

HERITAGE IMPACT ASSESSMENT

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

prepared for

NADESON Consulting Engineers

29 October 2012

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MR0276 Caledon

Overberg District Municipality, Western Cape

Executive summary

Nadeson Consulting Engineers appointed *vidamemoria* to conduct a heritage impact assessment for expansion of an existing borrow pit located along MR0276 near Caledon in the Overberg District Municipality, Western Cape. *vidamemoria* appointed Madelon Tusenius (Natura Viva CC) to conduct necessary archaeological specialist study (dated October 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 presence of a single, isolated flake in a disturbed context indicates that the proposed extension site is of low archaeological heritage significance. 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 archaeological studies or mitigation is recommended and expansion should be allowed to proceed.

1. Introduction

Nadeson Consulting Engineers 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 MR 0276 near Caledon, Overberg. NID dated 25 June 2012 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 8 August 2012 (case ref **120726JL12E**) 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

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Site location and description

It is proposed to expand an existing borrow pit at MR0276/1.6/L/100 accessed from the N2 north west of Caledon, Overberg District, Western Cape. The site comprises farmland that has not been cultivated due to rock outcrops occupying the high-lying eastern part. Vegetation is dominated by karroid scrub and tufted grass with patches of weed in the disturbed low-lying areas. There are a number of gum trees on the downslope side of the dam amongst which several heaps of soil have been dumped. Surrounding context is characterized by wheat fields and natural veld. The site lies on Farm No. 416, Klip Heuvel in private ownership of Richard Krige. Borrow pits coordinates are 34°12'8.72" S 19°19'44.30" E

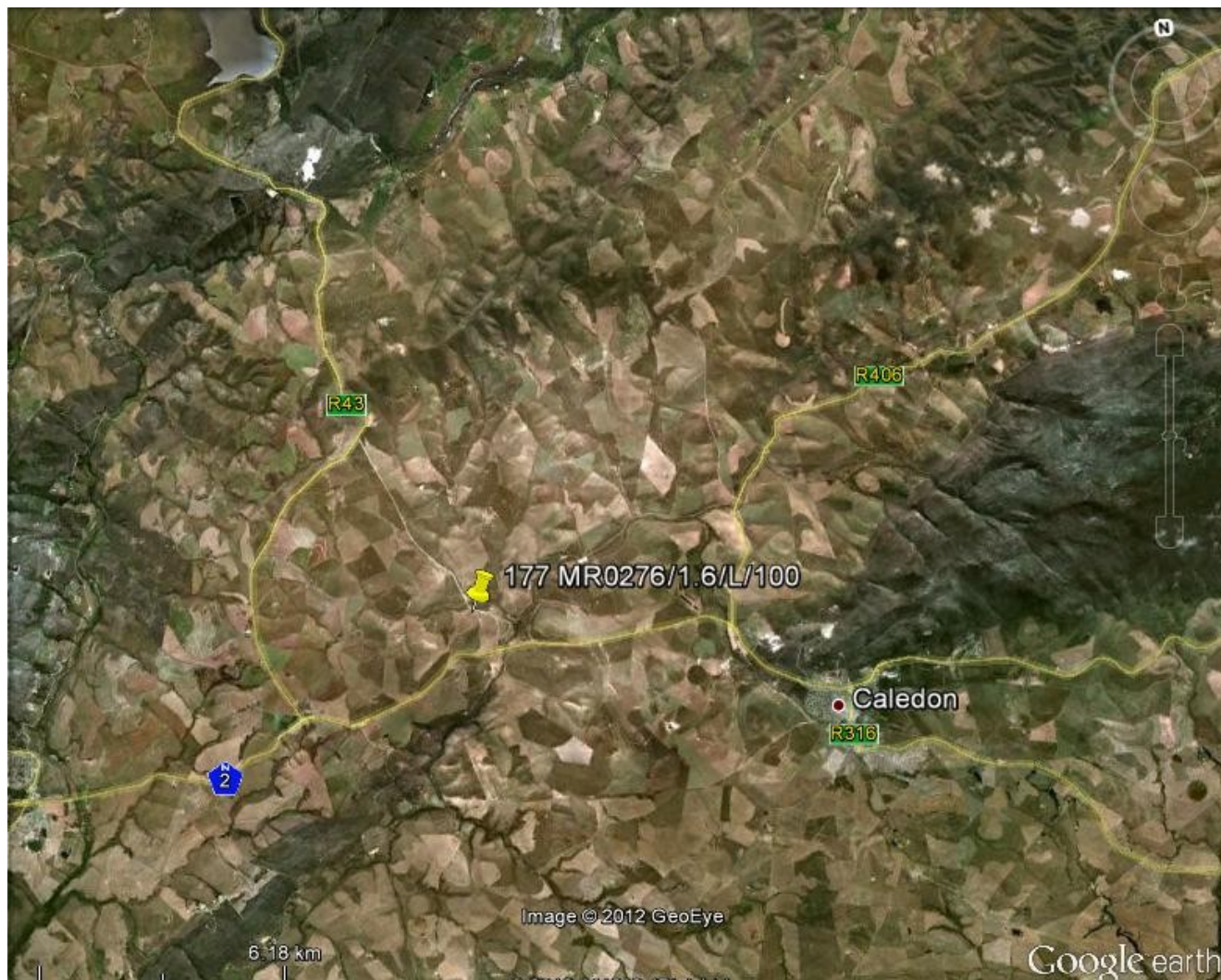


Figure 1: Locality plan of site 1288/15.7/L/4200 (Google earth image, October 2012)



Figure 2: View over the affected area towards the north with the dam and blue gum trees indicating the northwestern boundary (Tusenius 2012: 7)



Figure 3: view from the northern corner upslope towards the southeast (Tusenius 2012: 7) 2

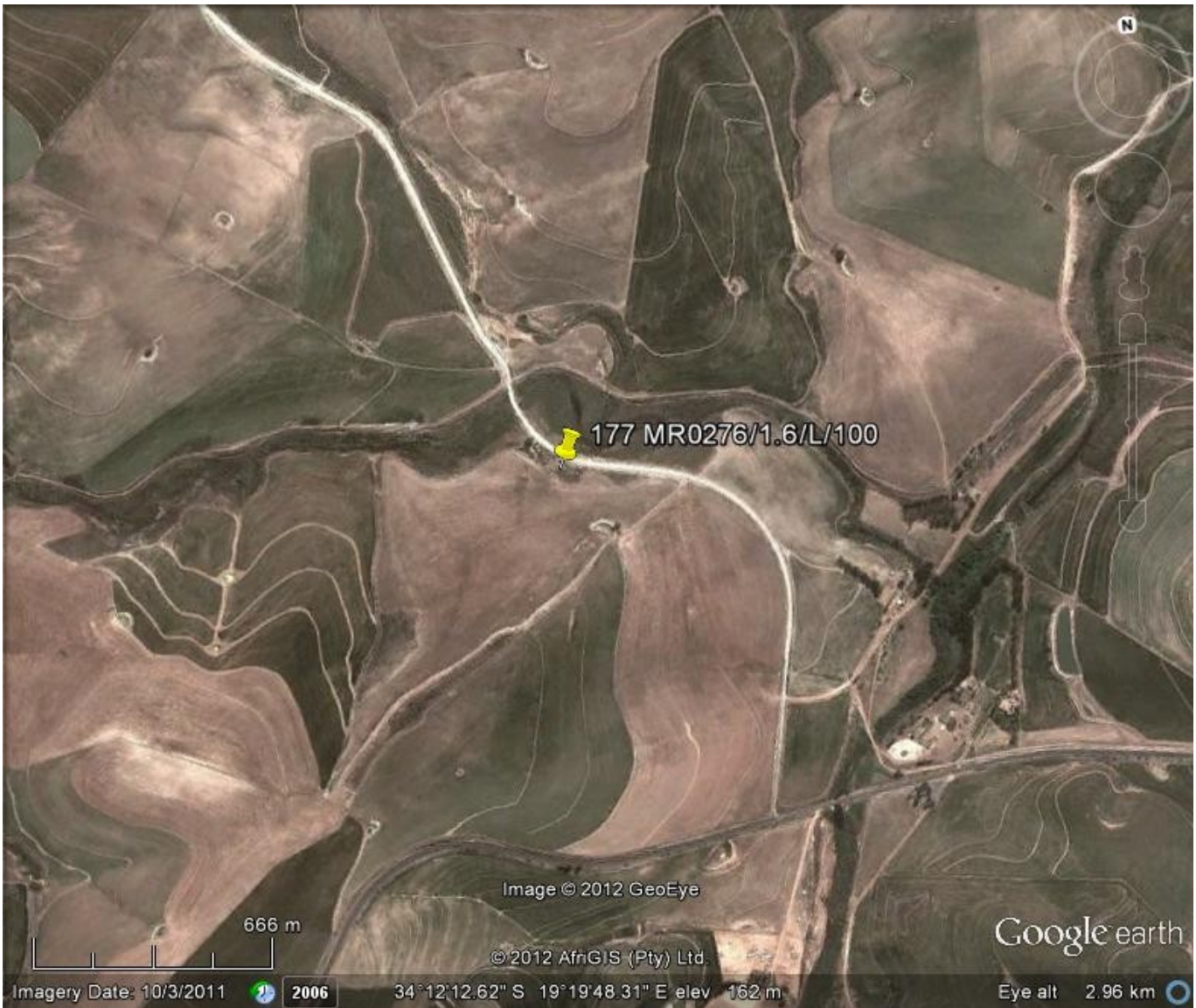


Figure 4: Aerial view of existing borrow pit locations (Google earth image, October 2012)

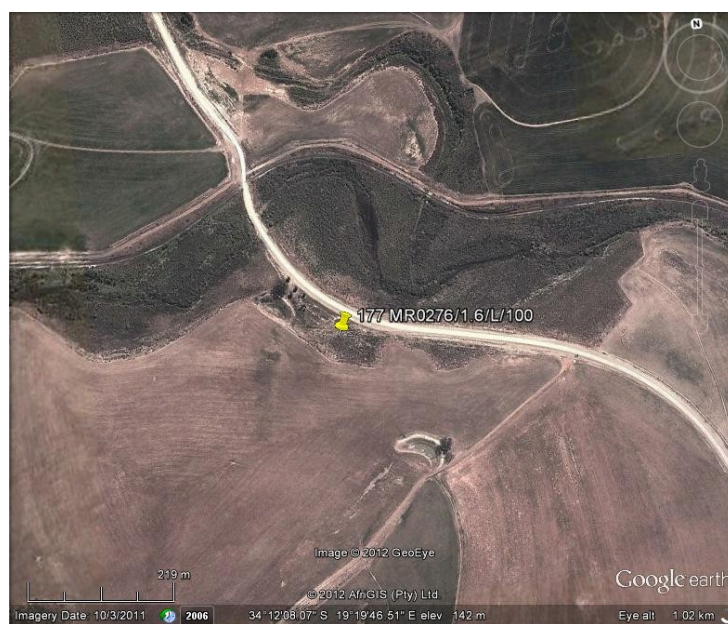


Figure 5: Aerial view of existing borrow pit and expropriation area (Google earth image, October 2012)

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 1.6 of MR 0276** 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 1.6
Expropriation area	5 050 m ²
Maximum depth	3.5 m
Material description	Sandstone of the Gamka Formation and Gydo Shale
Proposed usage after rehabilitation	Re-vegetation
Volume of material to be sourced	10 958 m ³

Trial pit investigations and sampling were conducted by Aurecon at four proposed borrow pits considered as potential sources of material. Three 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:

- Prevent damage to water pipeline by diverting it around the borrow pit
- Keep farm gate secured
- Rehabilitate excavation and keep works tidy

2. Heritage resources

Identification of heritage resources

Proposed site 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 site does not fall within a historical settlement or townscape and does not contribute towards rural or natural landscape of cultural significance. The site is therefore not considered as an integral component of the cultural landscape.

Dr John Almond conducted a desktop palaeontological field assessment (dated June 2012) and provided geological context, palaeontological heritage and palaeontological sensitivity. Borrow pit falls within Gydo Formation (Ceres Subgroup, Bokkeveld Group) of Early Devonian age with potential fossil heritage of diverse shelly invertebrate biota (trilobites, molluscs, brachiopods, echinoderms etc) and trace fossils, rare fish remains and plant.

Dave Halkett conducted a desktop archaeological investigation outlining possibility for archaeological material to be affected. Madelon Tusenius conducted a site visit and drafted an archaeological impact assessment. A single quartzite flake of indeterminate age was observed. No other archaeological remains were observed (Tusenius 2012: 9).

The site has no known historical, social, or spiritual significance. No built environment issues and / or cultural landscape issues have been identified. Palaeontological sensitivity and archaeological significance have been identified as low and no further heritage resources were identified.

Heritage significance

Proposed borrow pits will be excavated into mudrock of the Gydo Formation considered to be of low palaeontological significance due to high levels of weathering and cleavage (Almond: June 2012). The presence of an isolated, single flake in a disturbed context indicates that the proposed extension site is of low archaeological heritage significance. No significant impact on archaeological resources is expected if the proposed pit is developed.

The context within which the site lies is identified as possessing low intrinsic heritage value. No heritage resources were identified and no sensitive landscapes were identified. Proposed expansion site is transformed and possesses no known historical, social or spiritual significance. The site is thus 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 pit will not result in a negative impact on the cultural landscape. The landscape within which the site lies possesses low intrinsic heritage value and no heritage resources were identified within the immediate context. The site 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 site has been sufficiently recorded and requires no further recording before borrow pit activity occurs is required.

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: Upon depletion of the material reserve in the borrow pit, hillwash and topsoil horizons should be replaced to facilitate regrowth of the natural vegetation. The sides and floor of the borrow pit should be graded to smoothen the embankments and any projections of the bedrock from the floor, to provide an aesthetically acceptable landscape. Concentrated run-off must be avoided to protect the topsoil and hillwash, which will be placed back to cover the bedrock, from being eroded away.

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.

Site is 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.

The presence of an isolated, single flake in a disturbed context indicates that the proposed extension site is of low archaeological heritage significance. No significant impact on such resources is expected if the proposed extension is developed. If any human remains are found during the development of the proposed pits, work in that area must cease and the South African Heritage Resources Agency (SAHRA) must be notified immediately (Tusenius 2012: 9).

Site is considered to possess a very low level of intrinsic heritage value and the overall status of the impact is considered as low. No further archaeological studies or mitigation is recommended.

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:

- 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*
- Tusenius M (October 2012): *Archaeological Impact Assessment of a proposed borrow pit on Dunghye Park 528, Caledon area, Overberg District, Western cape*
- vidamemoria (June 2012): *Notification of Intent to Develop*