will also have an opportunity to meet with the EIA team, including representatives from Lonmin, and environmental and public participation consultants from Golder Associates Africa to discuss issues and clarify questions, during and after the meeting. The meeting will be conducted in English but stakeholders will be welcome to use an official language of their choice.

Please use the enclosed reply sheet and return it to us by **Friday, 22 August 2008** if you wish to attend the public meeting. This will allow us to send you a copy of the Draft Scoping Report in advance of the meeting.

We look forward to your further participation in the EIA process. Should you have any questions, need more information, or wish to raise issues of concern, please contact Alet Visser/ Rethabile Thaba on (011) 254 4978/ (011) 313 1072/, fax (011) 315 0317 or email: avisser@golder.co.za/ rthaba@golder.co.za/

Sincerely



Alet Visser
Public Participation Office: Lonmin Akanani Prospecting Shaft Project EIA

Enclosed

- Reply sheet for receiving a copy of the Draft Scoping Report and to register for the public meeting
- Provisional programme for the public meeting

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED
PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI
PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE**

REPLY SHEET FOR

- Draft Scoping Report
- Public Meeting

AUGUST 2008

Please complete and return to the address below by Friday, 22 August 2008

Ms Alet Visser / Ms Rethabile Thaba
Public Participation Office
Golder Associates Africa
P O Box 6001
Halfway House
1685

Tel: (011) 254 4978 / (011) 313 1072
Fax: (011) 315 0317
E-mail: avisser@golder.co.za / rthaba@golder.co.za

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
ADDRESS			
	POSTAL CODE		CELL NO
TEL NO		FAX NO	
E-MAIL			
DRAFT SCOPING REPORT			
I would like to receive a copy of the Draft Scoping Report (please mark the appropriate block)			
By mail (hard copy)	YES	NO	
By mail (CD)	YES	NO	
PUBLIC MEETING	YES	NO	
I would like to attend the Public Meeting on 28 August 2008 at the Mapela Tribal Hall from 10:00 to 13h30			

COMMENTS (please use separate sheets if you wish)

Any comments you may have at this stage?

.....

.....

.....

.....

.....

Date.....Signature.....

THANK YOU FOR YOUR CONTRIBUTION

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED PROSPECTING
SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA
NORTH OF MOKOPANE, LIMPOPO PROVINCE**

PUBLIC MEETING

**Thursday, 28 August 2008
10h00 – 13h30**

MAPELA TRIBAL HALL, MOKOPANE

Notes:

- The contents of the Draft Scoping Report will focus discussions at the public meeting.
- Informative displays will also be available and can be viewed before and after the meeting.
- The public meeting itself will be conducted mainly in English and Sepedi but everyone is welcome to use the language of their choice during discussion sessions and will be responded to in that language with translation back into English.

OBJECTIVES

- To present to stakeholders the contents of the Draft Scoping Report
- For stakeholders to verify that the issues they have raised thus far in the process have been captured correctly
- For stakeholders to comment on the scope of the specialist studies
- For stakeholders to raise additional issues of concern and suggestions for enhanced benefits

PROGRAMME

Facilitator	Ms Rethabile Thaba, Golder Associates Africa
10h00	REGISTRATION, COFFEE
10h30	WELCOME
10h35	INTRODUCTION AND OBJECTIVES
10h35	PROJECT OVERVIEW Dr Andries Venter, Lonmin
11h15	QUESTIONS FOR CLARIFICATIONS
11h30	ENVIRONMENTAL AUTHORISATION PROCESS Ms Mari Prinsloo, Golder Associates Africa <ul style="list-style-type: none">▪ EMP amendment and consultation process▪ Issues identified through the Scoping Phase▪ Terms of Reference for specialist studies
12h00	DISCUSSIONS
13h00	SUMMARY AND NEXT STEPS
13h15	CLOSURE AND REFRESHMENTS

Appendix C.11
Extended comment period on Draft Scoping Report: Announcement
Letter, Reply Sheet and Provisional Public Meeting Programme



Golder Associates Africa (Pty) Ltd

Reg. No. 2002/007104/07

JOHANNESBURG
PO Box 6001 Halfway House 1685
South Africa
Thandanani Park, Matuka Close
Halfway Gardens, Midrand
Tel + (27) 011 254-4800
Fax + (27) 011 315-0317
<http://www.golder.com>



30 September 2008

Dear Stakeholder

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE

- **Extension of the public review period for Draft Scoping Report: Friday, 22 August 2008 to Tuesday, 21 October 2008**
- **Public Meeting: Mapela Tribal Hall on Tuesday, 14 October 2008**

Our sincere thanks to those stakeholders who have submitted comment in response to the Background Information Document, as well as to those who made time available to meet with the project team at the Focus Group Meeting and Key Stakeholder Workshop held in July 2008. Please be assured that the issues you have raised have been captured in the Issues and Response Report accompanying the Draft Scoping Report.

In our previous correspondence in August 2008, we informed you that the Draft Scoping Report (DSR) would be available for public review from Friday, 22 August 2008 to Tuesday, 23 September 2008. We wish to advise you that the above-mentioned review period has been extended due to additional issues that needed to be included in the Issues and Response Report (IRR) accompanying the Draft Scoping Report. The DSR with an updated IRR, will be available for public review from **Wednesday, 01 October 2008 to Tuesday, 21 October 2008**. Kindly note that the report will also be available on the following website: www.golder.co.za.

Copies of the DSR with an updated IRR will be available for public review from **Tuesday, 01 October 2008** at the following public places:

PLACE	CONTACT PERSON	TELEPHONE
Mapela Thusong Service Centre	Ms Andrina Mabusela	015 413 0000
Mapela Post Office	Mr J. Ledwaba	015 413 0001
Seritarita Secondary School	Mr Frans Somo	082 936 5160
Hans Masibe Primary School	Mr Makwena Nong	082 881 0516
Mapela Tribal Office	Mr Godfrey Mothiba	015 413 0036
Dikwena General Dealer	Mr Manamela	076 384 1970
Sephonono Shop	Peter Mathoga	082 488 2517
Lonmin Akanani Division	Mr Victor Tseka	015 491 8146
Golder Associates Africa, Midrand	Ms Rethabile Thaba	011 313 1072

Your comment is important, please

Stakeholders can comment on the Draft Scoping Report in any of the following ways:

- completing the comment sheet enclosed with this letter
- writing a letter, or producing additional written submissions
- by email, fax or telephone to the public participation office
- By attending the public meeting on Tuesday, 14 October 2008

Public Meeting

We recently informed stakeholders that the public meeting, which was scheduled for Thursday, 28 August 2008 had been postponed. A new date for the public meeting has been set. The meeting will now take place on:


Date: Tuesday, 14 October 2008
Time: 10:00 to 13:30
Venue: Mapela Tribal Hall (Mapela, Mokopane)

The contents of the Draft Scoping Report will be presented at the public meeting to provide stakeholders with an opportunity to comment and raise further issues and suggestions, and to verify that their comments raised during the initial consultation process have been captured correctly. Stakeholders will also have an opportunity to meet with the EIA team, including representatives from Lonmin and environmental and public participation consultants from Golder Associates Africa to discuss issues and clarify questions, during and after the meeting. The meeting will be conducted in English but stakeholders will be welcome to use an official language of their choice.

Please use the enclosed reply sheet and return it to us by **Tuesday, 07 October 2008** if you wish to attend the public meeting. This will allow us to send you a copy of the DSR with an updated Issues and Response Report in advance of the meeting.

We would like to express our appreciation to stakeholders for their ongoing interest in this project and contributions thus far and look forward to your continued participation in this EIA process. Should you have any questions, need more information, or wish to raise issues of concern and suggestions for enhanced benefit, please contact Alet Visser / Rethabile Thaba on (011) 254 4978/ (011) 313 1072/, fax (011) 315 0317 or email: avisser@golder.co.za/rthaba@golder.co.za.

Sincerely



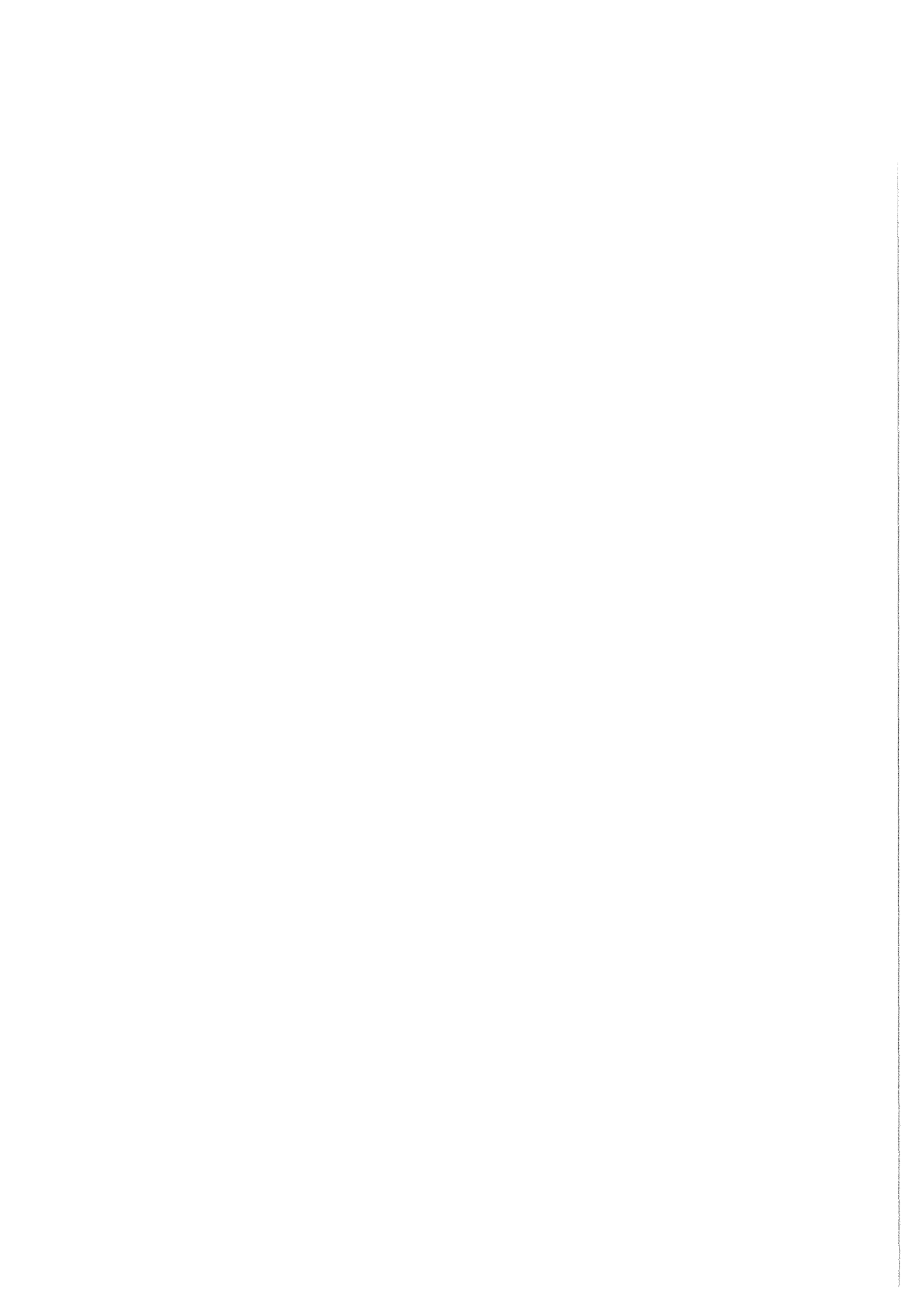
Alet Visser

Public Participation Office: Lonmin Akanani Prospecting Shaft Project EIA

11808

Enclosed

- Reply sheet for receiving the DSR and to register for the public meeting
- Provisional programme for the public meeting



**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED
PROSPECTING SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI
PROSPECTING AREA NORTH OF MOKOPANE, LIMPOPO PROVINCE**

REPLY SHEET FOR

- **Draft Scoping Report with an updated Issues and Response Report**
- **Public Meeting**

SEPTEMBER 2008

Please complete and return to the address below by Tuesday, 21 October 2008

Should you wish to attend the Public Meeting, please respond by Tuesday, 07 October 2008

Ms Alet Visser / Ms Rethabile Thaba

Public Participation Office

Golder Associates Africa

P O Box 6001

Halfway House

1685

Tel: (011) 254 4978 / (011) 313 1072

Fax: (011) 315 0317

E-mail: avisser@golder.co.za / rthaba@golder.co.za

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
ADDRESS			
	POSTAL CODE		CELL NO
TEL NO		FAX NO	
E-MAIL			
DRAFT SCOPING REPORT			
I would like to receive the Draft Scoping Report (please mark the appropriate block)			
By mail (hard copy)	YES	NO	
By mail (CD)	YES	NO	
PUBLIC MEETING	YES	NO	
I would like to attend the Public Meeting on 14 October 2008 at the Mapela Tribal Hall from 10:00 to 13h30			

COMMENTS (please use separate sheets if you wish)

Any comments you may have at this stage?

.....

.....

.....

.....

.....

Date.....Signature.....

THANK YOU FOR YOUR CONTRIBUTION

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED PROSPECTING
SHAFT DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA
NORTH OF MOKOPANE, LIMPOPO PROVINCE**

PUBLIC MEETING

**Tuesday , 14 October 2008
10h00 – 13h30**

MAPELA TRIBAL HALL, MOKOPANE

Notes:

- The contents of the Draft Scoping Report will focus discussions at the public meeting.
- Informative displays will also be available and can be viewed before and after the meeting.
- The public meeting itself will be conducted mainly in English and Sepedi but everyone is welcome to use the language of their choice during discussion sessions and will be responded to in that language with translation back into English.

OBJECTIVES

- To present to stakeholders the contents of the Draft Scoping Report
- For stakeholders to verify that the issues they have raised thus far in the process have been captured correctly
- For stakeholders to comment on the scope of the specialist studies
- For stakeholders to raise additional issues of concern and suggestions for enhanced benefits

PROGRAMME

Facilitator	Ms Rethabile Thaba, Golder Associates Africa
10h00	REGISTRATION
10h30	WELCOME
10h35	INTRODUCTION AND OBJECTIVES
10h45	PROJECT OVERVIEW Dr Andries Venter, Lonmin
11h15	QUESTIONS FOR CLARIFICATIONS
11h30	ENVIRONMENTAL AUTHORISATION PROCESS Ms Mari Prinsloo, Golder Associates Africa <ul style="list-style-type: none">▪ EMP amendment and consultation process▪ Issues identified through the Scoping Phase▪ Terms of Reference for specialist studies
12h00	DISCUSSIONS
13h00	SUMMARY AND NEXT STEPS
13h15	CLOSURE AND REFRESHMENTS

Public Meeting: Attendance List (14 October 2008)

Appendix C.12

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT
DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE,
LIMPOPO PROVINCE**

PUBLIC MEETING ATTENDANCE LIST, 14 OCTOBER 2008

Name	Company	City
Baloy, Charles		
Baloyi, Sylvia	Leruleng Community	
Bambo, Johannes		MAPELA
Bamboo, Middah		
Binny, Tleane		
Chaba, Francina		MAPELA
Chaba, Francina	Ga-Chaba	MAPELA
Chaba, Josiphine	Ga-chaba Community	
Chaba, Maria	Ga-Chaba Community	MAPELA
Chaba, Raisane		
Chaba, Ramadimotsa		
Dumela, Elixzabeth		MAPELA
Dumela, Elizabeth		MAPELA
Dumela, Jacob	Matopa Community	MAPELA
Khoza, Ivy	Waterberg District Municipality	MOKOPANE
Khwene, Moduku		
Koka, Alfred	Matopa Committee	MAPELA
Komape, Francina		
Komape, Jane		
Komape, Patricia		
Kotze, Abel	Bellevue Besproeingsraad	MOKOPANE
Laka, Phestina	Lonmin	MAPELA
Langa, Alfred	P O Box 346	MAPELA
Langa, Ebrahim	Ga-Mabusela	MAPELA
Langa, George	Leruleng Community	MAPELA
Langa, Lillian		MAPELA
Langa, Maphefo	Matopa Community	MAPELA
Langa, Salome		MAPELA
Langa, Senna	Matopa Community	MAPELA
Lebelo, Tebogo		MAPELA
Lebellalo, Victor		
Ledwaba, Johanna	Leruleng Village	MAPELA
Ledwaba, Julia	Rustenburg Platinum Mines - Mogalakwena Section	MOKOPANE
Ledwaba, Raisebe		MAPELA
Lekagarpwa, David		
Mabellele, Isiah		MAPELA
Maboyane, Johanna	Mayope Community	MAPELA
Mabulela, Sydney	Ga-Mabulela Community	MAPELA
Mabusela, Abram	Ga-Mabusela Community	MAPELA
Mabusela, Adrina	Mapela Thusong Service	MOKOPANE
Mabusela, Harry	Ga-Mabusela	MAPELA
Mabusela, Johanna		
Mabusela, Zacharia	Leruleng Community	MAPELA
Mahape, Muriel		MAHAPE
Mahlahlani, Piet	Ga-Chaba	MAPELA
Makgelemela, Selina	Lerulng Community	
Makgeta, Paulos	Skimming Village	MAPELA
Makhafola, Johanna	Matopa Community: African National Congress (ANC)	MAPELA
Malorafoa, Elizabeth		MAPELA
Mashilo, Elias		MAPELA
Mashishi, Frans	GATACO	BRAMLEY
Mashishi, Johanna		MAPELA
Masoga, Tebogo	Mapela Telecentre	MAPELA
Mathatho, Angie	Leruleng Village	MAPELA
Mathbela	Phillip	MATHEBULA

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED PROSPECTING SHAFT
DEVELOPMENT PROJECT AT THE LONMIN AKANANI PROSPECTING AREA NORTH OF MOKOPANE,
LIMPOPO PROVINCE**

PUBLIC MEETING ATTENDANCE LIST, 14 OCTOBER 2008

Name	Company	City
Mathlala, Joseph		
Matli, Francina		
Matli, Lilly	Ga-Chaba Village	MAPELA
Matsaung, M J	Ga-chaba Community	GA-MOTHAPO
Matsemela, Adrina	Mapela Traditional Council	MOKOPANE
Mbangane	Ebrahim	MBANGANE
Mello, Albertina		
Modise, Titus		
Modupi, Herbert		JOHANNESBURG
Moja, Jonas		
Moja, Samuel		MAPELA
Mojela, Julia	Matopa Community	MAPELA
Mojela, Moses	Matopa Community	MAPELA
Mokgabo, Albert	Ga-Mabusela Village	MAPELA
Mokgoloa	Rebecca	MOKGOLOA
Mokonyane, Lilly	Waterberg District Municipality	MOKOPANE
Molekoa, Christina	ANC Chaba Maswikaneng	MAPELA
Molemela, Maria	Ga-Chaba Village	MAPELA
Molomo, Jennifer		
Molonyama, Emily		
Moshale, Motome		
Mosibitla, Thabiso	Ga-Chaba Village	MAPELA
Mosibitlha, J T	Ga-chaba Community	MAPELA
Mosibitlha, Ramokone	Ga-Chaba Village	MAPELA
Motebele, Maria		MAPELA
Mothiba, Godfrey	Mapela Traditional Council	MAPELA
Mtlou, Rebecca		
Musibihlo	Thabiso	MUSIBIHLO
Ngobeni, Desia	Leruleng Community	MAPELA
Notoane, Johanna		MAPELA
Photwane, Norman	Protunne Development Project	MAPELA
Prinsloo, Mari	Golder Associates Africa	MIDRAND
Rabalao, Lesetja	Ga-Chaba	MAPELA
Rabalao, Magdeline	Ga-chaba Community	MAPELA
Ramotshela, Elizabeth	Leruleng Community	MAPELA
Sathekgi, Samuel	Ga-Chaba Village	MAPELA
Seanego, Stephen	Nehwai Trading Enterprise	MAPELA
Sebata, Ashton	Kwakwalata Village	MAPELA
Seefane, Virginia		MAPELA
Sema, Salome	Matopa Village	MAPELA
Sema, Sejakati		
Sesoko, William		
Sethego, Mmantutule		
Sethoga, Jacob	Matopa Community	MAPELA
Sethoga, Mosima	Mogalakwena Local Municipality	MAPELA
Tefo, Isaac		MAPELA
Thaba, Rethabile	Golder Associates Africa	MIDRAND
Thabetha, Fred	Leruleng Community	MAPELA
Tloubatla, Paulina	Ga-Chaba Village	MAPELA
Tseka, Victor	Lonmin Platinum Mines	MARIKANA
Venter, Andries	Lonmin Platinum Mines	SLOANNE PARK

Appendix C.13
Letter faxed to the DMF confirming that the Department does not
require a Scoping Report to be submitted



FACSIMILE TRANSMISSION



Golder Associates Africa (Pty) Ltd
P O Box 6001, Halfway House, 1685, South Africa

Telephone: + (27) (0)11 254-4800
Facsimile: + (27) (0)11 315-0317

DATE:	07 November 2008	JOB NO:	11808
TO:	Mr Azwi Mulaudzi	FAX NO:	015 287 4729
	Limpopo Departement of Minerals and Energy	TOTAL PAGES:	3
COPY:		cc: FAX NO:	
FROM:	Mari de Villiers	EMAIL:	mdevilliers@golder.co.za
RE:	<u>Submission of Scoping Report</u>		

Environmental Impact Assessment for Proposed Lonmin Akanani Prospecting Shaft Development,
Mokopane, Limpopo Province: Submission of Scoping Report

GOLDER ASSOCIATES AFRICA (PTY) LTD

A handwritten signature in black ink, appearing to read "M. de Villiers".

Mari de Villiers

DOCUMENT2

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Directors : FR Sutherland, AM van Niekerk, SAP Brown, L Greyling, MS Manyaka (non-executive)

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GOLDER COMPANIES LOCATED IN GHANA, MOZAMBIQUE, ASIA, OCEANIA, EUROPE, NORTH AMERICA, SOUTH AMERICA

Golder Associates Africa (Pty) Ltd
Reg. No. 2002/007104/07



JOHANNESBURG
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Tel +(27) 011 254-4800
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<http://www.golder.com>

Our Ref : 11808-Let-003

7 November 2008

Limpopo Department of Minerals and Energy
Private Bag X9467
Polokwane
0700

Attention: Mr Azwi Mulaudzi

Dear Mr Mulaudzi

**ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED LONMIN AKANANI
PROSPECTING SHAFT DEVELOPMENT, MOKOPANE, LIMPOPO PROVINCE:
SUBMISSION OF SCOPING REPORT**

Lonmin Platinum (Lonmin) intends to amend its approved Prospecting Permit to include the development of a prospecting shaft for bulk sampling purposes at its Akanani Mine prospecting area located approximately 25 km north of Mokopane in the Limpopo Province. The approved prospecting area is located on the farms Zwartfontein 814 LR and Moordkopje 813 LR and is collectively referred to as the 'Akanani Mine prospecting area'. The prospecting shaft is required to determine the metallurgical properties of the Plat reef at the Akanani Mine prospecting area. Lonmin is proposing to sink a single shaft over a three year period to collect a bulk sample of 3 000 tonnes. The mined ore will be transported by 35 ton trucks to Mintek in Johannesburg for test work. The prospecting shaft will be about 7 to 10 metres in diameter, and approximately 1 000 metres deep. The prospecting shaft site will be approximately 2 ha in extent.

A new order Prospecting Right and Environmental Management Programme (EMP) for the prospecting activities on the farms Zwartfontein 814 LR and Moordkopje 813 LR have been approved. In order to amend the approved Prospecting Right and EMP to include bulk sampling, Lonmin is required to undertake an Environmental Impact Assessment (EIA) process and compile an EMP in terms of the MPRDA and the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998). Golder Associates Africa (Pty) Ltd, an independent company, is undertaking the EIA and compiling the EMP to support the Prospecting EMP amendment application.

The Scoping Report for this EIA was submitted to your Department (the Polokwane office of the Department of Minerals and Energy) on 30 September 2008. Your Department returned the documents to Golder on the same day and indicated during a telephonic discussion with Mari de Villiers that the

Directors : FR Sutherland, AM van Niekerk, SAP Brown, L Greyling, MS Manyaka (non-executive)



Department now requests the submission of a Standard Environmental Management Plan, in stead of a Scoping Report which is normally followed by an EIA Report and EMP.

Sine this EIA is being undertaken in terms of the MPRDA as well as the NEMA, both the Department of Minerals and Energy, as well as the Limpopo Department of Economic Development, Environment and Tourism (LDEDET) are decision-making authorities for this EIA. A full EIA process is therefore being undertaken and the Scoping Report will be submitted to the LDEDET for approval.

This letter serves to confirm that a Scoping Report will not be submitted to your Department for this EIA, and that your Department will base your decision on the proposed project on the EIA Report and EMP which will comply, *inter alia*, with the requirements of the Department's Standard Environmental Management Plan. The EIA Report and EMP will be submitted to your Department during the first quarter of 2009.

If no response on this letter is received within 2 weeks, Golder will assume your Department is in agreement with the contents of this letter.

You are welcome to contact the undersigned should you require any additional information.

Yours faithfully

GOLDER ASSOCIATES AFRICA (PTY) LTD



Mari de Villiers

mdv

G:\Projects\11808 - EIAEMP for bulk sample, Akanani Mine, Lonmin Plat\Correspondence\Letters\11808-Let-003-Confirm no SR submitted to DME-7 Nov 08.doc

~~07 NOV 2008~~

Transaction Report

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026	16-JUN 12:35	0152874729		000	Busy	

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Golder Associates Africa (Pty) Ltd
 P O Box 6001, Halfway House, 1685, South Africa

Telephone: + (27) (0)11 254-4800
 Facsimile: + (27) (0)11 315-0317

DATE: 07 November 2008 **JOB NO:** 11808

TO: Mr Azwi Mulaudzi **FAX NO:** 015 287 4729

Limpopo Departement of Minerals and Energy **TOTAL PAGES:** 3

COPY: **cc: FAX NO:**

FROM: Mari de Villiers **EMAIL:** mdevilliers@golder.co.za

RE: Submission of Scoping Report

Environmental Impact Assessment for Proposed Lonmin Akanani Prospecting Shaft Development, Mokopane, Limpopo Province: Submission of Scoping Report

GOLDER ASSOCIATES AFRICA (PTY) LTD

Mari de Villiers

DOCUMENT 2

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~~07 NOV 2008~~

Confirmation Report

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028	14:33	Send	0152874729		003
027	14:34	Send	0152874729		003

Called the departement on 7th Nov 2008,
Confirmed reciept.



Table of the South African Water Quality Guidelines (1996)

Appendix D

South African Water Quality Guidelines SAWQG (1996)

Variable	Units	Aquatic			Domestic				Industry				Irrigation	Livestock	Recreational
		TWQR	CEV	AEV	Class O	Class I	Class II	Class III	1	2	3	4	TWQR	Watering	Use
Aldrin	mg/l													0.001	
Algae (Chlorophyll a)	ug/l chl a				0.001	0.015	0.1								20
Algae (Blue Green)	colonies/0.5ml													6	
Alkalinity	mgCaCO ₃ /l								50	120	300	1200			
Aluminium	mg/l	0.01	0.02	0.15	0.15	0.5							5	5	
Ammonia	mgN/l	0.007	0.015	0.1	1	2	10								
Arsenic	mg/l	0.01	0.02	0.13	0.01	0.05	0.2	2					0.1	1	
Atrazine	mg/l	0.01	0.019	0.1	0.002	0.02									
Beryllium	mg/l												0.1		
Boron	mg/l												0.5	5	
Cadmium	mg/l	0.00025	0.0005	0.006	0.003	0.005	0.02	0.05					0.01	0.01	
Calcium	mg/l				32	80	150	300							1000
Chlordane	mg/l														0.003
Chloride	mg/l				100	200	600	1200	20	40	100	500	100	1500	
Chlorine	mg/l	0.0002	0.00035	0.005											
Chromium (III)	mg/l	0.012	0.024	0.34											
Chromium (VI)	mg/l	0.007	0.014	0.2	0.05	1	5						0.1	1	
Clarity	Secchi disc depth (m)														3
COD	mgO ₂ /l								10	15	30	75			
Coliphages	counts/100ml				1	10	100								20
Colour					15										
Cobalt	mg/l												0.05	1	
Copper	mg/l	0.0008	0.0015	0.0046	1	1.3	2	15					0.2	0.5	
Cyanide	mg/l	0.001	0.004	0.11											
DDT	mg/l													0.05	
Dieldrin	mg/l													0.001	
Dissolved Oxygen	%	80	60	40											
Dissolved Organic Carbon	mgC/l				5	10	20								
Electrical Conductivity	mS/m				70	150	370	520	15	30	70	250	40		
Endrin	mg/l													0.0005	

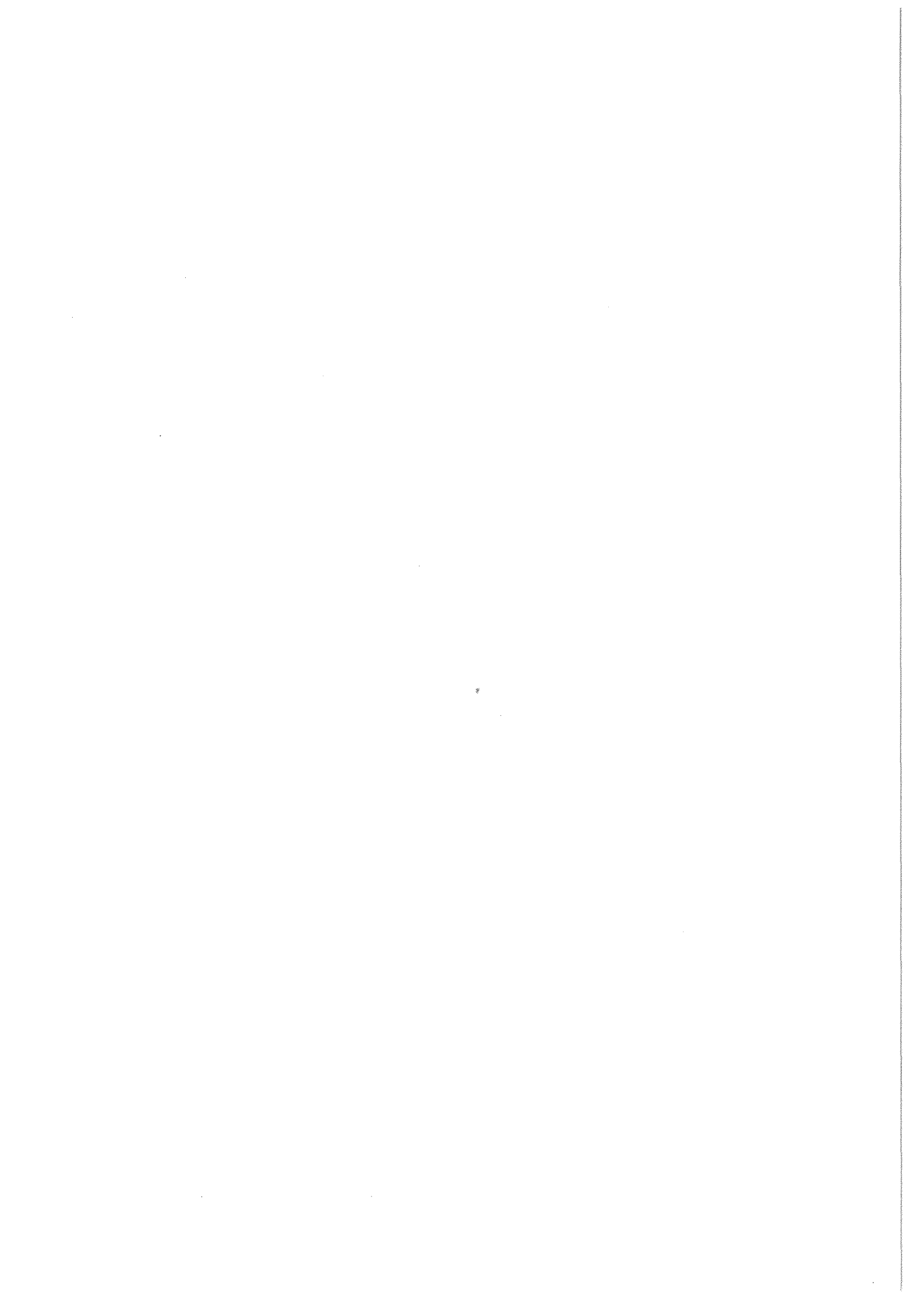
Variable	Units	Aquatic			Domestic				Industry				Irrigation	Livestock	Recreational
		TWQR	CEV	AEV	Class O	Class I	Class II	Class III	1	2	3	4	TWQR	Watering	Use
Endosulfan	mg/l	0.00001	0.00002	0.0002											
Enteric Viruses	TCID ₅₀ /10l				0	1	10								0
Escherichia coli	counts/100ml														130
Faecal Coliforms	counts/100ml				0	1	10	100					1	200	130
Faecal Streptococci	counts/100ml														30
Fluoride	mg/l	0.75	1.5	2.54	0.7	1	1.5	3.5					2	2	
Heptachlor	mg/l													0.0001	
Heterotrophic Plate Counts	counts/1ml				100	1000									
Iron	mg/l				0.5	1	5	10	0.1	0.2	0.3	10	5	10	
Lead	mg/l	0.0005**	0.001**	0.007**	0.01	0.05	0.1	0.3					0.2	0.1	
Lindane (BHC)	mg/l													0.005	
Lithium	mg/l												2.5		

Variable	Units	Aquatic			Domestic				Industry				Irrigation	Livestock	Recreational
		TWQR	AEV	CEV	Class O	Class I	Class II	Class III	1	2	3	4	TWQR	Watering	Use
Magnesium	mg/l				70	100	200	400							500
Malathion	mg/l														0.1
Manganese	mg/l	0.18	0.37	1.3	0.1	0.4	4	10	0.05	0.1	0.2	10	0.02	10	
Mercury	mg/l	0.00004	0.00008	0.0017	0.001	0.005	0.2	0.5						0.001	
Methoxychlor	mg/l														1
Molybdenum	mg/l												0.01	0.01	
Nickel	mg/l												0.2	1	
Nitrate	mg/l N				6	10	20	40						100	
Nitrogen (Inorganic)	mg/l	0.5	2.5	10									5		
Odour	TON				1	5	10								
Parathion	mg/l													0.1	
pH					6-9	4.5-10	4-10.5	3-11	7-8	6.5-8	6.5-8	5-10	6.5-8.4		6.5-8.5
Phenol	mg/l	0.03	0.06	0.5	0.001	0.01	0.1	3							
Phosphorus (Inorganic)	mg/l	0.005	0.025	0.25											
Potassium	mg/l				25	50	100	500							

Variable	Units	Aquatic			Domestic			Industry				Irrigation	Livestock	Recreational	
		TWQR	AEV	CEV	Class O	Class I	Class II	Class III	1	2	3	4	TWQR	Watering	Use
Protozoan Parasites	cysts/10l				0	1									
Radium(226)	Bq/l				0.42										
Radium(228)	Bq/l				0.42										
Radon(222)	Bq/l				11	33	100								
Selenium	mg/l	0.002	0.005	0.03	0.02	0.05	0.1					0.02	0.05		
Silica	mg/l								5	10	20	150			
Sodium	mg/l				100	200	400	1000					70	2000	
SAR													2		
Sulphate	mg/l				200	400	600	1000	30	80	200	500		1000	
Suspended Solids	mg/l								3	5	5	25	50		
Temperature															
Thorium (232)	Bq/l				0.228	2.28									
Total Coliforms	counts/100ml				0	10	100	1000							
Total Dissolved Solids	mg/l				450	1000	2400	3400	100	200	450	1600	260	1000	
Total Hardness	mgCaCO ₃ /l				100	200	300	600	50	100	250	1000			
Total Suspended Solids	mg/l														
Toxaphene	mg/l													0.005	
Trihalomethanes	mg/l				0.1	0.2	0.4								
Turbidity	NTU				0.1	1	20	50							
Uranium (238)	mg/l				0.07	0.284	1.42						0.01		
Vanadium	mg/l				0.1	1							0.1	1	
Zinc	mg/l	0.002	0.0036	0.036	3	5	10	20					1	20	
2,4-D Herbicide	mg/l													0.02	
2,4,5-T Herbicide	mg/l													0.002	
2,4,5-TP Herbicide	mg/l													0.03	

* pH > 6.5

** Medium Hardness



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Project 12468

Proponent: Lesedi Local Municipality

FINAL SCOPING REPORT

GDACE REF NO: Gaut 002/10-11/E0194

Municipality
the Lesedi Local
Waste Disposal Site within
Proposed New General

ENVIRONMENTAL IMPACT
ASSESSMENT FOR A WASTE
MANAGEMENT LICENSE

Third document for comment
October 2011
Scoping Phase

