

HERITAGE IMPACT ASSESSMENT

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

prepared for

AURECON South Africa (Pty) Ltd

27 June 2012

vidamemoria heritage consultants

3rd Floor · Guarantee House · 37 Burg Street · Greenmarket Square

P O Box 50605 Waterfront · 8002 · Cape Town

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

CK 2006/049087/23



MR 00268 Malgas, Swellendam
Malgas, Swellendam - Overberg District Municipality, Western Cape

Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for an expansion of an existing borrow pit located along MR 00268 near Malgas in the Overberg 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 sites is low with Bokkeveld sandstones exposed in this area highly folded, cleaved, quartz veined and weathered considered to be of very 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 existing borrow pits along MR 00268 near Malgas, Overberg**. NID dated 30 January 2012 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 15 February 2012 (**case ref 120203JL04**) 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 June 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 m². 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

Section 1	Introduction provides background, site location, description of proposals and result of consultation	pg 2
Section 2	Identification of heritage resources, assessment of significance and heritage indicators	pg 6
Section 3	Assessment of impacts	pg 7
Section 4	Discussion and recommendations	pg 8
Annexure A	Interim comment from HWC	
Annexure B	Mine plan	
Annexure C	Methodology for the preparation, operation and closure of borrow pit	
Annexure D	Palaeontological specialist study conducted by Dr John Almond, Natura Viva CC (June 2012)	

Site location and description

It is proposed to expand two existing borrow pits at km 46.87 and 9.0 along MR 00268. At **km 46.8** the borrow pit extension is located just below the crest of a eastward-sloping valley-side and modern floodplain of the nearby Breede River some 30 m lower in elevation and about 300m distant. The site lies between any defined or even undefined/ephemeral tributary water course.

At **km 9.0** (8.6) the proposed extensions to two small existing borrow pits is located on a low angle, westward-facing hillslope leading to a tributary ephemeral water course that eventually drains into the Breede River. Vegetation is characterised by disturbed coastal fynbos heavily infested with Rooikrans and other aliens and rough grazing occurs in the general context.

Sites lie on the Farm Melkhoutrivier in private ownership of Mr J Kemp. Borrow pits coordinates at km 46.8 are 34°21'29.52" S 20°38'21.84" E and at km 9.0 (8.6) are 34°9'9.36" S 20°23'43.44" E



Figure 1: Extract from topographical sheet 3429 Riversdale (extracted Almond 2012: 2)



Figure 2: Aerial view of existing borrow pit location and expropriation area (Google earth image, June 2012)



Figure 3: Aerial view of existing borrow pit location (Google earth image, June 2012)



Figure 4: At km 9.0 (8.6) view of easternmost, water-filled, existing pit and surrounds (June 2011)



Figure 5: Panoramic view of the existing pit at MR00268/46.8 taken from approach track, with the Breede River in the background sampled stockpile of ripped shale gravel in centre far-foreground (June 2011)

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 EMPProg 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 46.8 and 9.0(8.6) road MR 00268** 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.

Summary of borrow pit		
	at km 46.8	at km 9.0
Expropriation area	12 500 m ²	11 500 m ²
Borrow pit area	9 500 m ²	10 290 m ²
Maximum depth	3.5 m	3.5 m
Material description	Bokkeveld shale	Bokkeveld shale
Proposed usage after rehabilitation	Stock watering feature	Stock and natural fauna watering ponds
Volume of material to be sourced	20 000 m ³	18 700 m ³

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 borrow pit and mining is attached as Annexure B. Methodology for the preparation, operation and closure of borrow pit is outlined in Annexure C.

Overberg District Municipality is to undertake work on behalf of the WCPA. Formal agreements are to be entered into between the landowner and the WCPA, with the municipality managing the site until decommissioning and closure. During decommissioning, the working area will be rehabilitated and revegetated as per the approach outlined in the mining plan. WCPA's liability for the site persists until such time as a Closure Certificate has been issued by the DMR.

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:

At km 9.0

The land-owner's request is that a limited number of flood water retention ponds for stock watering should be created. Thus this proposed pit should be worked eastwards from the lowest area in the west.

- proposed pit should be planned to form a limited number of hollows in the ground with relatively narrow bunds between them so that the maximum water can be retained between the lowest and highest elevations of the site.
- at least one of the bunds should be wide enough to allow a combine harvester to traverse it, or a new gated access to the field to the north of the proposed pit/s must be provided in the road-side fence.
- follow legal requirements with regard to the investigation, planning, expropriation, operation, and rehabilitation of this site.
- keep the land owner informed of developments.
- site must be rehabilitated into an approved floodwater retention pond in order to prevent flooding at the existing down-slope commercial establishment

At km 46.8:

This proposed extended pit should be exploited by deepening the floor and extending the pit to the eastern farm boundary and into the western area where topsoil has already been cleared.

- a formal drainage channel and silt trap should be created in the existing gap in the stockpile of topsoil along the northern edge of the existing pit to prevent flooding of the workings during operational periods.
- follow legal requirements with regard to the investigation, planning, expropriation, operation, and rehabilitation of this site.
- keep the land owner informed of developments.
- site must be rehabilitated into an approved floodwater retention pond in order to prevent flooding at the existing down-slope commercial establishment

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 June 2012. Bokkeveld bedrocks are mantled with thick gravelly colluvial and / or alluvial deposits of very low palaeontological significance. No fossil remains were recorded at either site during field assessment. (Almond, 2012: 11).

No archaeological resources were identified and the site has been identified to possess low archaeological significance (Manhire and Patrick December 2011 desktop assessment as contained within NID). As this is an existing borrow pit and the landscape has already been it transformed is unlikely that any significant archaeology still exists. The site is considered to be of low archaeological significance and no further mitigation is required.

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

Proposed extensions will be excavated into mudrocks and impure sandstones of the Ceres Subgroup (Lower Bokkeveld Group) that elsewhere are well known for their rich fossil heritage from the Devonian Period. However, the Bokkeveld sandstones exposed in this area are highly folded, cleaved, quartz veined and weathered, and their palaeontological sensitivity is correspondingly very low (Almond, 2012: 11).

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: At **km 9.0** the intention is to create a limited number of stock and natural fauna watering ponds. Therefore stockpiled topsoil from newly developed areas should be carefully stockpiled for later redistribution over the entire worked out areas, after the completion of any one phase of exploitation of the resources in this pit, to re-create attractive, grassed hollows in the ground that temporarily holds water. At **km 46.8** the intention is to create a stock watering feature in the floor of the deepened and extended pit with a maximum water capacity equivalent to the current capacity of the existing dam. Therefore. Available stockpiled topsoil should be carefully redistributed over worked out areas, after the completion of any one phase of exploitation of the resources in this pit, to re-create an attractive, grassed, water-retaining hollow in the ground.

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 overall status of 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. Bokkeveld sandstones exposed in this area are highly folded, cleaved, quartz veined and weathered, and their palaeontological sensitivity is correspondingly very low.

The palaeontological sensitivity of these two sites is rated as very low and no further palaeontological heritage studies or mitigation are recommended for either of the two borrow pits along MR 00268 (Almond 2012: 11).

Recommendations

It is therefore recommended that:

1. expansion of exiting borrow pits 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 (June 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 (January 2012): *Notification of Intent to Develop*