

HERITAGE IMPACT ASSESSMENT

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

prepared for

AURECON South Africa (Pty) Ltd

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CK 2006/049087/25



DR MR 0401 Eden

Uniondale – Eden District Municipality, Western Cape

Executive summary

Aurecon South Africa (Pty) Ltd appointed *vidamemoria* to conduct a heritage impact assessment for expansion of an existing borrow pit located along MR 0401 near Uniondale, Eden District Municipality. *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct necessary palaeontological specialist study and Madelon Tusenius (Natura Viva CC) to conduct necessary archaeological impact assessment. 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 Department Mineral Resources.

Proposed borrow pit is mainly excavated into mudrocks of the Gydo Formation (Lower Bokkeveld Group) that elsewhere is well known for its rich fossil heritage – especially shelly invertebrates – from the Devonian Period. Most or all of the fossils originally preserved in these rocks have been subsequently destroyed by natural tectonic and weathering processes. The palaeontological sensitivity of the site is therefore assessed as low and no further studies or mitigation of palaeontological heritage for this borrow pit project are recommended. The proposed pit extension is located in a highly disturbed area partly covered with scattered bushes. No graves, Stone Age or historical archaeological remains were observed within the affected area. No further archaeological studies or mitigation are recommended. Proposed intervention would not result in a detrimental heritage impact, yielding social and economic benefits without a negative impact on heritage resources. No further archaeological or palaeontological studies or mitigation is required.

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) **for an existing borrow pit at km 11.7 along MR 0401 in Uniondale, Eden District Municipality.** NID dated 01 April 2014 was submitted to Heritage Western Cape (HWC) for consideration. Response dated 23 April 2014 (**case ref 14040407GT0409E**) requested 'a heritage impact assessment limited to archaeological scoping report and a palaeontological scoping report with an integrated set of recommendations is required' (Refer Annexure A). *vidamemoria* appointed Dr John Almond (Natura Viva CC) to conduct the necessary palaeontological specialist study (dated August 2014) and Madelon Tusenius (Natura Viva CC) to conduct necessary archaeological impact assessment (dated August 2014).

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.

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<i>Annexure A</i>	Interim comment from HWC
<i>Annexure B</i>	Mine plan
<i>Annexure C</i>	Methodology for the preparation, operation and closure of borrow pit
<i>Annexure D</i>	Palaeontological specialist study conducted by Dr John Almond, Natura Viva CC (August 2014)
<i>Annexure E</i>	Archaeological conducted by Madelon Tusenius, Natura Viva CC (August 2014)

Site location and description

The potential source of a wearing coarse gravel pit site is located along the unpaved MR 0401/11.7/0.25R is accessed from the R339 north of Uniondale in Eden District, Western Cape. The proposed pit extension is located in a fairly flat-lying, highly disturbed area at the north-eastern edge of Uniondale. Sparse grass and scattered renosterbos surround the borrow pit. Farm / Erf 521 Uniondale is in private ownership of Aloe Trust (Mr Ken E. Dodds). Borrow pit co-ordinates are 33°38'54.14"S and 23°8'17.76"E.

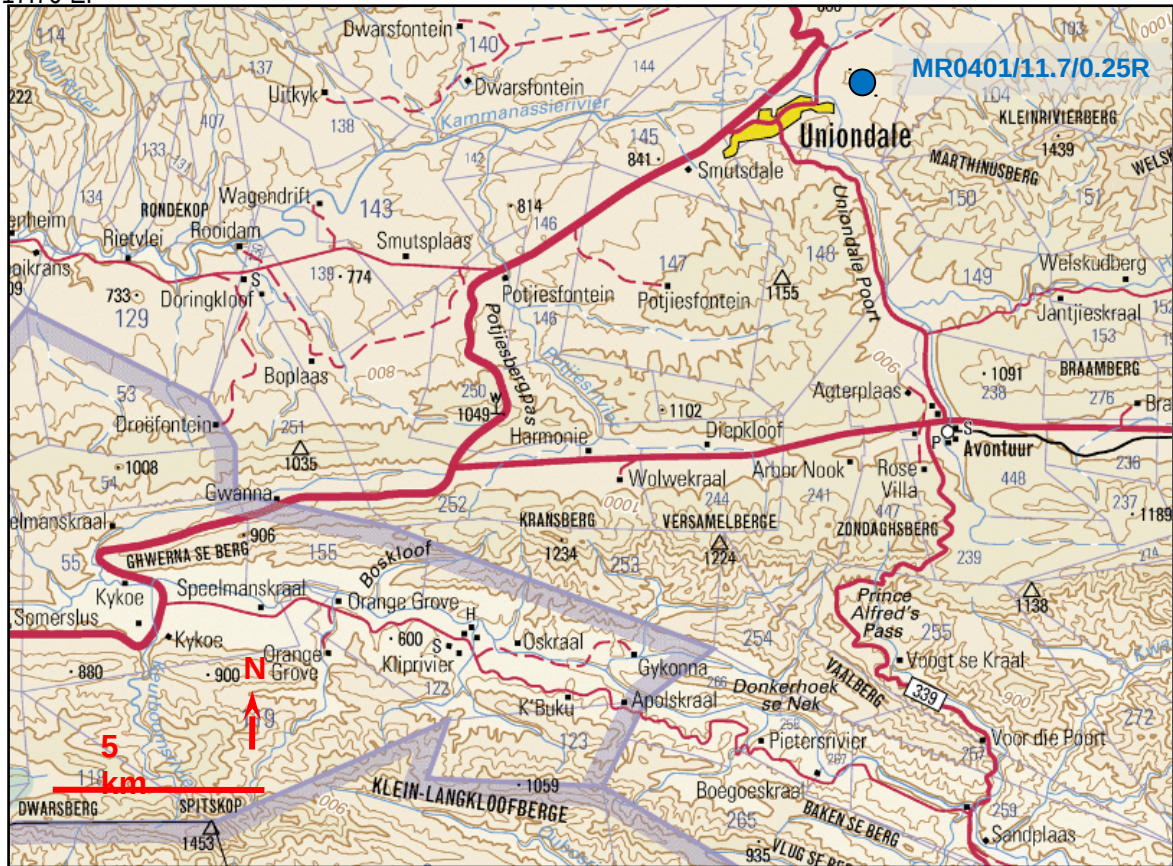


Figure 1: Extract from topographical sheets 3320(Dr John E. Amund 2014:2)



Figure 2: View towards the southwest of the eastern half of the affected area (Tusenius 2014: 7)



Figure 3: Site context and borrow pit location (Google earth, March 2014)



Figure 4: Aerial view of borrow pit and preliminary pit area (Google earth, March 2014)

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 rehabilitated and revegetated. Material excavated from potential borrow pit located at **km 11.7 along MR 0401** 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	
Borrow pit / expropriation area	20 425 m ²
Maximum depth	3.6 m
Material description	High to moderate weathered shale of the Gydo formation(Bokkeveld Group of Cape Age)
Proposed usage after rehabilitation	Revegetation
Volume of material to be sourced	50 000 m ³
Estimated proven material reserves	50 000 m ³

Trial pit investigations and sampling were conducted 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.

The mine plan 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.

Eden 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:

- None noted

2. Heritage resources

Identification of heritage resources

Proposed site and immediate 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 palaeontological field assessment and provided a report outlining geological context, palaeontological heritage and palaeontological sensitivity. The existing borrow pit falls the Gydo Formation (Lower Bokkeveld Group) that elsewhere is well known for its rich fossil heritage – especially shelly invertebrates – from the Devonian Period. The Lower Bokkeveld mudrocks in the Uniondale area are highly cleaved, quartz veined and locally weathered. Most or all of the fossils originally preserved in these rocks have been subsequently destroyed by natural tectonic and weathering processes (Almond 2014: 1).

Madelon Tusenius conducted archaeological field assessment and provided report identifying and assessing archaeological resources, associated impact, assessment of significance and recommendations regarding any mitigation required. The proposed pit extension is located in a highly disturbed area, partly covered with scattered bushes. No graves were noted, nor were any Stone Age or historical archaeological remains observed within the affected area, although a stone-walled kraal situated outside the polygon is of obvious historical interest. The cemetery is however of high local significance and should be conserved and protected during mining activities (Tusenius 2014: 2).

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

Heritage significance

The palaeontological sensitivity of the site is rated as low (Almond 2014: 11). The proposed pit extension is graded as having low archaeological heritage significance (Tusenius 2014: 9).

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 and material of archaeological and palaeontological significance were identified.

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: Proposed borrow pit would 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 on resources would occur as a result of expansion. No impact on resources would occur as a result of expansion. The site has 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:

None noted

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.

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. Rehabilitation of old and current working faces has been undertaken to mitigate visual impact to road users. 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.

With the exception of the cemetery, most of the affected area is of low archaeological heritage significance. The cemetery is however of high local significance and should be conserved and protected during mining activities. No significant additional impact on the cemetery and kraal are expected during the proposed extension of the pit if the above recommendations are adhered to. No further archaeological studies or mitigation are recommended (Tusenius 2014: 9).

The palaeontological sensitivity of the site is assessed as very low and no further studies or specialist mitigation of palaeontological heritage for this borrow pit project are recommended, pending the discovery of new fossil material on site (Almond 2014: 7).

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

Recommendations

It is therefore recommended that:

1. The graveyard must be fenced and a buffer zone established. Halkett (2013) suggests that the width of the buffer be determined by the engineers taking into account the depth of the proposed mining;
2. The location of the cemetery must be taken into account when the route of the future access track to the northwest of the polygon is finally laid out;

3. 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.
4. The site has been sufficiently recorded and requires no further recording before borrow pit
5. expansion of existing borrow pit be supported
6. comment be issued that proposed activity may proceed in terms of Section 38(8) of the NHRAct
7. If any human remains are found during the development of the proposed extension, work in that area must cease, the remains must be protected in situ and Heritage Western Cape (HWC) must be notified. A permit for the exhumation and reburial of any such remains will have to be issued by the South African Heritage Resources Agency (SAHRA). All such work will be to the cost of the developer.

References:

- Almond John E PhD (August 2014): *Palaeontological specialist study: field assessment & recommendation for exemption from further studies & mitigation*
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- Heritage Western Cape (April 2014): *Minimum Standards For Phase 1 Archaeological Impact Assessment (Aia) Reports*
- Tusenius M (August 2014): *Archaeological Impact Assessment*
- vidamemoria (April 2014): *Notification of Intent to Develop*