Appendix R: Traffic

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	For official use only
File Reference Number:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONTINUOUS ASH DISPOSAL FACILITY FOR THE MATIMBAPOWER STATION IN LEPHALALE, LIMPOPO PROVINCE

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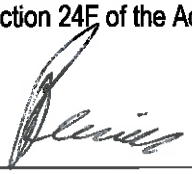
4.2 The specialist appointed in terms of the Regulations_

I, IVAN REUTENZ , declare that --

General declaration:

I act as the independent specialist in this application
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
I declare that there are no circumstances that may compromise my objectivity in performing such work;
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
all the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

LHOHV

Name of company (if applicable):

13/05/2014

Date:

TRAFFIC IMPACT ASSESSMENT FOR MATIMBA POWER STATION

Continuous Ash Disposal Facility

Prepared by:
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VERIFICATION PAGE

PROJECT NAME: MATIMBA POWER STATION: Continuous Ash Disposal Facility		
PROJECT NO: E02.JNB.001222	**DATE:** March 2014	**REPORT STATUS:** Final for EIA Submission
CARRIED OUT BY: Royal HaskoningDHV	**COMMISSIONED BY:** Eskom Holdings SOC Limited	
AUTHOR: Mr. Ivan Reutener	**CLIENT CONTACT PERSONS:** Tobile Bokwe & Mpho Muswubi	
SYNOPSIS: Traffic Impact Assessment as part of the EIA		
***COPYRIGHT:** Royal HaskoningDHV		
QUALITY VERIFICATION: This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2000.		

Verification	Capacity	Name	Signature	Date
By Author	Intelligent Transport Systems (ITS) & Traffic Engineer	Mr. Ivan Reutener		March 2014
Checked by	Principal	Dr. Louis Potgieter		March 2014
Authorized by	RHDHV Project Leader	Mr. Malcolm Roods		March 2014
Submitted to	Eskom			

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ACRONYMS

LOS:	Level of Service
HCS:	Highway Capacity Software
SIDRA:	Signalised & unsignalised Intersection Design and Research Aid
v/c:	Volume / Capacity Ratio

1 INTRODUCTION

Eskom Holdings SOC Limited appointed Royal HaskoningDHV, to conduct a Traffic Impact Assessment (TIA) as part of the Environmental Impact Assessment (EIA) and Waste Management Licensing (WML) for the proposed continuous ash disposal facility for the Matimba Power Station.

This report expands on the previously approved traffic report that formed part of the Environmental Scoping Report. Two site alternatives for the continuous ash disposal facility were identified during the scoping process, and this report evaluated both of the sites and linear infrastructure route to alternative site 2 from a Traffic and Transport perspective.

The existing continuous ash disposal facility is located approximately 3km south of Matimba Power Station and approximately 12.0km from Lephalale.

The alternative sites, for the continuous ash disposal facility, can be described as follows:

- ***Alternative 1*** – This will be an extension of the existing ash facility, westwards over Eskom owned land (Farm Zwartwater 507 LQ). It lies approximately 3km south of the Matimba Power Station.
- ***Alternative 2*** – This will be a completely new continuous ash disposal facility on portions of the farms Ganzepan 446LQ, Droogeheuvel 447LQ, Appelvlakte 448LQ and Vooruit 449LQ. It lies approximately 3km north of the Matimba Power Station. This report will also address the proposed new conveyor belt assessment from a Traffic Engineering perspective.

The proposed alternative sites locations, in relation to the Matimba Power Station and existing ashing site are shown in Figure 1.

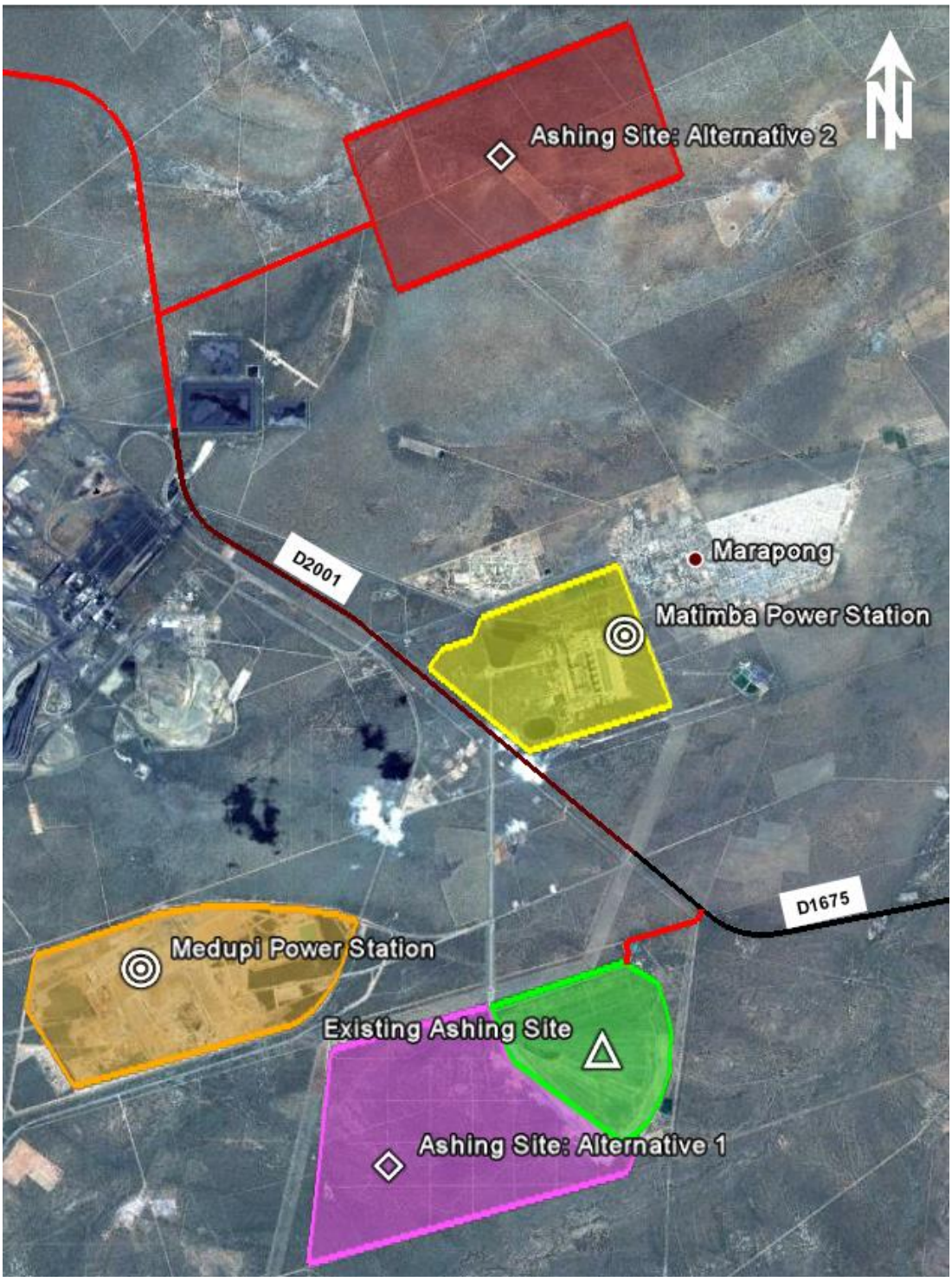

Figure 1: Locality Plan

2 SCOPE OF STUDY

In accordance with the Manual of Traffic Impact Studies published by the Department of Transport 1995, a fully fledged traffic impact study is required if a development or extension thereof generates more than 150 vehicles per hour, a traffic impact statement if a development generates less than 150 peak hour trips and based on the local roads authority's discretion, no study required if less than 50 peak hour trips generated.

Based on the requirements of the guideline document, EIA requirements and a site visit, a limited traffic impact assessment was prepared. As part of this study, the following was included:

- Current site operation
- Visual assessment of the various site conditions;
- Classified (light and heavy) vehicle counts;
- Travel Time Survey;
- Status Quo analysis;
- Capacity analyses;
- Current Planned Road Upgrades;
- Traffic and Transport Risk Assessment, and
- Mitigation measures.

3 TRANSPORT INFRASTRUCTURE

The main linear infrastructures route that formed part of the study, which is also shown in Figure 2, is:

- Road transport;
- Rail transport; and
- Overland conveyors.

3.1 Roads

The key road network within the study area can be described as follows:

Road D1675 is a surfaced road aligned in an east-west direction and linking Lephalale to Steenbokpan. Over a distance of approximately 50km, it links Road P84/1 (Route R510) in Lephalale to Road P16/2 at Steenbokpan. The section of the road east of the intersection with Road D2001, namely the section through Onverwacht and Lephalale, is named Nelson Mandela Drive. West of Road D2001, a portion of Road D1675 was realigned north of the Medupi Power Station.

Road D2001 is the main access road to Matimba Power station from Road D1675 (Nelson Mandela Drive). It is a surfaced road on the section from its intersection with Road D1675 to Matimba Power Station and Grootegeluk Coal Mine. North of the Coal Mine it is a **gravel road** up to its intersection with Road P84/1 near the Stockpoort border post.

Road D2649 is a gravel road that links from D1675 just east of Medupi Power Station to Road P84/1 (Route R510) approximately 20km south of Lephalale.

3.2 Rail

The only railway line in the area, is used for coal haul trains, and is aligned through the south-eastern sector of the study area, linking from the Grootegeluk Coal Mine southwards to Thabazimbi. There are at present 2 trains per day.

3.3 Overland Conveyors

Overland conveyors are used to transport coal from the Grootegeluk Coal Mine to Matimba Power Station.

A different overland conveyor system is used to transport the fly-ash to the existing continuous ash disposal facility.

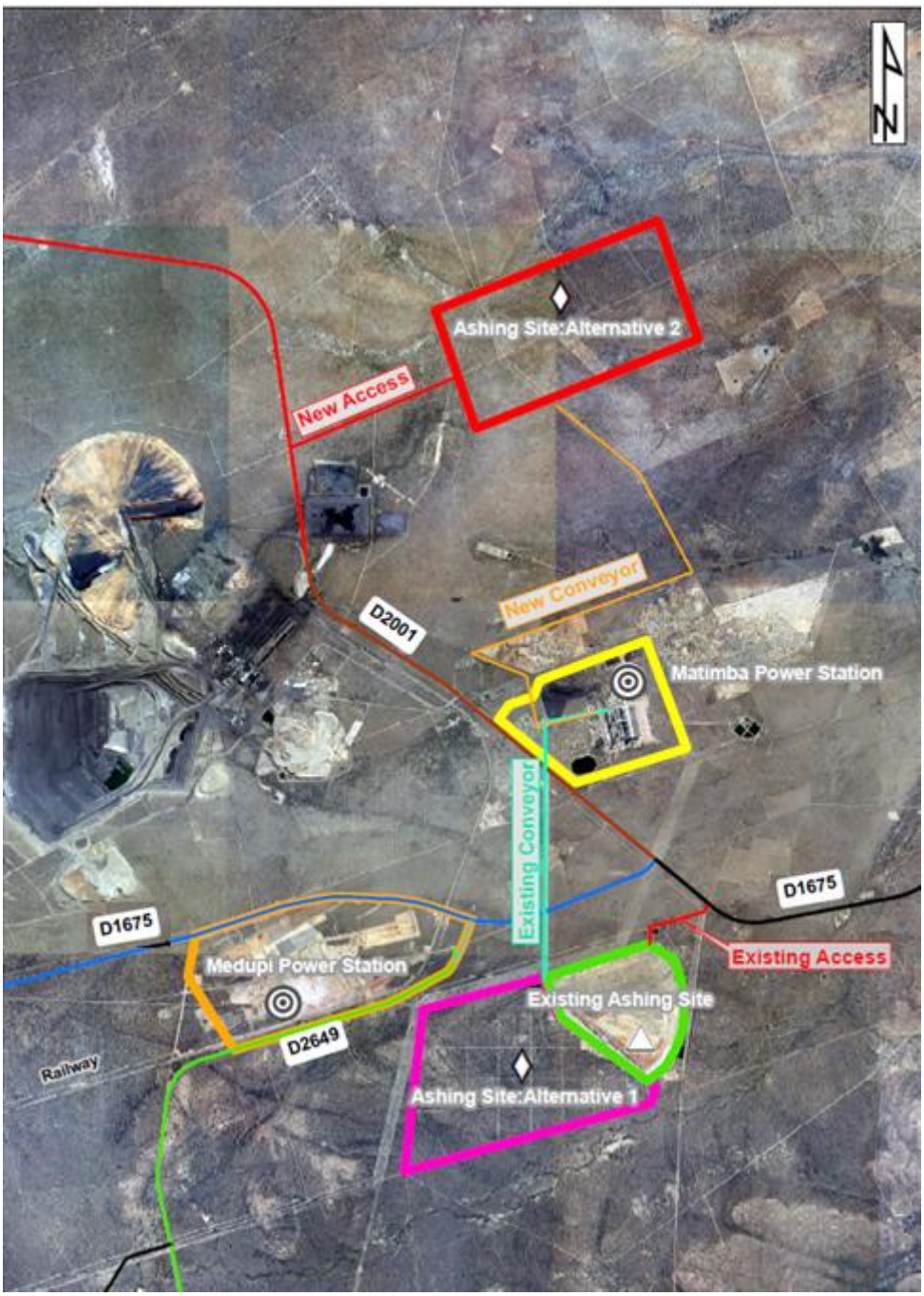

Figure 2: Transport Infrastructure

4 BASE LINE ASSESSMENT

4.1 Current Site Operation

The Matimba Power Station and existing Ash Site's operation, from a Traffic and Transport perspective, are discussed in this section of the report.

There are three main areas or sites for transport of coal from the Grootegeluk Coal Mine to the Matimba Power Station and then transporting of the fly-ash to the existing Ashing Site, as schematically shown below.

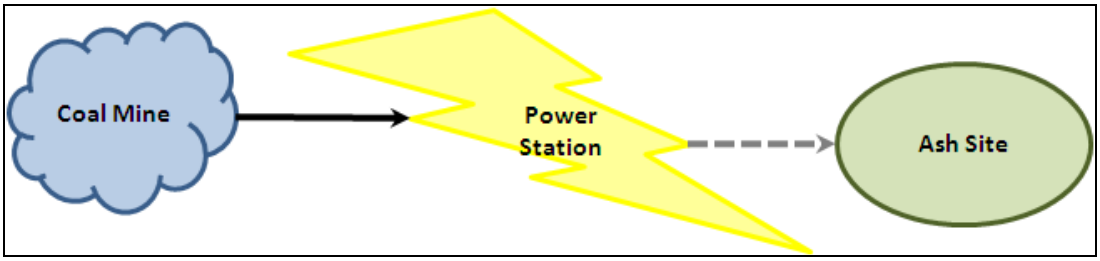

Figure 3: Transport of Coal and Fly-ash

The transport of coal from the mine to the power station is via an overland conveyor (S1). As the coal arrives at the power station, the load is divided via two conveyors, S2 to the stockpile or via S4 directly to the control bin as schematically shown in Figure 4. From the control bin the coal is transported, again *via* conveyors, to the silos and boilers. From the boilers the fly-ash is transported by overland conveyors to the ashing site.

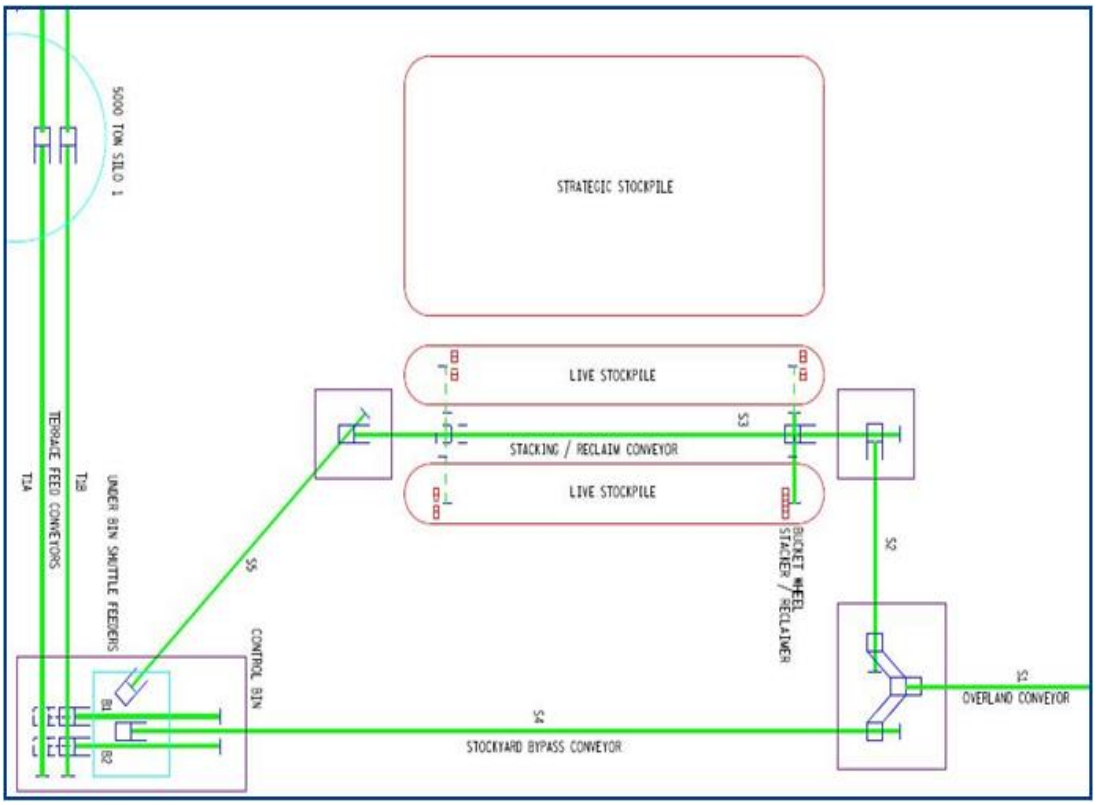

Figure 4: Transport of Coal from Mine to Power Station

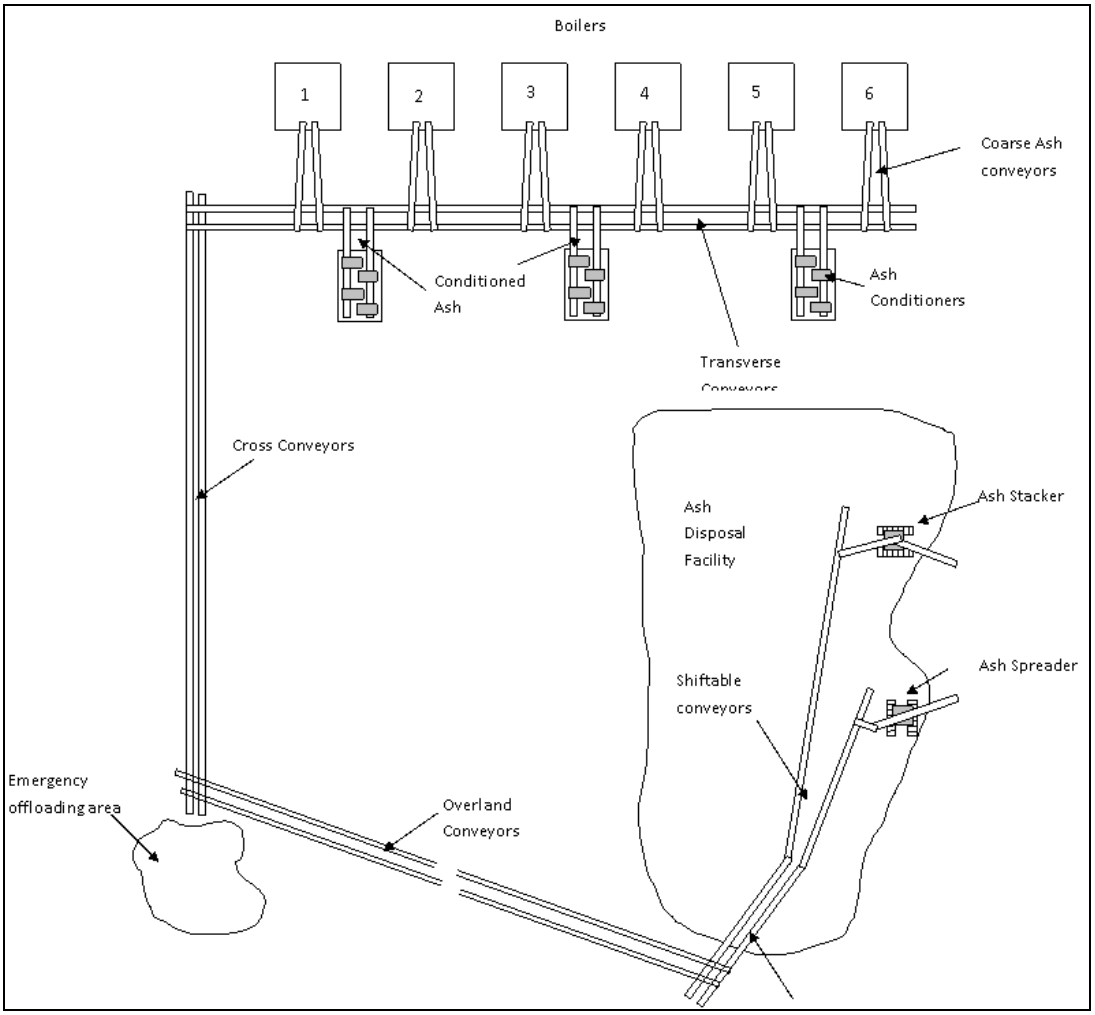

Figure 5: Transport of fly-ash from the Power Station to the Ashing Site

At the ash disposal facility, shiftable conveyors and ash spreaders are used to distribute the ash on site, as shown in the photographs taken during the site visit.

Shiftable Conveyors on Ashing Site

Ash Spreader on Ashing Site

To assist with the spreading of ash and on site operational requirements, a few construction and operational plant equipment are located on site. The current equipment and machinery on site can be listed as follows:

- 1x D8 CAT Bull dozer
- 1x 966 CAT Front end loader

- 1x 140G CAT Motor grader
- 3x 10m^3 MAN Tippers
- 1x 18000 litre Water tanker

From the listed plant it is clear that the existing Ash disposal operations and the Matimba Power Station do not generate any notable operational traffic.

4.2 Existing road network

During the site visits conducted on 15 and 23 August 2012 and 6 August 2013 various observations were made and can be summarised as follows.

The existing main access to the existing ash disposal facility is from Nelson Mandela Drive (D1675). Road D1675 can be classified as a paved Class 2 Rural Two-lane Highway with a speed limit of 80km/h without shoulders on either side of the road.

At the time of the site visit, construction was being carried out on Road D1675 to upgrade it to a four lane road with two lanes per direction. The project is being funded by Exxaro Coal (Pty) Ltd and Eskom Holdings SOC Ltd.

The new road layout plans are shown in Appendix A.

4.3 Access to Existing Ashing Site

As mentioned previously, the existing main access to the Ashing Site is from Nelson Mandela Drive (D1675).

The access is located 2.8km southeast from the Matimba Power Station access and 1.1km southeast from the Medupi Power Station turn-off. It intersects with road D1675 at GPS coordinates S23 41.636 E27 37.503.

This is a priority controlled intersection with STOP control at the access road and priority on Road D1675.

The access road to the Ashing Site is a gravel road with a level crossing from road D1675.

4.4 Classified (light and heavy) vehicle counts

A site visit was conducted on Wednesday 15 August 2012 as part of the scoping process. Subsequently, a manual traffic survey was carried out on Thursday 23 August 2012 at the intersection of Nelson Mandela (D1675) drive and Walter Sisulu Lane as the majority of employees are commuting from Lephalale and Onverwacht. Directional counts on Road D1675 near the access to the site were also conducted.

No turning movement counts were conducted at the site access / road D1675 intersection as it was observed during the site visit that no vehicles made use of the access. It was confirmed during the site visit that the road is mainly used by official vehicles, mostly two vehicles a day, which is neglect-ably low.

The morning and afternoon peak hours were between 06:15–07:15 and 16:30–17:30 respectively.

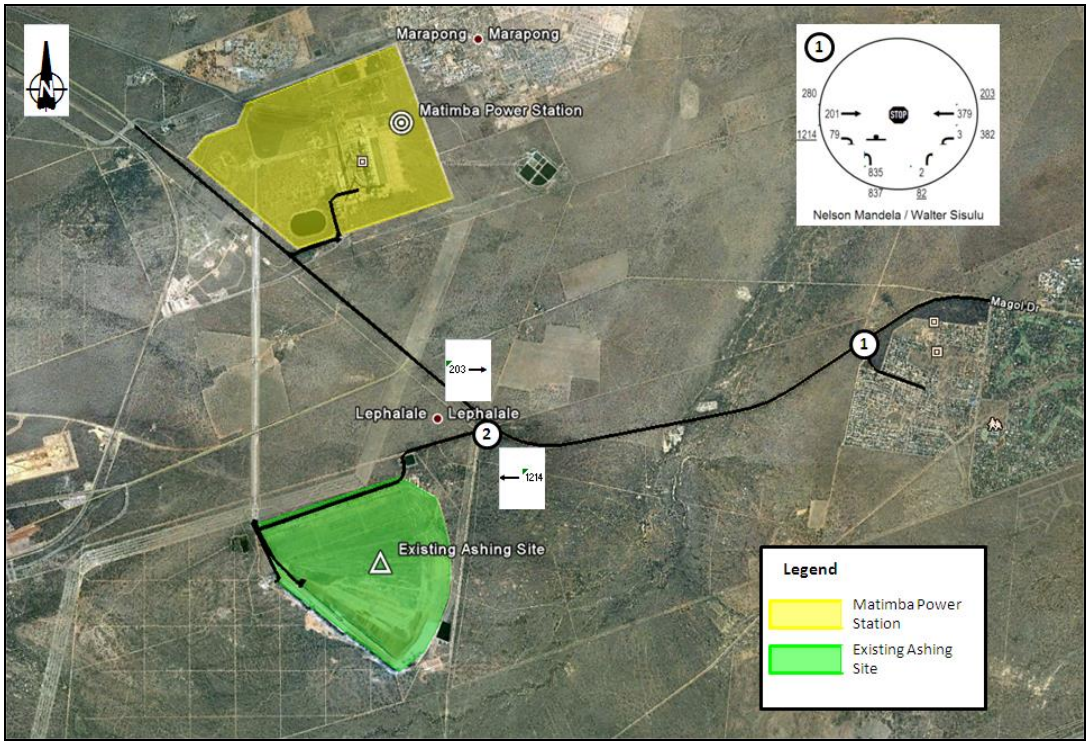

Figure 6: Total AM Peak Hour Traffic Volumes (2012)

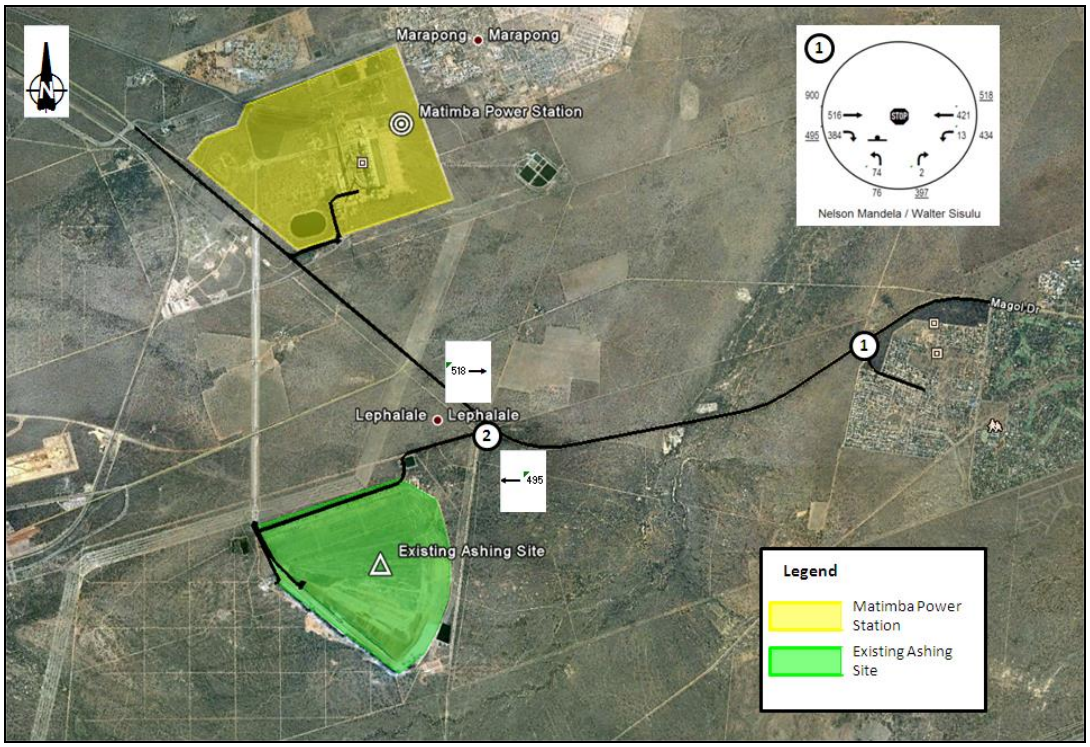

Figure 7: Total PM Peak Hour Traffic Volumes (2012)

Although the traffic survey was conducted during the construction and upgrading of Road D1675, the counts were compared to previous studies' results conducted in the area and was found to be reasonable.

4.5 Additional Informative counts

Additional informative link counts were conducted on Thursday, 9 May 2013 at the possible new access road position to Site Alternative 2 on Road D2001.

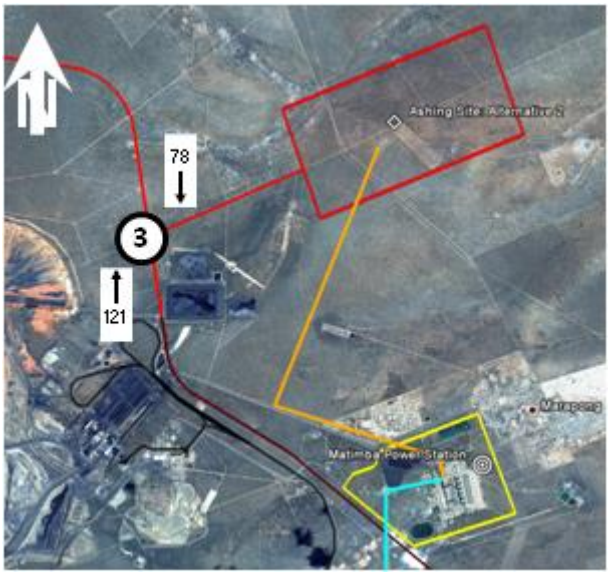

Figure 8: AM Peak Hour Traffic Volumes

Figure 9: PM Peak Hour Traffic Volumes

As shown in Figure 8 and Figure 9, Road D2001 carries approximately 200 and 210 vehicles per hour (vph) during the morning and afternoon peak hours respectively.

4.6 Travel Time Survey

Based on the scoping process a travel time survey was also conducted to determine the current speed that vehicles are travelling on Road D1675.

The speed (distance / time) profile for the morning peak is shown in Figure 10.

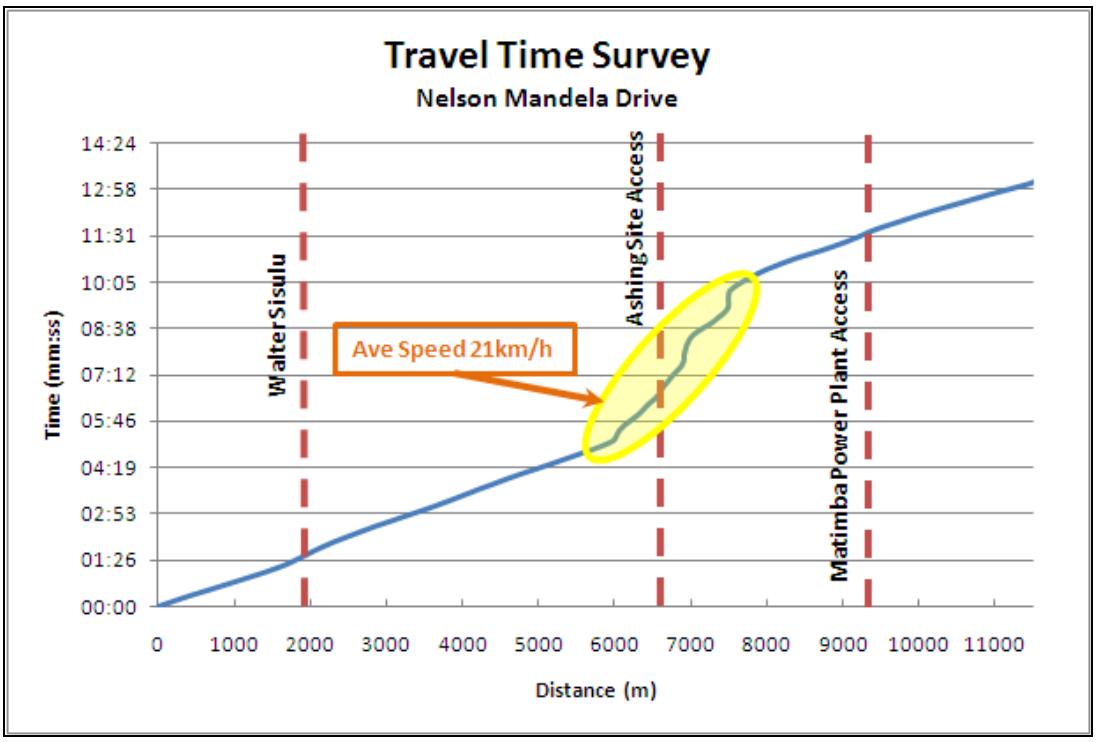

Figure 10: Travel Time Survey

At the time of conducting the travel time survey, the road works hindered the progression along Road D1675 between KM 6 and KM 8 and only an average speed of 21km/h could be achieved.

With the completion of the road works, an average speed of more than 70km/h will be achievable during peak hours.

5 TRAFFIC ANALYSES

The analysis of the road sections were done by following the processes stipulated in the Highway Capacity Manual (HCM) for two lane highways (Chapter 20).

Level of Service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed, travel time, freedom to manoeuvre, traffic interruptions, and comfort and convenience. Six LOS are defined where letters designate each level, from A to F. LOS A represents the best operating conditions and LOS F the worst. Most design or planning efforts typically use service flow rates at LOS C or D to ensure an acceptable service for facility users.

5.1 Status Quo, Two-lane Highway

The road section of D1675 analysed, is classified as Class 2 two-lane highway. The LOS for this road type is defined only in terms of percent time-spend-following as described in the Highway Capacity Manual (HCM).

Table 1: LOS Calculation for Existing Two-Lane Road

AM PEAK HOUR		PM PEAK HOUR	
Description	Value	Description	Value
AM peak hour 2-way Volume	1417	PM peak hour 2-way Volume	1013
AM Directional Split	86:14 WB:EB	PM Directional Split	10:90 WB:EB
AM Peak hour factor	0.97	PM Peak hour factor	0.90
AM % heavy vehicles	18%	PM % heavy vehicles	10%
AM Two-way flow rate, vp (pc/h)	1461	PM Two-way flow rate, vp (pc/h)	1137
AM vp*highest directional split proportion2 (pc/h)	1256	PM vp*highest directional split proportion2 (pc/h)	1023
Grade adjustment factor	1*	Grade adjustment factor	1*
Passenger-car equivalent for heavy vehicles	1*	Passenger-car equivalent for heavy vehicles	1*
Heavy-vehicles adjustment factor	1*	Heavy-vehicles adjustment factor	1*
% No Passing zones	80%	% No Passing zones	80%
Access points/km	1	Access points/km	1
Base percent time spent following, BPTSF (%) BPTSF = (1-e-0.000879vp)	72.3%	Base percent time spent following, BPTSF (%) BPTSF = (1-e-0.000879vp)	63.2%
Adj. For directional distribution and no-passing zone, fd/np (%)	9.7*	Adj. For directional distribution and no-passing zone, fd/np (%)	14.2*
Percent time spent following, PTSF (%)	82%	Percent time spent following, PTSF (%)	77.4%
LOS	E	LOS	D

5.2 Future Conditions

As mentioned previously Road D1675 is currently being upgraded to a four lane road with two lanes per direction. The analysis of the road sections were done by following the processes stipulated under Chapter 21 of the HCM for multilane highways.

The projected LOS for the four lane road after construction is LOS B for the westbound direction and LOS A for the eastbound direction during the morning peak hour. For the afternoon peak hour, it will be LOS A for both the westbound and eastbound directions.

5.3 Possible New Access to Site Alternative 2

As stated previously, north of the Grootegeluk Coal Mine, Road D2001 is a gravel road up to its intersection with Road P84/1 near the Stockpoort border post. It is assumed that road D2001 will be upgraded to a paved road if Site Alternative 2 is used for the proposed continuous ash disposal facility.

Access to the Site Alternative 2 will be from Road D2001. The SIDRA capacity analysis software was used to determine the operational capacity of the D2001 / Access intersections.

For both the morning and afternoon peak hours, the intersection will operate at very good Level of Service, i.e. LOS A.

Although not required from a capacity point of view, it is recommended that a short right-turn lane from Road D2001 into the Access road be provided, as schematically shown in Figure 11. This is to ensure that a turning vehicle will not hinder through traffic on Road D2001.

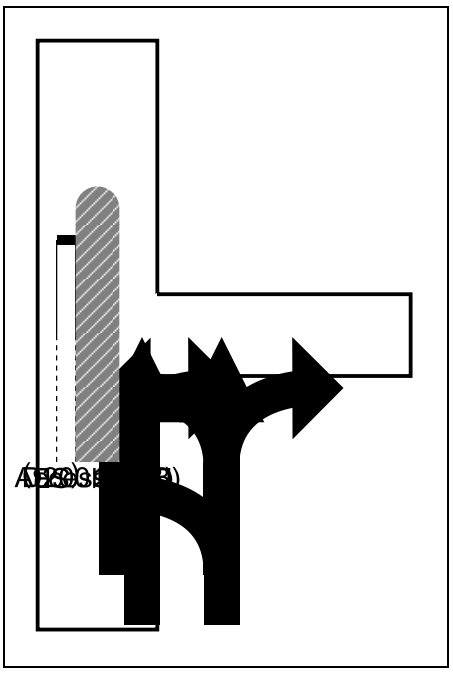

Figure 11: Proposed Intersection Layout (if Site Alternative 2, is used)

5.4 Alignment of conveyor system to Site Alternative 2

Based on the approved alignment of the conveyor system (Conveyor Belt-Locality Map-10 02 14), Road D2816 and gravel access road to Nelsonkop 464 LQ will have to be crossed by the system. Due to the fact that construction vehicles might drive under or next to the conveyor, especially during maintenance periods, it is

recommended that a clearance height of 5.2m be provided. This is to eliminate the possibility of a heavy vehicle colliding into the conveyor system.

6 TRANSPORT CRITERIA EVALUATION BETWEEN THE TWO SITE ALTERNATIVES

As part of the Environmental Impact Assessment (EIA), the proposed Site Alternatives Traffic and Transportation impact and significance thereof have been assessed based on the following criteria:

- Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- Duration: Indicates what the lifetime of the impact will be;
- Intensity: Describes whether an impact is destructive or benign; and
- Probability: Describes the likelihood of an impact actually occurring.

The assessment criteria and the weighting scale per category is tabulated in Table 2.

Table 2: Assessment Criteria

CRITERIA	CATEGORY	DESCRIPTION
Extent	National (4)	The whole of South Africa
	Regional (3)	Provincial and parts of neighboring provinces
	Local (2)	Within a radius of 2 km of the construction site
	Site (1)	Within the construction site
Duration	Permanent (4)	Mitigation either by man a natural process with not occur in such a way or such a time-span that the impact can be considered transient
	Long Term (3)	The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes Thereafter. The only class of impact which will be non-transitory
	Medium Term (2)	The impact will last for the period of the construction phase, where after will be entirely negated.
	Short term (1)	The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter then the construction phase.
Intensity	Very high (4)	Natural, cultural and social functions and processes are altered to the extend that they permanently cease.
	High (3)	Natural, cultural and social functions and processes are altered tot he extent that the temporarily cease.
	Moderate (2)	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.
	Low (1)	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.

CRITERIA	CATEGORY	DESCRIPTION
Probability of Occurrence	Definite (4)	Impact will certainly occur
	High Probable (3)	Most likely that the impact will occur
	Possible (2)	The impact may occur
	Improbable (1)	Likelihood of the impact materializing is very low.

The impact significance is determined through a combination of impact criteria. The significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact. This range from a low impact to a very high impact.

The significance rating scale is shown in Table 3.

Table 3: The Significance Rating Scale

Low impact (4 – 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 – 9 points)	Mitigation is possible with additional design and construction inputs
High impact (10 – 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phase. The effects of the impact may affect the broader environment.
Very high impact (13 – 16 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (=)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

6.1 Traffic and Transport Risk Assessment per Site Alternative

Based on the procedure described, the Site Alternatives have been evaluated and rated for each phase, i.e. construction, operations and decommissioning.

Table 4: Risk Assessment: Construction Phase

CRITERIA	IMPACT	
	ALTERNATIVE 1	ALTERNATIVE 2
Extent	1	2
Duration	1	2
Intensity	2	3
Probability	2	3
Significance	**(4 - 6) Very Low**	**(10 - 12) High**

Table 5: Risk Assessment: Operational Phase

CRITERIA	IMPACT	
	ALTERNATIVE 1	ALTERNATIVE 2
Extent	1	2
Duration	3	3
Intensity	1	2
Probability	3	3
Significance	**(7 - 9) Medium**	**(10 - 12) High**

Table 6: Risk Assessment: Decommissioning Phase

CRITERIA	IMPACT	
	ALTERNATIVE 1	ALTERNATIVE 2
Extent	1	1
Duration	2	2
Intensity	2	2
Probability	3	3
Significance	(7 - 9) Medium	(7 - 9) Medium

As shown in Tables 4 to 6, the highest impact will be during the construction and operational phase of Alternative Site 2. At decommissioning phase, both alternatives will have a medium impact.

7 SUMMARY AND CONCLUSION

Current road upgrades, funded by Exxaro Coal (Pty) Ltd and Eskom Holdings SOC Ltd, are being completed on the main road (D1675) where access to the existing ashing Site is obtained from.

Road D2001, where Site Alternative 2, might gain access from is a gravel road. The morning and afternoon peak hour traffic demand on Road D2001 is very low.

A conveyor system is used to distribute the coal and fly-ash and limited construction plant is required.

The existing ashing site's operational traffic also has a very-small impact, if any, as the extent is localised and a conveyor system is used.

In summary it can be concluded that:

- The continuous ash disposal facility on the two site alternatives will have a very-small, if any, impact on the existing road network.
- However, during the construction phase, Site lternative 2 will have a greater impact on the road network than that of Site Alternative 1 which is only an expansion of the existing site.
- If an access to Site Alternative 2 is constructed, it is recommended that a short right-turn lane be provided.

- If a new conveyor system is constructed to Site Alternative 2, it is recommended that, where the conveyor cross a road or path, a 5.2m clearance is provided from the road surface and bottom of the conveyor system.
- For both site alternatives, the impact on roads and traffic will be local site traffic.

8 RECOMMENDATION

The findings of the Traffic Impact Assessment, as part of the EIA, for the proposed continuous ash disposal facility for the Matimba Power Station, conclude that:

- Expansion of the existing ashing site will not have a negative impact on the existing transport network and should be favourably considered, from a traffic and transport engineering point of view, by the relevant authorities.
- Construction of a brand new ash disposal facility on site alternative 2 will have a high environmental impact during the construction phase.
- After the construction phase both sites will have the same, medium, impact on the environment from a traffic and transport perspective.

APPENDIX A

Road D1675 Upgrades

Peer Review

Our Ref: AB/J34080/External Review of Matimba TIA

16 July 2014

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For the attention of Prashika Reddy

Dear Madam

TRAFFIC IMPACT ASSESSMENT FOR MATIMBA POWER STATION: CONTINUOUS ASH DISPOSAL FACILITY: INDEPENDENT REVIEW

We were requested by Royal Haskoning DHV on 30 June 2014 to undertake an independent review of the document entitled "*Traffic Impact Assessment for Matimba Power Station*", dated March 2014.

As requested, this review focuses only on the technical content of the document and does not report on any grammatical, typographical or spelling mistakes that may have been discovered. It should also be noted that the contents of Appendix A were not received for review.

The report is generally well-written and covers the majority of transportation technical issues required in an assessment of this type. I do, however, have some comments on the technical content that are summarised below:

1. Current best practice generally requires a TIA to be referred to as a "*Transport Impact Assessment*" and not a "*Traffic Impact Assessment*" as the word "*Transport*" is a more appropriate collective term for all forms of transport that must be assessed.

2. P. 1 – The "*previously approved traffic report*" has not been referenced.

3. P. 1 – It would be helpful for readers of the document that may be less informed if a wider scale locality plan were included that indicates where the site is located in relation to Pretoria.

4. P. 3 – On what basis was the decision made that only a "*limited traffic impact assessment*" is required? Even though this may be correct, it is still important that the following additional issues are covered in the report, even if only assessed at a basic level or dismissed as being insignificant in the study area:

    - Road Safety – sight distance requirements, accident hot spots, areas of reported speeding, proximity to sensitive sites (such as schools), abnormal loads etc
    - Pedestrian / bicycle movements – how much pedestrian activity occurs along these roads? Are there pedestrian crossings?
    - Public transport operations – is there any public transport activity in the study area? Are there public transport stops on the routes anywhere?

5. P. 7 Section 4.3 – The sight distance currently available at the site access points (for both alternatives) off the main roads should be assessed at the posted speed limit (which is not provided in the report) and the adequacy confirmed. If it is substandard, it may have an impact on the decision between Alternatives 1 and 2.

6. P.11 – A detailed HCM-based calculation has been provided in Table 1 to determine the LOS of the existing two-lane road, but no such calculation is provided to determine the LOS of the future four-lane road, even though the results are quoted at the top of P. 12.

7. P.12 – LOS results of the intersection analysis of the Alternative 2 access are quoted, but no technical detail or output from the SIDRA model is included. No direct comparison can be made between the access intersections of both access points as no LOS results are provided for the existing access point.

8. Chapter 5 – A TIA for such a facility, undertaken as part of an EIA process, normally requires the traffic impact to be evaluated in three distinct phases; construction phase, operational phase and decommissioning phase. The trip generation of all three of these phases is required to be determined and compared between alternatives, with the highest trip generation normally occurring in the construction phase. No trip generation calculations or comparison has been provided in this regard.

9. The construction phase of such a facility could involve the transportation of construction materials and machinery by heavy vehicles throughout the day or during peak hours. Some of these vehicles may even be classified as abnormal loads, which will require an abnormal load route to be determined. This phase is most likely to be the phase when the highest transport impact occurs.

10. Chapter 6.1 – While I have no reason to doubt the risk assessment scoring provided for the three phases, it is not clear how these scores were derived. The technical detail that forms the basis of the risk assessment (as discussed above in this letter) has not been provided.

While the conclusions and recommendations of the report seem sound, it is my opinion that the level of technical detail provided in the report to substantiate the recommendations is insufficient. In addition, there are issues of road safety, pedestrian movements, public transport operations and abnormal loads that should be addressed, even if insignificant.

Yours faithfully
for GIBB (Pty) Ltd

ANDREW BULMAN, PrEng
Technical Executive