SEKOKO WATERBERG MINE,
LEPHALALE, LIMPOPO PROVINCE

TRAFFIC IMPACT ASSESSMENT
BASELINE REPORT

DECEMBER 2012

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Title:	**TRAFFIC IMPACT BASELINE STUDY - PROPOSED SEKOKO WATERBERG COAL MINE**
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Project nr:	**ITS 3157**
Date:	**December 2012**
Report Status:	**Final**

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TRAFFIC IMPACT STUDY PROPOSED SEKOKO WATERBERG COAL MINE		
DESCRIPTION		**REFERENCE**
1. INTRODUCTION	A Baseline Traffic Impact Assessment was prepared as part of the amended EMP application for the environmental authorisation process in respect of the NEMA and MPRDA for a Greenfields Coal Mining development herewith referred to as Sekoko Waterberg Coal Mine. The Sekoko Coal Mine will be developed on the farms Minnasvlakte 258 LQ, Smitspan 306 LQ and the Remainder of Hooikraal 315 LQ. The additional farms that will be included in this amended EMP application will be Olieboomsfontein 220 LQ (Site 1), Duikerfontein 263 LQ (Site 2) and Swanepoelpan 262 LQ (Site 3). Site 1 (Olieboomsfontein 220 LQ) is located approximately 43km from the Lephalale CBD and Site 2 and 3 (Duikerfontein 263 LQ & Swanepoelpan 262 LQ) are located approximately 47km from the Lephalale CBD. The purpose of the Baseline Traffic Impact Assessment is to assess the impact of the mining activities on the existing external road network surrounding the development. The adequacy of the internal roads will also be assessed. Based on this assessment, mitigation measures will be recommended to minimise the impact on the road network. This document only addresses the scoping investigation, which includes baseline information, guidelines to be used for the investigation and assessment methodology.	Appendix A Figure 1 Appendix B
2. LOCALITY	The site is located adjacent to the proposed Thabametsi Coal mine, in Lephalale in the Limpopo Province of South Africa. This area is located in the Waterberg District Municipality (WMD). The new proposed Sekoko opencast and subsurface coal mine will be an independent coal mine. The mine infrastructure will be developed only for the Sekoko Coal mine operations and no infrastructure of the adjacent Thabametsi Coal mine will be shared with the proposed Sekoko Coal mine operation, with special reference to the EIA / EMP process. The location of the proposed development is shown in Figure 1, Appendix A.	Appendix A Figure 1
3. METHODOLOGY OF ASSESSMENT	The scoping investigation will be carried out as follows: • Identification of the affected external roads • Status quo investigation of internal and external road network: - Existing traffic volumes, and - Basic road network investigation • Capacity evaluation of the existing road network • Preparation of the Scoping Report	

4. BASELINE INFORMATION	**STUDY AREA:** The preferred access road alternatives (if any) will be considered at a later stage of the project during the EIA phase. At this stage of the project it is expected that the following roads and intersections might possibly be affected by the proposed development and will therefore be investigated: • D1675 Road; • D2001 Road; • D2816 Road; and • R1665 Road.	Appendix A Figure 1
5. STATUS QUO	Traffic counts were carried out on Tuesday, 26th March 2012 during AM and PM peak hours (6:00 - 9:00 and 15:00 – 18:00) at the following intersections: • D2001 Road / D2816 Road; • Link road to Matimba Power station; and • Link road to Medupi Power station Classified counts including light vehicles, heavy vehicles (2-4 axels) and very heavy vehicles (more than 5 axels) were counted at these locations. The AM and PM Peak hour was determined based on the highest traffic volumes registered during the morning and afternoon periods respectively. The AM Peak was found to be from 05:45 to 06:45 and the PM Peak hour was recorded at 17:30 to 18:30. Approximately 17% of the counted AM peak hour traffic volumes and approximately 12% of the counted PM peak hour volumes are heavy vehicles. The baseline AM and PM peak hour total traffic volumes including the link volumes are indicated in Figure 3, Appendix A.	Appendix A Figure 3

6. ROAD CONDITION	The D2001 and D1675 Roads currently serves as access roads for construction as well as for operational purposes of the Medupi Power Station, Grootegeluk Coal mine and Matimba power station, and will maintain the present course to service other farms further north of the Sekoko Waterberg Coal Mine. The existing D1675 / D2001 Roads are surfaced two lane rural roads and provide access to the Exxaro Grootegeluk Coal Mine as well as the Medupi power station. Access would be provided from the D1675 as well as the D2001 Road. The D2001 Road is currently surfaced from Lephalale to approximately 4km after the D2001 / D2816 intersection after which the gravel road starts. This portion of the existing D2001 provincial road is also currently under construction and will include an additional lane between Tamboti Drive and the D2001 / D1675 intersection. The D2001 Road, a north-south road and the D1675, an east-west road carries relatively high volumes of traffic during the morning and afternoon peak hours. The traffic volumes on the D2001 / D1675 Road are mainly traffic from Lephalale to the Medupi Power Station and Grootegeluk Coal Mine with approximately 1400vph and 1100vph in both directions respectively. During the afternoon peak hour the main direction is eastbound towards Lephalale with approximately 700vph and 1750vph respectively. The R510 Road is an existing two lane surfaced road and form part of the major road network from Lephalale to the rest of the road network in the Limpopo Province. The traffic volumes on R510 Road are less than 200vph in both directions during the peak hours. Traffic on the R510 is mainly traffic to- and from Lephalale between Thabazimbi and other towns in the province.	
7. INTERSECTION GEOMETRY	The D2001 / D2816 Road intersection is currently a traffic signal controlled intersection with turning lanes on all the approaches. The D1675 / D2001 intersection is a three way stop controlled intersection. The D1665 (Nelson Mandela Lane) / R510 Road intersection is a three way priority controlled intersection with priority on R510 Road with turning lanes on all the approaches.	
8. ANALYSIS OF STATUS QUO SCENARIO	The results of the capacity analysis for the baseline traffic are shown in Figure 6 and 7, Appendix A. Most of the intersections are currently operating at acceptable levels of service except for the D2001 / D1675 intersection.	Appendix A Figure 6 & 7

9. ACCESS TO THE DEVELOPMENT	Site 1 (Olieboomsfontein 220 LQ), will have an access from the D2001 Road currently a gravel road. A portion of the D2001 Road, approximately 22km from the D2001 / Grootegeluk Access intersection to the proposed access point of the Site might need to be considered for surfacing to accommodate the development traffic. Site 2 and 3 (Duikerfontein 263 LQ & Swanepoelpan 262 LQ) will have access from the D1675 Road that will include a gravel road portion approximately 5.5km from the D1675 Road.	
10. GUIDELINES USED FOR INVESTIGATION	The Traffic Impact Assessment will be conducted based on the *Manual of Traffic Impact Studies (RR 93/635)*, published by the *Department of Transport, in 1995*. The intersections will be evaluated using the *Highway Capacity Manual (HCM) 2000* Methodology. The *SIDRA 4.0/TRAFFIX 8.0* will be used for analysis of critical intersections.	
11. IMPACTS OR ISSUES EXPECTED	**BASELINE** The following impacts will be investigated further as part of the Traffic Impact Assessment: • Consideration of the existing external road network including the potential influence area; • Traffic demand levels during the AM and PM peak hours at the intersections under investigation (identified in paragraph 5 above); • Status quo traffic volumes including LOS, delay and volume capacity ratio at major intersections on the road network; • Expected performance of the intersections under consideration (in terms of congestion levels); and • Proposed access to the development and consideration of alternatives (if any). **FULL SCOPING** • Expected trips generated by the proposed development during the construction, operation and decommission / close phases; • The potential impact due to traffic generation generated by the proposed Sekoko Waterberg Coal mine during the construction, operational and closure phases; • Capacity analysis at the proposed accesses to the proposed Coal mine development; and • Proposed access layouts.	

12. ANALYSIS SCENARIOS	The analysis scenarios will be determined based on the activity phasing of the mine: • Construction Phase; • Operational Phase; • Closure and decommissioning Phase; and • Post- Closure Phase. The background traffic volumes (excluding the mining traffic) will be projected to accommodate future traffic growth and the mining traffic will also be adjusted to reflect truck demands per development phasing.	
13. METHODOLOGY OF IMPACT ASSESSMENT	The Traffic Impact Assessment to follow will address the projection of the future traffic demand (background and development traffic), the re-evaluation of the road network to accommodate the future traffic demand and mitigation measures will be proposed to minimise the impact on the external road network. Direct, indirect and cumulative impacts of the issues identified through the scoping study, as well as all other issues identified in the EIA phase will be assessed in terms of the nature, extent, duration, magnitude, probability and significance as well as the status. The following will be included: • Collection of background information and undertake traffic counts at each of the sites to establish a baseline and peaks of traffic in the area. • Superimpose the generated traffic on the current and future road and traffic system and determine the current operating Levels of Service of the affected roads. Assess how these would be impacted by the proposed Sekoko Waterberg Coal mine. • Analyse the temporary as well as long term effects of access roads, loading and storage and commuting. • Comment on access configurations, site layout and circulation, freight and public transport facilities, control and road infrastructure improvements. • Discuss the outcomes of the study with the relevant road authorities, where required. Propose mitigation measures, where necessary, to mitigate the assessed impacts of the proposed Sekoko Waterberg Coal mine.	

REFERENCES

- Department of Transport, *South African Trip Generation Rates Manual*
- Institute of Transportation Engineers. *Trip Generation, 8th Edition. 2008*.
- Transportation Research Board. *Highway Capacity Manual, 2010*

GLOSSARY OF TERMS

EIA	Environmental Impact Assessment
LOS	Level of Service
NDoT	National Department of Transport
p.a.	Per annum
TIA	Traffic Impact Assessment
v/c	Volume/capacity ratio

APPLICABLE SOURCE DOCUMENTS

Access Management Guidelines	Committee of Transportation Officials (COTO), 2002.National Guidelines for Road Access Management in South Africa.
Manual for Traffic Impact Studies	National Department of Transport (NDOT), 1995. Manual for Traffic Impact Studies.
NGTC	National Department of Transport, 1996. National Guidelines for Traffic Calming.
Trip Generation Guidelines	National Department of Transport, 1994. South African Trip Generation Rates, 2nd Edition.
UTG 1	National Department of Transport, 1986. National Urban Transport Guidelines: Geometric Design of Urban Arterials.

ABBREVIATIONS

AMP – Access Management Plan
CM – Critical Movement
DR – Divisional Road
EMP – Environmental Management Plan
GLA – Gross Leasable Floor Area
HCM – Highway Capacity Manual
LOS – Level of Service
MOE – Measures of Efficiency
MPRDA – Mineral and Petroleum Resources Development Act
MR – Provincial Main Road
NEMA – National Environmental Management Act
N1 – National Route 001
OP – Minor Road (Ondergeskikte Pad)
RAP&G – Road Access Guidelines and Policy
RMP – Road Master Plan

SARTSM – South African Roads Traffic Signs Manual
SATGR – South African Trip Generation Rates
SDF – Spatial Development Framework
SDP – Site Development Plan
SQM – Square Meters (m^2)
SSD – Shoulder Sight Distance
STSD - Stopping Sight Distance
TIA - Traffic Impact Assessment
TIS - Traffic Impact Statement
V/C – Volume to Capacity Ratio

APPENDIX A

FIGURES

APPENDIX B

SITE PLAN