

DIGBY WELLS

ENVIRONMENTAL

To:	South African Heritage Resources Agency	Date:	13 October 2017
From:	Digby Wells Environmental	Proj #:	COP4899
RE:	Copper Sunset Sand (Pty) Ltd Regulation 31 Application		

1 Introduction

Copper Sunset Sand (Pty) Ltd (hereinafter Copper Sunset) is the present holder of an approved Mining Right (*FS 30/5/1/2/2/164 MR*) with Environmental Authorisation (EA) (*FS 30/5/1/2/3/2/1 (164) EM*) in respect of their Bankfontein Farm operation in the Free State Province. Subsequent to the original approval of the aforementioned Mining Right and EA, Copper Sunset applied for two separate extensions. These comprised extension on the properties Zandfontein 259 RE, Bankfontein No. 9 RE and a portion of Rietfontein 152 in 2015 and an additional portion of Rietfontein 152 in 2016. Both these applications were granted under EA Reference FS 30/5/1/2/3/2/1 (164) EM.

Copper Sunset has since been granted approval by the Mine Health and Safety Principal Inspector of Mines to mine within the 100 m restriction zones from certain roads, electric pylons and other infrastructure and accordingly wish to extend the Mining Right Area to include these additional portions of land on the Farm Rietfontein No.152. As such, Copper Sunset are required to complete an Application under Regulation 31 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations, 2014 (GN R 982) (as Amended by GN R 326 of 7 April 2017).

This memorandum serves to provide the South African Heritage Resources Agency (SAHRA) and the Free State Heritage Resources Authority (Heritage Free State [HFS]) with an updated project description, consideration of additional impacts, and specialist recommendations.

1.1 Project background

Copper Sunset previously appointed Digby Wells Environmental (hereinafter Digby Wells) as the independent Environmental Assessment Practitioner (EAP) for the aforementioned extensions. In support of this, a specialist Heritage Resources Management (HRM) process was completed for both previous extension applications, the results of which were submitted

to SAHRA and HFS via the South African Heritage Resources Information System (SAHRIS)¹². This addendum must be read in conjunction with the previously completed assessments.

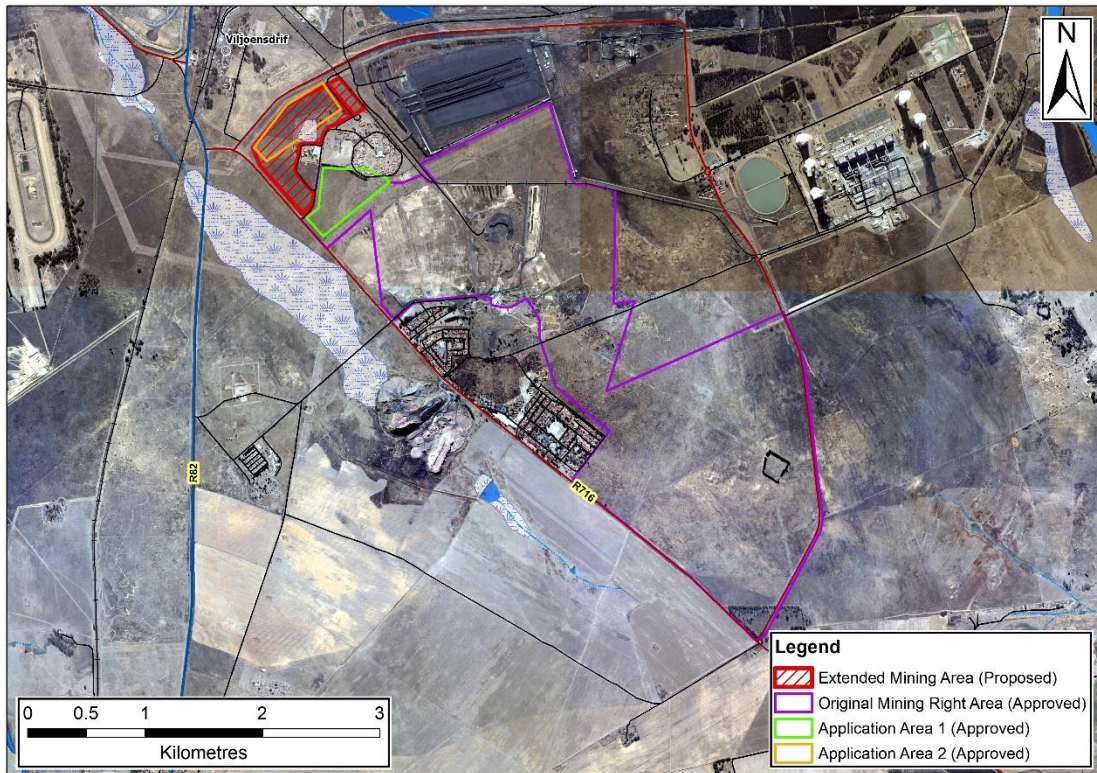


Figure 1-1: Copper Sunset Mining Right area, approved and proposed expansions

1.2 Updated project description

The current Copper Sunset operations is located some 4.2 km from the Vaal River and 7.5 km south of the town Vereeniging. The location details of the Project are presented in Table 1-1.

Copper Sunset intends to extend mining general sand in the expansion area adjacent to the current mining operations and Anglo Operations training centre and coal stockpiles. The present, authorised mining methods will be employed. These comprise:

- Site clearance in strips of 30 to 35 m by 100 to 600 m with a cumulative clearance less than 20 ha;
- Strip mining with dozer to a depth of 2.5 to 3 m, transported off-site by trucks; and

¹ Case ID 8826 available at <http://www.sahra.org.za/sahris/cases/copper-sunset-environmental-authorisation-application>

² Case ID 9714 available at <http://www.sahra.org.za/sahris/cases/copper-sunset-environmental-authorisation-application-rietfontein-152>

- Concurrent rehabilitation through filling excavations with stockpiled topsoil and revegetation.

The current mining rate is approximately 65 000 m³ per month, which if maintained and the extension is granted, will result in an additional 9 months of production. The remaining Life of Mine on the currently approved areas is approximately 4 months.

Table 1-1: Project location details

Province	Free State Province
Magisterial District / Local Authority	Sasolburg Magisterial District
District Municipality	Fezile Dabi District Municipality
Local Municipality	Metsimaholo Local Municipality
Nearest Town	Vereeniging / Vanderbijlpark / Sharpeville
Property Name and Number	Remaining Extent of the Farm Rietfontein No. 152
1: 50 000 Map Sheet	2627DB Vereeniging
GPS Co-ordinates (relative centre point of study area)	-26.744956 27.933139

2 Updated listed activities

No new listed activities are applicable as part of this application. The Regulation 31 application requests the extension of already approved listed activities under EA FS 30/5/1/2/3/2/1 (164) EM to the new application area.

The authorised listed activity relevant to this Project is summarised in Table 2-1:

Table 2-1: Applicable listed activity

NEMA Listed Activities	Description of Activity	Details of the activity
Listing Notice 1 GN R 983 Activity 27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for: <ul style="list-style-type: none"> ■ the undertaking of a linear activity; or 	Removal of vegetation and topsoil of up to 350mm, stockpile of topsoil and removed vegetation along the strip.

NEMA Listed Activities	Description of Activity	Details of the activity
	<ul style="list-style-type: none"> ■ Maintenance purposes undertaken in accordance with a maintenance management plan. 	
Listing Notice 2 GN R 984 Activity 17	Any Activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	Copper Sunset has an approved Mining Right which they wish to apply to the proposed extension areas as well.

3 Identified heritage resources considering proposed amendment

No tangible heritage resources were identified during previous investigations on the farm Rietfontein 152. Geologically, however, the Project area is underlain by the *Vryheid Formation*, the primary fossiliferous resource. It corresponds to the basal unit of the Ecca Group deposited in a deltic³ environment at ~180 Ma. Bamford (2012) suggested a model comparable to periodic flooding of marshes. This formation is inherently associated with shales, sandstones, mudstones and coal. In this region, the *Vryheid Formation* comprises coals seams 1 – 5, the thickness and height of which are influenced by the basal topography of the Karoo Basin (Bamford, 2016; Bamford, 2014b).

This notwithstanding, and considering the results of the previously completed pre-disturbance survey, the *Vryheid Formation* does not outcrop in the proposed extension area. Additionally, existing current mining operations have demonstrated that no bedrock is exposed during operations.

³ River deposition of lithologies onto an alluvial plain.

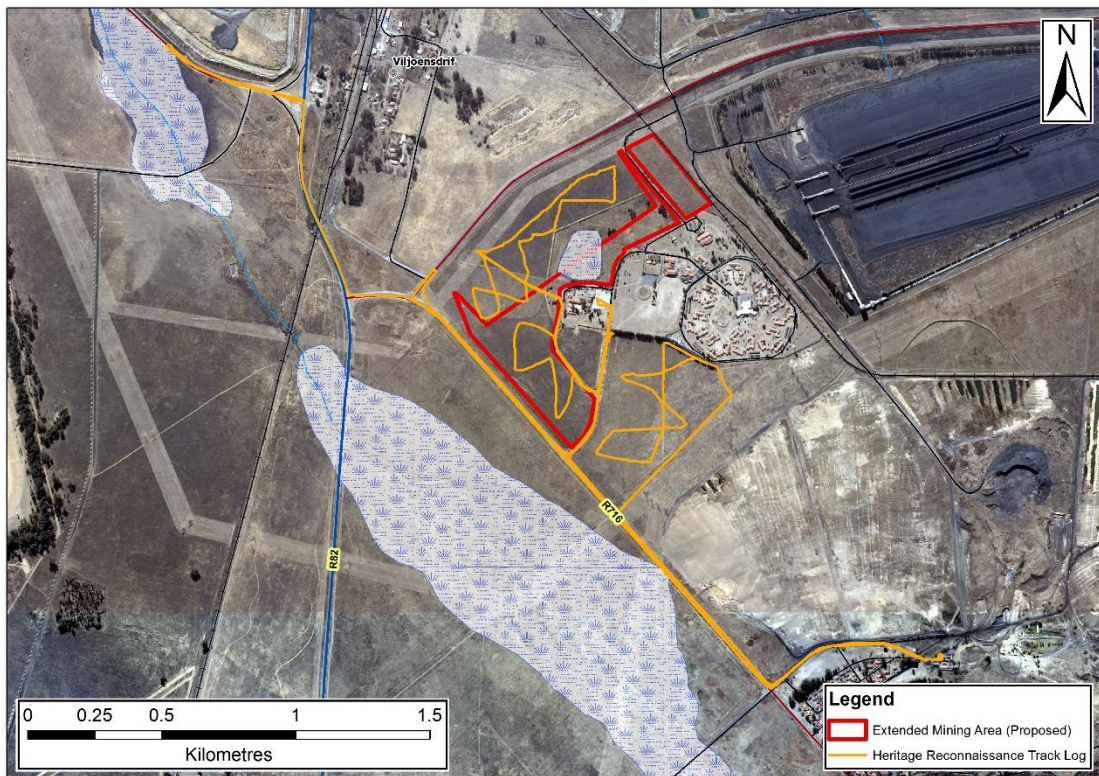


Figure 3-1: Proposed expansion and pre-disturbance survey track logs

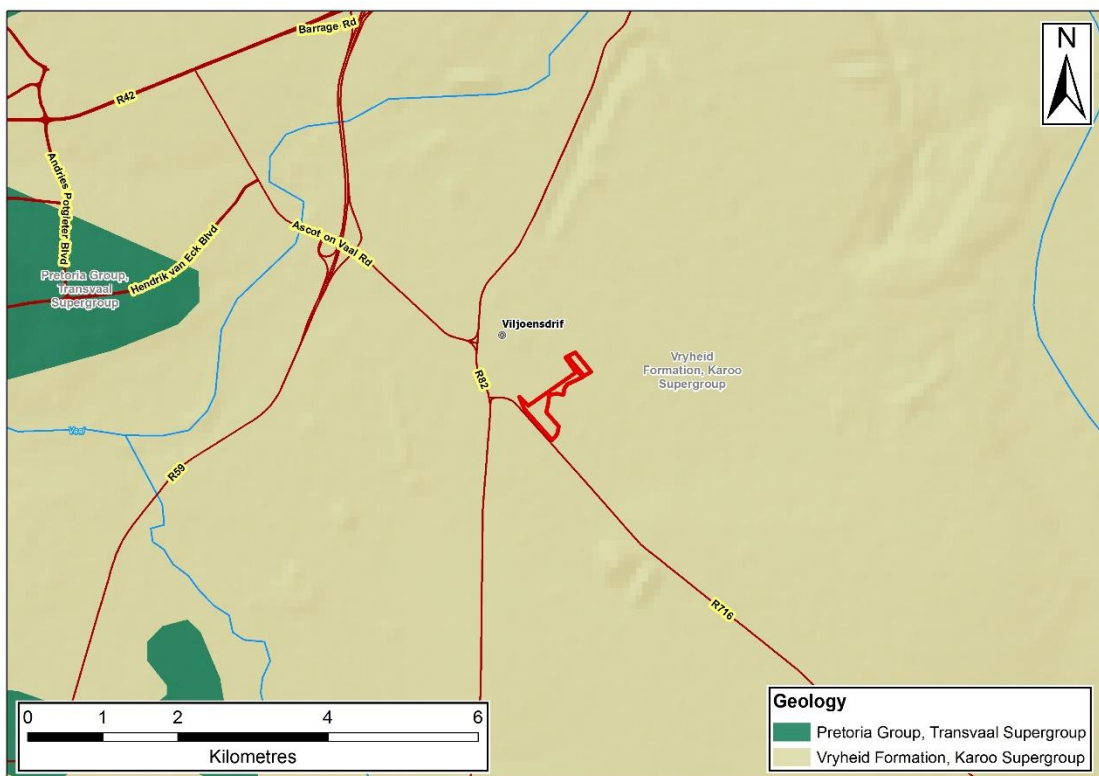


Figure 3-2: Geology underlying the proposed expansion area

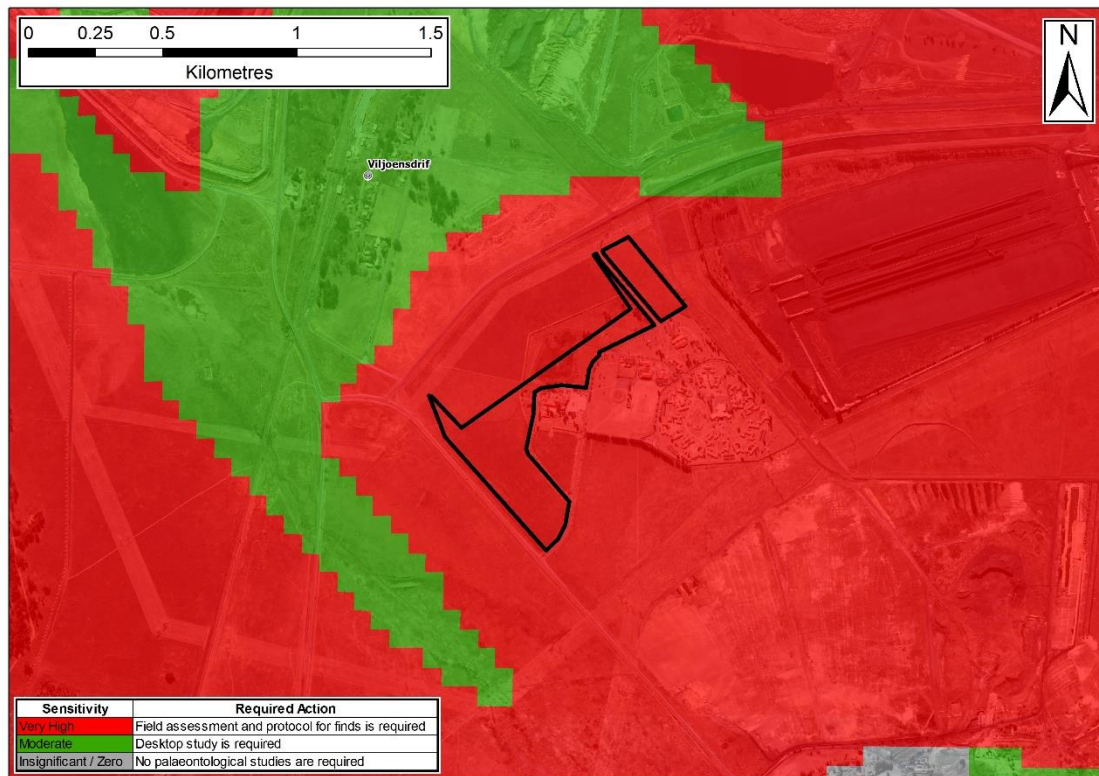


Figure 3-3: Palaeo-Sensitivity Plan (adapted from SAHRIS)

Table 3-1: Geological sequence and palaeontological sensitivity for the site-specific study area

	Era	Period	Ma	Lithographic Units			Significance	Fossils
				Supergroup	Group	Formation		
Eon	Palaeozoic	Permian		Karoo Supergroup	Ecca Group	Vryheid	Very-high	Abundant plant fossils of <i>Glossopteris</i> and other plants. Trace fossils. The reptile <i>Mesosaurus</i> has been found in the southern part of the Karoo Basin. Rich fossil plant assemblages of the Permian <i>Glossopteris</i> Flora (lycopods, rare ferns and horsetails, abundant glossopterids, cordaitaleans, conifers, ginkgoaleans), rare fossil wood, diverse palynomorphs. Abundant, low diversity trace fossils, rare insects, possible conchostracans, non-marine bivalves, fish scales.

4 Consideration of alternatives

No project alternatives are considered as part of this application. In the event that the Regulation 31 application is rejected, the present *status quo* will remain and the Copper Sunset Mining Operation will close down at the end of its LoM in approximately 4 months. .

5 Recommendations

Based on the understanding of the previously defined cultural landscape, no potential impacts to heritage resources are envisaged for the expansion of the Copper Sunset mining operations. Therefore, the recommendations encapsulated within the previously completed assessments and requirements issued by SAHRA remain applicable. Briefly, these include:

1. Should any objects of archaeology or palaeontological remains be found during construction activities, work must immediately stop in that area and the Environmental Control Officer (ECO) must be informed;
2. The ECO must inform SAHRA and contact an archaeologist and/or palaeontologist, depending on the nature of the find, to assess the importance and rescue them if necessary (with the relevant SAHRA permit). No work may be resumed in this area without the permission from the ECO and SAHRA;
3. If the newly discovered heritage resource is considered significant a Phase 2 assessment may be required. A permit from the responsible heritage authority will be needed;
4. A Chance Finds Procedure must be developed for the Project to ensure that standard protocols and steps are followed should any heritage and/or fossil resources be uncovered during all phases of the Project. These procedures should outline the steps and reporting structure to be followed in the instance that heritage resources are found. This must be included in the Environmental Awareness Plan; and
5. The final EIA and appendices must be submitted to SAHRA upon submission to DEA. Should the Project be granted EA, SAHRA must be notified and all relevant documents submitted to the case file.

6 Conclusion

Copper Sunset have appointed Digby Wells to assist in a Regulation 31 application to extend current operations on a portion of Rietfontein 152. No tangible heritage resources have previously been identified in the Project area, therefore no impacts could be assessed. Notwithstanding the potential fossiliferous *Vryheid Formation*, no outcrops or other evidence were noted. Furthermore, the mining operations will reach a depth of between 2.5 to 3 m. Taking these factors into consideration, it is not envisaged that the proposed expansion will have any direct impacts on the *Vryheid Formation* or fossils.

It is recommended the proposed Project be approved and exempt from any other heritage assessments on condition that the recommended management measures contained in the previously approved heritage reports and Statutory Comments on Case ID 8826 and Case ID 9714 are implemented.

7 References

- Bamford, M. (2012). *Palaeontological Impact Assessment for Majuba Underground Coal Gasification Project, Mpumalanga*. Mpumalanga: Royal HaskoningDHV.
- Bamford, M. (2014b). *Palaeontological Impact Assessment for the proposed Klipspruit Coal Mine, near Ogies, Mpumalanga*. Digby Wells Environmental: Unpublished report.
- Bamford, M. (2016). *Environmental Authorisation for the Proposed Imvula Mine: Palaeontological Impact Assessment addendum to the Heritage Impact Assessment*. Digby Wells Environmental: UNpublished report.

Regards,



Justin du Piesanie
Manager: HRM