

# HERITAGE IMPACT ASSESSMENT

submitted in terms of section 38(8) of the National Heritage Resources Act

prepared for

AURECON South Africa (Pty) Ltd

25 April 2012

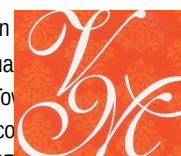
vidamemoria heritage consultant

3<sup>rd</sup> Floor · Guarantee House · 37 Burg Street · Greenmarket Square

P O Box 50605 Waterfront · 8002 · Cape Town

021 424 4244 (8432) cell: 082 330 4066 · quahnita@vidamemoria.co.za

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Divisional Road 1650 South Cape  
Uniondale - Eden District Municipality, Western Cape

## Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for a expansion of an existing borrow pit located along Divisional Road 1650 approximately 40 km southwest of Uniondale in Eden District Municipality, Western Cape. *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study (dated March 2012). Heritage impact assessment is submitted for comment in terms of Section 38(8) of the NHRAct as a component of an Environmental Management Programme (EMProg in terms of Mineral and Petroleum Resources Development Act 49 of 2008) to be submitted to the Department of Mineral Resources (DMR).

Assessment revealed that the contextual and intrinsic heritage significance of the site is low, with exposed Bokkeveld mudrocks highly cleaved and deeply weathered to be of low palaeontological sensitivity. Proposed intervention would not result in a detrimental heritage impact, yielding social and economic benefits without a negative impact on heritage resources. No further specialist palaeontological studies or mitigation is recommended and expansion be allowed to proceed.

## 1. Introduction

Aurecon South Africa (Pty) Ltd on behalf of the WCPA: Department of Transport and Public Works appointed Quahnita Samie (*vidamemoria*) to conduct a Notification of Intent to Develop (NID) application in terms of Section 38(1) of the National Heritage Resources Act (Act 25 of 1999) **to expand an existing borrow pit along Divisional Road 1650 near Uniondale, Eden**. NID dated 21 September 2011 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 12 December 2011 (**case ref 11928JB27**) requested 'a heritage impact assessment consisting of a palaeontological study' (Refer Annexure A). *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct the necessary palaeontological specialist study (dated March 2012) as incorporated within this assessment.

The proposed action triggers Section 38(1) (c)(a) activity that will change the character of a site exceeding 5 000 m<sup>2</sup>. This assessment report is submitted for comment in terms of Section 38(8) of the NHRAct as a component of an Environmental Management Programme (EMProg) in terms of the Mineral and Petroleum Resources Development Act (49 of 2008) to be submitted to the Department of Mineral Resources (DMR). Notification as previously submitted to HWC (dated 31 May 2011) and response (dated 20 June 2011) confirmed the approach to be undertaken in submitting borrow pit notifications to HWC.

### Structure of assessment

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## Site location and description

It is proposed to obtain material from two existing borrow pits for road material along the DR01650 approximately 40 km west-southwest of Uniondale in the Little Karoo region of the Western Cape. Sites are located along the southern margin of the Kammanassie mountain range 5km north of the N9 tar road in the southeastern Little Karoo. The sites are located at km 10.4 of DR 1650 at 33° 44' 9.96" S, 22° 42' 19.80" E and at km 11.4 of DR 1650 at 33° 44' 0.60" S, 22° 42' 35.28" E. Land is in ownership of Willem Serfontein on the farm Daskop.



Figure 1: Extract from topographical sheet 3322 Oudtshoorn (extracted Almond 2012: 2)

Pits are partly fenced from road DR1650 and from other farm grazing lands with controlled access. Working face has slopes of about 1:3 with a height of approximately 6m No rehabilitation has taken place to date and there are irregular, minor stockpiles of topsoil around the crest of the working faces.



Figure 2: Looking south across proposed expansion area at DR 1650/10.4 towards DR01650 in the background. The existing pit is to the right (west) (July 2011).



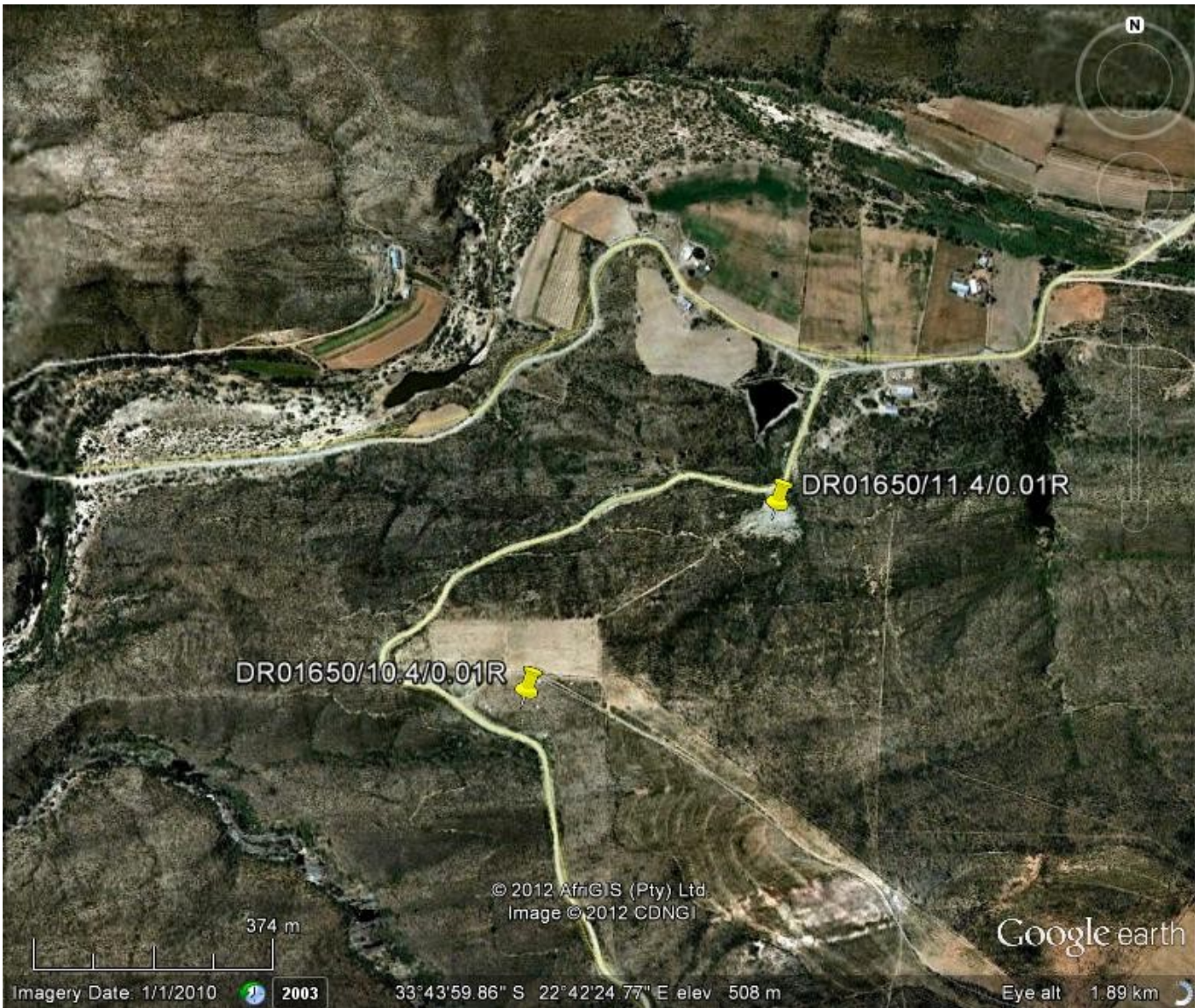


Figure 4: Aerial view of existing borrow pit locations (Google earth image, April 2012)



## Description of proposals

In terms of the Minerals and Petroleum Resources Development Act, all mining activities including extraction of material from borrow pits and quarries requires authorisation from the Department of Mineral Resources (DMR). Where the WCPA: Dept Transport and Public Works is undertaking the maintenance and / or upgrading of roads under its control, no application needs to be submitted for a mining right or permit, however, as per provisions of Section 106(2) of the MPRDAct, they are required to prepare and submit an EMProg to DMR for their approval prior to the extraction of any material from a proposed borrow pit or quarry. According to the MPRDAct, mineral resources are in the custodianship of the State, where WCPA would temporarily acquire the right to mine the borrow pits, subject to approval by the DMR.

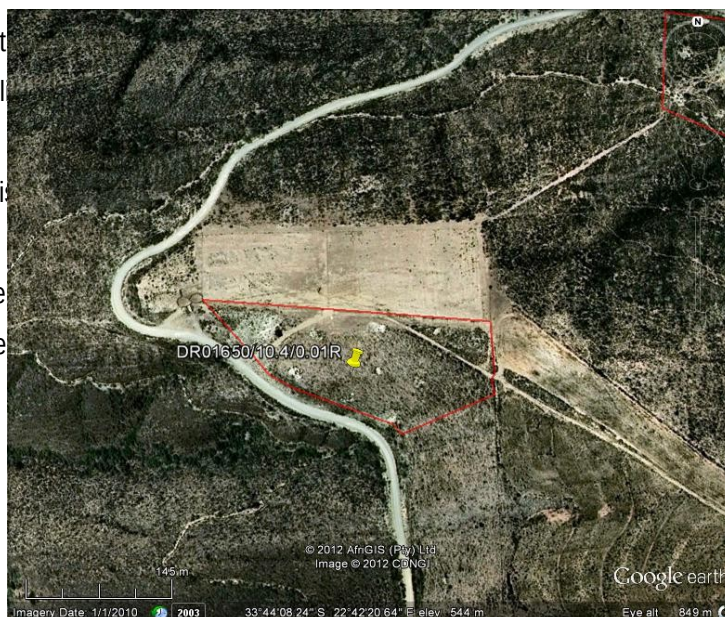
For a gravel road to be able to carry traffic safely and effectively an upper layer of gravel known as a wearing course, which meets specific technical requirements, has to be placed on the prepared roadbed. With time, the wearing course is eroded away by both traffic and the elements. This wearing course needs to be replaced in order to continue to deliver a safe and functional surface to road users. Implementation of regravelling activities requires extraction of suitable materials from identified material sources. During decommissioning, working areas are to be rehabilitated and revegetated. Material excavated from the borrow pits **at km 10.4 and 11.4 of road DR 1650** will be used for the re-gravelling so as to benefit road users in terms of road safety and user economy as well as to minimise maintenance-related disruptions. Pits at km 10.4 and 11.4 will be utilised for the sourcing of approximately 19 542 m<sup>3</sup> and 28 411 m<sup>3</sup> of wearing course gravel respectively for use in regravelling. The enlargement of borrow pit at 10.4 will take place towards the east and of borrow pit at 11.4 towards the south and west. The end-use of this borrow pit would be to re-vegetation.

Summary of borrow pit		
	at km 10.4	at km 11.4
Borrow pit / expropriation area	20 000 m <sup>2</sup>	9 900 m <sup>2</sup>
Maximum depth	4 m	3 m
Material description	Bokkeveld shale	Bokkeveld shale
Proposed usage after rehabilitation	Re-vegetation	Re-vegetation
Volume of material to be sourced	19 542 m <sup>3</sup>	28 411 m <sup>3</sup>
Estimated material reserves	37 000 m <sup>3</sup>	31 000 m <sup>3</sup>

Trial pit investigations and sampling were conducted by Aurecon at four proposed borrow pits considered as potential sources of material. Two were however excluded from consideration due to environmental concerns and / or unsuitability of material for purpose of regravelling.

Mine plans outlining extent of closure of borrow pit is outlined in the

Eden District Municipality is the landowner and the WCPA, the working area will be re-vegetated until such time as the site persists until such time



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Figure 5: Aerial view of existing borrow pit (Google earth image, April 2012)

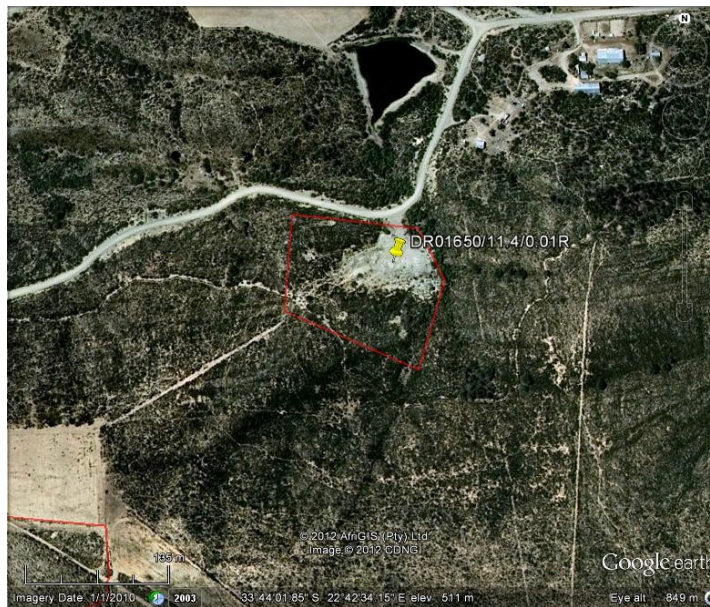


Figure 6: Aerial view of existing borrow pit (Google earth image, April 2012)

## Results of consultation

DMR has outlined requirements for public participation in terms of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) for exempted organs of state. This includes liaison with the landowner, notification of the immediate neighbours and either an on-site advertisement or advertisement in the local newspaper. The WCPA has indicated a commitment to developing and maintaining good relations with landowners and therefore landowners concerns are incorporated into the final agreement.

The public consultation process for this project has involved consultation with the landowners and neighbours, and the advertising of the proposed activity in the local newspaper. No heritage related comments and / or concerns were received.

*Requests / concerns of owner:* None noted

## 2. Heritage resources

### Identification of heritage resources

Proposed sites and context do not fall within conservation or protected heritage areas, and is not located near to or visible from any protected heritage sites. The sites do not fall within a historical settlement or townscape and do not contribute towards rural or natural landscape of cultural significance. Sites are therefore not considered as an integral component of the cultural landscape.

Dr John Almond conducted a palaeontological field assessment and provided a report outlining geological context, palaeontological heritage and palaeontological sensitivity. Refer to Annexure D report dated March 2012. Site investigation revealed that Bokkeveld mudrocks exposed are highly cleaved and deeply weathered. It is likely that most or all the fossils originally present within these rocks have been completely destroyed by cleavage and weathering. Those that have survived will be highly distorted and poorly preserved, with high levels of disruptive secondary mineralisation. Palaeontological sensitivity is correspondingly very low.

No archaeological resources were identified and the site has been identified to possess low archaeological significance (Manhire and Patrick September 2011 desktop assessment as contained within NID). Sites have no known historical, social, or spiritual significance. No built environment issues and / or cultural landscape issues have been identified. Palaeontological sensitivity has been identified as low and no further heritage resources were identified.

### **Heritage significance**

A previous desktop assessment site assessed palaeontological heritage sensitivity as high due to presence of potentially fossiliferous mudrocks of the Lower Bokkeveld Group (Almond, 2012: 1). The site however is excavated into mudrocks of the lower Gydo Formation that elsewhere is well known for its rich fossil heritage especially shelly invertebrates from the Devonian Period. The Bokkeveld mudrocks have been found to be highly cleaved and deeply weathered and palaeontological sensitivity is rated as very low (Almond, 2012: 8).

The context within which the sites lie is identified as possessing low intrinsic heritage value. No heritage resources were identified and no sensitive landscapes were identified. Proposed expansion sites are transformed and possesses no known historical, social or spiritual significance. Sites are therefore considered to possess a very low level of intrinsic heritage value.

### **Heritage indicators**

Heritage indicators identified aim to ensure that significance would not be adversely impacted on by the proposed development. Indicators concern impact on the cultural landscape, identified heritage resources and visual impact.

No sensitive landscapes, archaeological or palaeontological material of significance were identified. Landscaping and rehabilitation of the site should commence as soon as advancing face and sufficient working/loading area moves away from an area that has been mined out.

### 3. Assessment of impacts

An assessment of the potential development impacts on significance is undertaken using relevant assessment criteria as well as response to indicators. Assessment of impacts on palaeontological significance has been provided as well as consideration of the cultural landscape and assessment of cumulative impacts.

**Cultural landscape:** Expansion of existing borrow pits would not result in a negative impact on the cultural landscape. The landscape within which the sites lie possesses low intrinsic heritage value and no heritage resources were identified within the immediate context. The sites and its immediate context are considered as being of low heritage significance. No heritage resources will be impacted and the overall status of the impact is considered as low.

**Archaeological and palaeontological impact:** No impact would occur as a result of expansion. The sites have been sufficiently recorded and requires no further recording before borrow pit activity occurs.

**Visual impact:** Low intensity visual impact is limited to the immediate surroundings and will be limited to operational phase.

**Cumulative impact:** The proposed moderate intensity intervention lies within a disturbed context with degraded conditions. No new roads would have to be constructed as the borrow pit is accessed directly off main / divisional roads or via existing access tracks. The borrow pit and access tracks would be fenced for the duration of the mining activities. There will be no site buildings located at the borrow pit site. No long-term traffic increase will be experienced. Low impact is associated with impact of increased personnel and cumulative impacts on borrow pit footprint and surroundings.

**Site rehabilitation:** It is expected that there should be an acceptable seed bank in the topsoil and this would be kept aside for rehabilitation. Slope changes would be finished off so that flowing curves that blend with the surrounding landscape are formed in preference to sharp angles. Topsoil and vegetation stripped during site clearance would be spread evenly across the borrow pit area. The area excavated as part of previous borrow pit activities would be ripped and also covered with a layer of topsoil.

**Impact relative to sustainable social and economic benefits:** The project will result in social and economic benefits for the local community in terms of service provision and employment opportunities.

Sites are considered to possess a very low level of intrinsic heritage value and the overall status of the impact is considered as low.



## 4. Discussion

During the course of borrow pit excavations, operations should be planned in such a way that the amount of work that will be necessary for the finishing off of the borrow pit is reduced as far as possible. Indiscriminate excavation without due regard for the desired final shape of the borrow pit should not be permitted and should be rectified immediately. Timing of rehabilitation is important as rehabilitation of disturbed areas should ideally be programmed to occur as soon as practically possible following cessation of work in a specific area. The period between cessation of activities associated with mining of materials and the onset of rehabilitation for that area should ideally not exceed 1 month. Rehabilitation operations should ideally be conducted in parallel with extraction. Accordingly, progressive rehabilitation, in which depleted sections of a borrow pit are reclaimed while extraction is ongoing in other sections of the same pit is encouraged.

Site development, operation, mining and closure guidelines outlined with the Environmental Management Programme provides detailed guidance for the preparation, operation and decommissioning of the site. Measures outlined should be adhered to in order to minimise potential negative impacts. It is recommended within the EMProg that an environmental control officer or suitable experienced engineer monitors the preparation, operational and decommissioning of the borrow pit so as to ensure that mitigation and rehabilitation measures are adhered to.

Sites are considered to possess a very low level of intrinsic heritage value and the overall status of the impact is considered as low. No further palaeontological heritage studies or mitigation are recommended for either of the two borrow pits located at 10.4 and 11.4 km along DR 1650 (Almond 2012: 8).

### Recommendations

It is therefore recommended that:

1. expansion of exiting borrow pit be supported
2. comment be issued that proposed activity may proceed in terms of Section 38(8) of the NHRAct

References:

- Almond John E PhD (March 2012): *Palaeontological specialist study: field assessment & recommendation for exemption from further studies & mitigation*
- ASAPA Aggregate and Sand Producers Association of Southern Africa (30 September 2009): *The issue of borrow pits being used in the aggregate and sand industry* accessed online
- Aurecon / Nadeson JV (July 2011): *Draft environmental management programme, summary report and mine plan*
- Galliers R M (July 2011): *Geotechnical investigations and geological strategic gravel pit summary report* for Aurecon South Africa
- Heritage Western Cape (July 2007): *Minimum Standards For Phase 1 Archaeological Impact Assessment (Aia) Reports*
- vidamemoria (September 2011): *Notification of Intent to Develop*