



SEBATA  
INSTITUTE

CONSULTING  
AND  
DEVELOPMENT

Our reference: 1200055

**Your Ref: 16/1/5/5 Eskom Kusile Coal Fired Power Station**

4 July 2013

**Attention: Ms Jenna Lavin**

South African Heritage Resources Agency (SAHRA)  
PO Box 4637  
Cape Town  
8000

Dear Madam,

**APPLICATION FOR AN INTEGRATED ENVIRONMENTAL AUTHORISATION AND WASTE MANAGEMENT LICENCE IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AS AMENDED AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS 2010 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT 59 OF 2008) FOR THE CO-DISPOSAL OF ASH AND GYPSUM AT THE KUSILE COAL-FIRED POWER STATION ASH DISPOSAL FACILITY IN WITBANK, MPUMALANGA**

**DEA REFERENCE: 14/12/16/3/3/3/51**

Your letter dated 18 June 2013 refers.

Sebata Institute submitted the Draft Scoping Report for an application for an Integrated Environmental Authorisation and Waste Management Licence to the South African Heritage Resources Agency (SAHRA), via the South African Heritage Resources Information System (SAHRIS) on 15 April 2013 for comment. The first comment from SAHRA was received on 24 May 2013. Sebata responded to the queries on 13 June 2013. In the second letter dated 18 June 2013 received from SAHRA, SAHRA indicated that it did not find some of the responses adequate to make a final comment. Please find our responses to the additional comments below.

[TEL] +27(0)11.206.5920 [FAX] +27(0)11.206.5922

[ADDRESS] TFT HOUSE NORTH, UNIT 6, CHALLENGER AVE, INTERNATIONAL BUSINESS GATEWAY PARK, NEW ROAD, MIDRAND  
[POSTAL ADDRESS] PO BOX 2437, HALFWAY HOUSE, 1685

A MEMBER OF THE SEBATA GROUP OF COMPANIES

DE BULOGEN, METONNI ERVEN/ND MADRID  
COMPANY REGISTRATION NUMBER: 200703537407

**1. An indication of which of the heritage resources identified in the 2006 HIA were impacted and how these impacts were mitigated, if at all.**

To date the only heritage resources that have been affected by the Kusile Project are the graves as described in our response to the first letter. However, a portion (5 %) of the farmstead belonging to the Van Dyk family was affected by a natural fire in October 2009 (Please refer to **Appendix A** showing the position of the Van Dyk farmstead in relation to the project). As a way to prevent the same from occurring, Kusile created firebreaks within the fence of the heritage houses, in addition to the firebreaks on the outside of the houses.

Please refer to **Appendix B** for a copy of the letter that was submitted to SAHRA about the fire.

**2. An assessment of impact to palaeontological heritage resources.**

A desktop Palaeontological Impact Assessment was conducted by Professor Bruce Rubidge from the University of the Witwatersrand. The study found that:

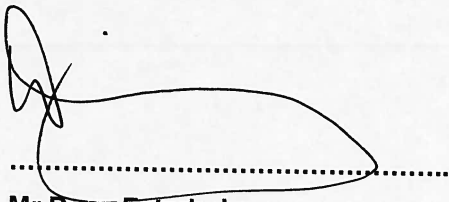
- The study area is underlain by rocks of the Pretoria Group over a small area in the northern part, but most of the area is underlain by the Karoo Supergroup comprising sedimentary rocks of the Carboniferous Dwyka and Permian Ecca groups.
- Rocks of the Dwyka and Ecca groups have the potential to host fossils, but as the entire area of the proposed ash dump is sited on rocks of the Dwyka Group which were deposited in a glacial environment, it is unlikely that the proposed development will have a detrimental effect on fossil heritage.
- Notwithstanding the above, the palaeontologist indicated that a small possibility exists that fossils could be found. As these potential fossils are not currently exposed because they are covered by vegetation and soil, the construction of the ash dump for the power station will enhance possibilities to discover fossils, particularly of plants.

The palaeontologist recommended that the development may proceed. If fossils are exposed in the course of construction and excavation activities for the development of the proposed ash dump a qualified palaeontologist must be appointed to assess the exposure for fossils so that the necessary rescue operations are implemented.

Please refer to **Appendix C** for a copy of the full Palaeontological Impact Assessment Report.

I trust that you will find this in order.

Yours faithfully,

A handwritten signature in black ink, consisting of a large, stylized loop followed by a horizontal stroke that tapers to a point on the right. A horizontal dotted line is drawn below the signature, extending from the start of the horizontal stroke to the right.

**Mr Deon Esterhuizen**

**Environmental Assessment Practitioner (Sebata Institute)**



## **APPENDIX A**

**MAP OF THE LAYOUT OF THE PROPOSED ASH DUMP  
IN RELATION TO THE HERITAGE RESOURCES  
IDENTIFIED IN THE 2006 HIA**



IMPACTED HERITAGE RESOURCES

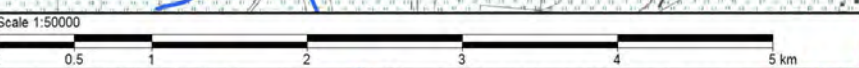
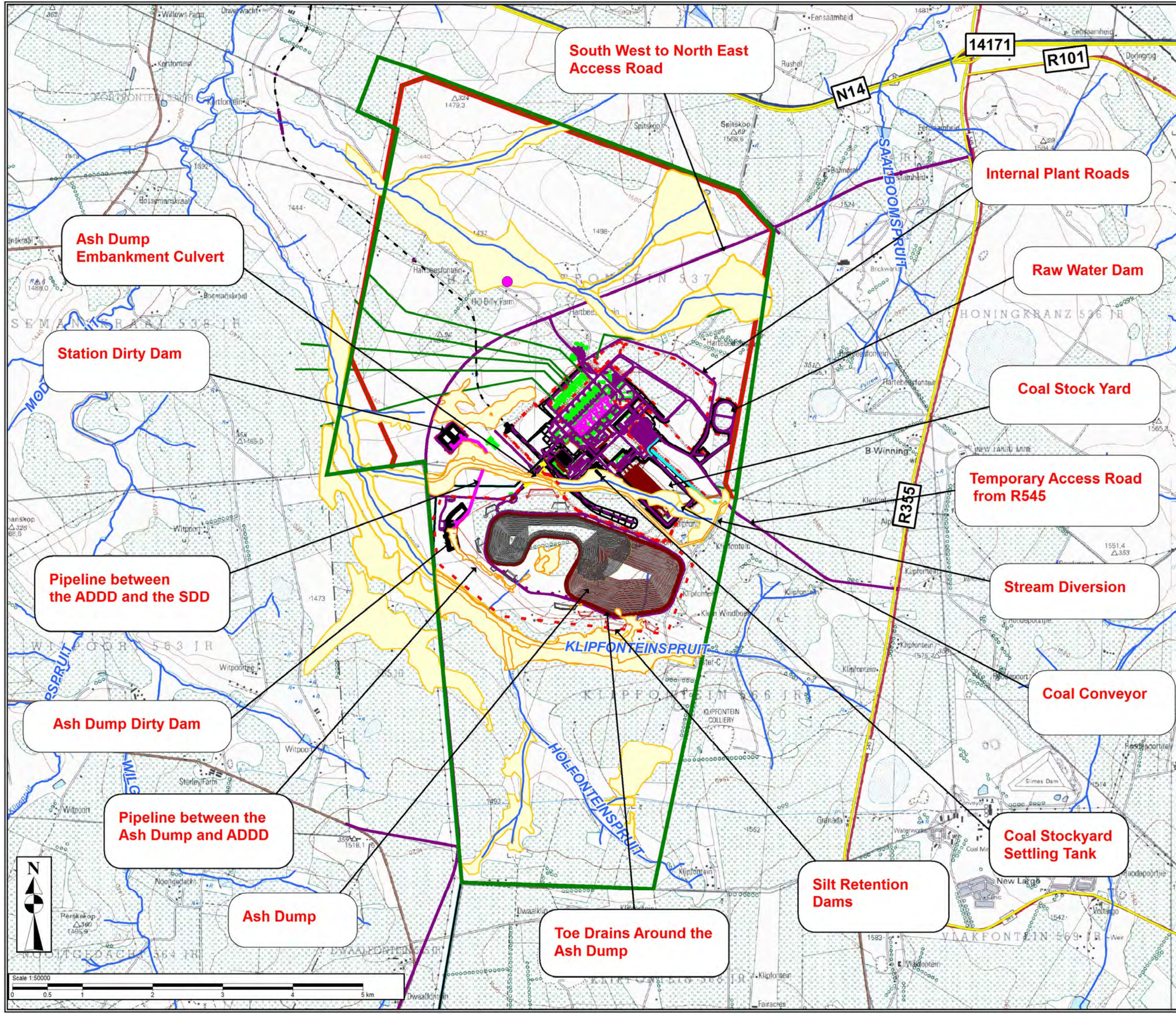
Legend

- Fencelines
- Roads
- 400kV Export Lines
- 400kV Line Diversion
- Stream Diversion
- Proposed Railroad
- Main Roads
- Rivers
- Raw Water Pipeline
- Site Boundary
- Pipeline between the ADDD and SDD
- Ash Dump Embankment Culvert
- Toe Drains
- Pipeline Between Ash Dump and ADDD
- Impacted Heritage Resources (Van Dyk Homestead dating to 1904)



Date: 1 July 2013

System: Hartebeeshoek94





## **APPENDIX B**

**A COPY OF THE LETTER THAT WAS SUBMITTED TO  
SAHRA INFORMING THE DEPARTMENT ABOUT THE  
FIREBREAK**

Mpumalanga Heritage resource authority

Date: 07 Oct. 09

P/ Bag X 11316  
Nelspruit  
1200

Enquiries : Mushayatshawe  
Mudzielwana  
☎ (013) 699 7092

Attention: Benjamin Moduka

**RE: NATURAL FIRE IMPACT ON HERITAGE HOUSE, KUSILE POWER STATION;  
WITBANK**

This letter serves to inform you of the natural fire that occurred on 28 September 2009 at Kusile Power Station. The fire occurred at Van Dyk house and burnt approximately 5% of the house. The fire was extinguished by means of skid unit grass beaters.

As a way to prevent this type of occurrences in future; the project is creating the firebreaks within the fence of heritage houses as there is proper firebreak on the outside.

Please call this office if you have any query

Regards;



**Abram Masango**

Executive Project Manager: Kusile Power Station

**APPENDIX C**

**COPY OF THE FULL PALAEOLOGICAL IMPACT  
ASSESSMENT REPORT**





## BPI for Palaeontological Research

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Private Bag 3, WITS 2050, South Africa • Telephone +27 11 717-6682 • Fax +27 11 717-6694

Email: [bruce.rubidge@wits.ac.za](mailto:bruce.rubidge@wits.ac.za)

29 June 2013

Ms Ndomupei Dhemba  
ILISO Consulting (Pty) Ltd  
P O Box 68735  
HIGHVELD PARK  
169

E-Mail: [ndomupei@iliso.com](mailto:ndomupei@iliso.com)

Dear Ms Dhemba,

### **Palaeontological Desktop Report – Kusile Power Station**

As requested, herewith a Desktop Palaeontological Impact Assessment with regard to the proposed construction of the ash dump of the Kusile Power Station in the Witbank area, Mpumalanga Province.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'B. Rubidge'.

**Bruce Rubidge** PhD, FGSSA, FRSSA, Pr Sci Nat



**PALAEONTOLOGICAL DESKTOP STUDY  
KUSILE POWER STATION  
WITBANK AREA, MPUMALANGA PROVINCE**

**AUTHOR:**

Professor Bruce Rubidge  
PO Box 85346  
Emmarentia

Tel: 072 575 7752

Email: [bruce.rubidge@wits.ac.za](mailto:bruce.rubidge@wits.ac.za)

**COMPILED FOR:**

ILISO Consulting (Pty) Ltd  
P O Box 68735  
HIGHVELD PARK  
169

Contact person: Ms Ndomupei Dhemba

E-Mail: [ndomupei@iliso.com](mailto:ndomupei@iliso.com)

Tel No.: 012 685 0913  
Cell No: 076 438 2826  
Fax No: 012 665 1886

**DATE: 29 June 2013**



## EXECUTIVE SUMMARY

A desktop Palaeontological Impact Assessment was undertaken for the proposed ash dump of the Kusile Power Station situated in the Witbank area (south of the N4 highway between Witbank and Bronkhorstspuit) Mpumalanga Province. The development is for the construction of an ash dump for the Power Station.

The study area is underlain by rocks of the Pretoria Group over a small area in the northern part, but most of the area is underlain by the Karoo Supergroup comprising sedimentary rocks of the Carboniferous Dwyka and Permian Ecca groups.

Rocks of the Dwyka and Ecca groups have the potential to host fossils, but as the entire area of the proposed ash dump is sited on rocks of the Dwyka Group which were deposited in a glacial environment, it is unlikely that the proposed development will have a detrimental effect on fossil heritage.

As these potential fossils are not currently exposed because they are covered by vegetation and soil, the construction of the ash dump for the power station will enhance possibilities to discover fossils, particularly of plants. It is thus recommended that, from a palaeontological perspective, the development should proceed and there is no need for a detailed palaeontological impact assessment. If fossils are exposed in the course of construction and excavation activities for the development of the proposed ash dump a qualified palaeontologist must be contacted to assess the exposure for fossils so that the necessary rescue operations are implemented.

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# REPORT

## Background information of the development

This desktop report is part of a Heritage Impact Assessment to determine the effect that the development of the proposed ash dump for of the Kusile Power Station situated in the

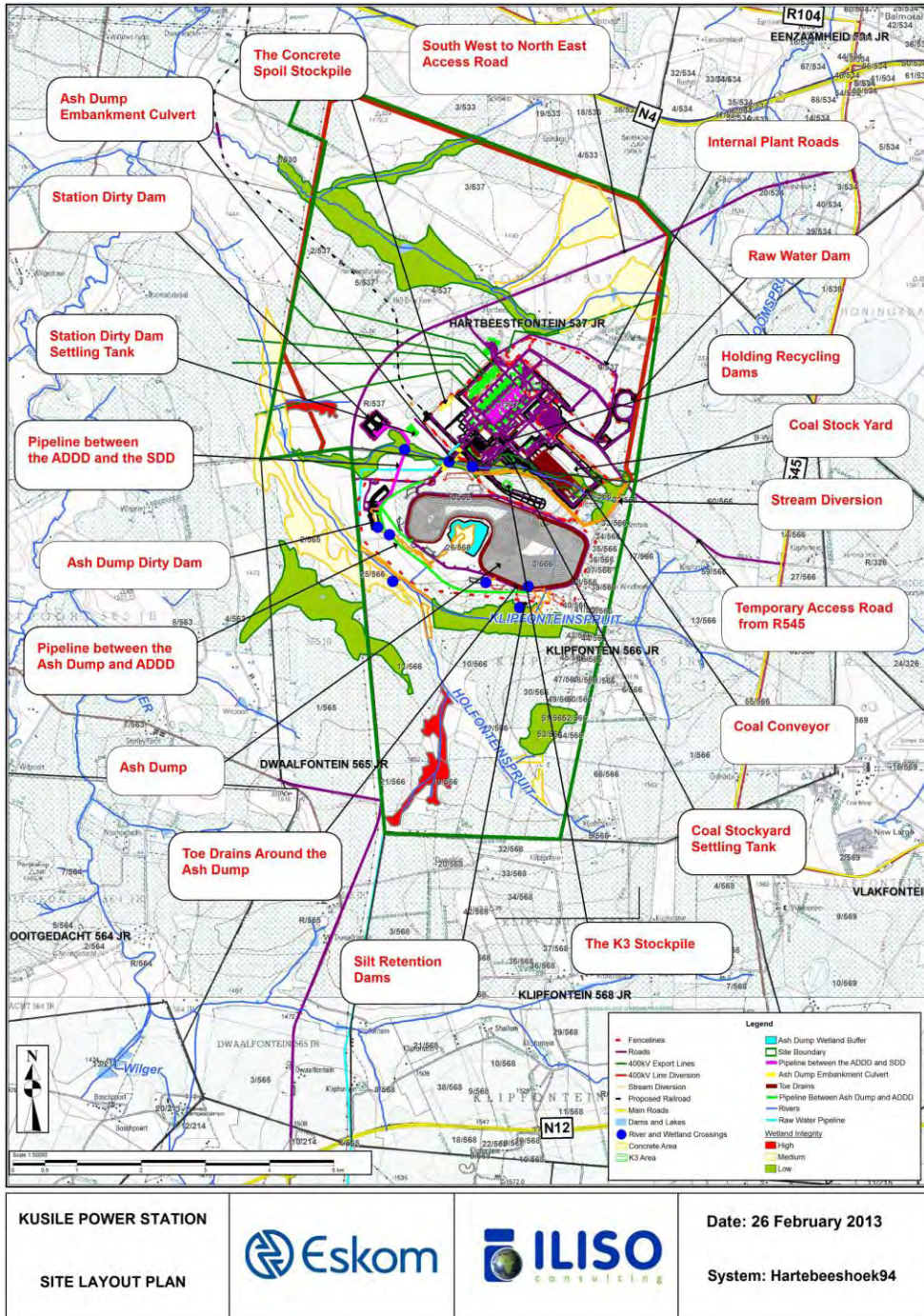


Figure 1: Plan of the Kusile Power Station showing position for the proposed ash dump in grey.



Witbank area, Mpumalanga Province will have on palaeontological heritage.

The study was commissioned by ILISO Consulting (Pty) Ltd, Highveld Park, and I was asked to provide a desktop assessment of the risk that the proposed development will have on the palaeontological heritage.

### Details of the study area

The study area of the power station and proposed ash dump are situated south of the N4 highway between Witbank and Bronkhorstspuit (Figure 1). The proposed ash dump is sited on 2 500 ha of land on the Farm Hartebeesfontein 537 JR and the Farm Klipfontein 566 JR (Figure 1), and is covered by the 1:50 000 topographical map, Sheet 2528 DD. The surface extent of proposed ash dump covers a surface area of some 250 ha.



Figure 2: Geological map showing the position of the proposed ash dump of the Kusile Power Station in relation to the regional geology.

### Geological Setting

The northerly portion of the study area is situated on rocks of the Precambrian Pretoria Group, but most of the affected area is underlain by rocks of the Karoo Supergroup comprising sedimentary rocks of the Carboniferous Dwyka Group and the Permian Ecca



Group. As is evident in Figure 2 (1:250 000 Geological Map Sheet 2528 Pretoria, 1978), the entire proposed ash dump is situated on the rocks of the Dwyka Group. In the study area the tillites and mudrocks of the Dwyka Group were deposited in a continental glacial environment.

### **Palaeontological Heritage**

The 1: 250 000 geological map consulted for this study does not differentiate between the Formations of the Ecca Group, but the rocks of this Group in the area under consideration are known for their wealth of plant fossils of the famous Gondwanan *Glossopteris* flora which has been described from Permian-aged rocks. This flora is the source of the coal which is mined from the rocks of the Ecca Group Vryheid Formation in South Africa.

The rocks of the Dwyka Group, comprising largely of very coarse tillites, were deposited in a glacial environment and are known to be depauperate in fossils. Fossils discovered so far include fragmentary fossil plant material. Collections of fossils from the Dwyka and Ecca Groups are present in the collections of the Council for Geoscience in Pretoria and the BPI Palaeontology at the University of the Witwatersrand in Johannesburg.

### **Recommendation**

Because the entire proposed ash dump is situated on rocks of the Dwyka Group which are known to be very poor in fossils, and in any case are currently covered by soil and vegetation and are not exposed, it is unlikely that the construction of the proposed ash dump of the Kusile Power Station will be detrimental to palaeontological heritage.

It is thus recommended that, from a paleontological perspective, construction of the ash dump should proceed and there is no need for a detailed palaeontological impact assessment. If construction activities expose extensive rock outcrops, it will create a unique opportunity to explore the area for fossils. It is thus recommended that, should fossils be exposed, a qualified palaeontologist be contacted to assess the exposure for fossils before further development takes place so that the necessary rescue operations are implemented. Depending on the nature of the fossils discovered this could entail excavation and removal to a registered palaeontological museum collection. A list of professional palaeontologists is available from South African Heritage Resources Agency (SAHRA).

### **Conclusions**

The development of the proposed ash dump of the Kusile Power Station will cover Carboniferous-aged sedimentary rocks of the Dwyka Group of the Karoo Supergroup. There is only a slight possibility that the rocks of the Dwyka Group in this part of South Africa could contain fossil material. However, as these potential fossils are not currently exposed because the rocks are covered by soil and vegetation, the construction activities for the proposed ash dump may provide unique opportunities to find fossils in the Dwyka Group. If fossils are exposed as a result of construction activities of the proposed ash dump

a qualified palaeontologist must be contacted to assess the exposure for fossils so that the necessary rescue operations are implemented.

## **Bibliography**

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