

DIGBY WELLS

ENVIRONMENTAL

To:	South African Heritage Resources Agency	Date:	13 May 2016
From:	Justin du Piesanie	Case ID:	8831
RE:	Heritage Impact Assessment for the Environmental Authorisation of the Proposed Invula Project		

1 Introduction

A Heritage Impact Assessment (HIA) was completed for the proposed Invula Project and submitted to the South African Heritage Resources Agency (SAHRA) and the Mpumalanga Provincial Heritage Resources Authority (MPHRA) for adjudication on 30 March 2016 (Case ID: 8831). An addendum to the HIA was submitted on the South African Heritage Resources Information System (SAHRIS) on 22 April 2016 to inform SAHRA of amendments to the re-routing of a proposed power line, and update the findings of the HIA prior to adjudication of the case.

Interim Comment was issued on the submission of the HIA and addendum by SAHRA on 11 May 2016. This memorandum serves to provide SAHRA with the requested information to issue Final Comment as required under Section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

2 Interim Comment summary

Interim Comment on Case ID 8831 requires the submission of additional information for SAHRA to provide Final Comment. This includes the following:

- Re-assessment of the Cultural Significance (CS) of Site 1 and 2¹;
- Provide an impact assessment of Site 1 based on blasting activities²;
- Provide a description of FT004³; and
- Provide an assessment of CS and impacts to FT004 based on project activities⁴.

¹ Cf. Page 3 Paragraph 3 of Interim Comments issued 11 May 2016

² Cf. Page 3 Paragraph 7 of Interim Comments issued 11 May 2016

³ Cf. Page 5 Paragraph 5 of Interim Comments issued 11 May 2016



⁴ Cf. Page 5 Paragraph 5 of Interim Comments issued 11 May 2016

These requirements are addressed in the following sections of this memorandum.

3 Heritage resource FT004

The heritage feature FT004, as displayed in Plan 1 on page 15 of the HIA as a result from oversight was previously omitted from the report. This section provides a description of the identified heritage resource to inform the assessment of the CS and potential impacts to the resource. The description of FT004 is presented in Table 1.

Table 1: Description of FT004

3.1.1 FT004			
Cultural Significance ⁵ : Negligible	Field Rating: Grade IV C	Co-ordinates	
		26°21'8.57"S	29°13'5.93"E
<p>FT004 constitutes a cleared area with a sparse scatter of loose stones.</p> <p>The feature contained no surface markers, such as stone walls, middens or material culture remains. The area was noted based on the distinct change in natural vegetation, and scatter of loose stone within the area. It is probable that this area was previously demarcated and used as a kraal area associated with the homesteads in the vicinity.</p> <p>The feature is situated approximately 70 m from the proposed clean water pipeline.</p>			
			
<p>Figure 3-1: Cleared area identified as FT004</p>			

4 Cultural Significance ratings

To provide SAHRA with sufficient information to make final comment, a re-assessment of the CS of select identified heritage resources were completed. This section provides detail to

⁵ The assessment of CS is provided in Table 3 under Section 4.2

address the specific comments received as outlined in the Interim Comments summarised in Section 2 above.

4.1 Methodology

Cultural significance (CS) was determined based on identified resources' importance or contribution to four broad value categories: aesthetic, historical, scientific and social values. The resources' importance or contributions to these values were considered in terms of associative (qualitative) and / or rarity (quantitative) attributes. These attributes were based on the data collected and collated into the cultural heritage baseline profile.

The integrity or condition of resources further influenced the CS. Integrity is largely determined based on resources' current, observed state of conservation, as well as notable changes made to it over the years.

Dimension	Attributes considered	NHRA Ref.
Aesthetic & technical	1 Importance in aesthetic characteristics	S.3(3)(e)
	2 Degree of technical / creative skill at a particular period	S.3(3)(f)
Historical importance & associations	3 Importance to community or pattern in country's history	S.3(3)(a)
	4 Site of significance relating to history of slavery	S.3(3)(i)
	5 Association with life or work of a person, group or organisation of importance in the history of the country	S.3(3)(h)
Information potential	6 Possession of uncommon, rare or endangered natural or cultural heritage aspects	S.3(3)(b)
	7 Information potential	S.3(3)(c)
	8 Importance in demonstrating principle characteristics	S.3(3)(d)
Social	9 Association to community or cultural group for social, cultural or spiritual reasons	S.3(3)(g)

Box 1: NHRA section 3 criteria

$$Value = Importance \times Integrity$$

where

$$Importance = \text{average sum of} \\ Aesthetic + Historic + Scientific + Social$$

Box 2: CS formula

Table 2: Rating system used to determine CS.

Rating	IMPORTANCE <i>A heritage resource's contribution to aesthetic, historic, scientific and social value.</i>	INTEGRITY <i>The undivided or unbroken state, material wholeness, completeness or entirety of a resource or site</i>
-	Not assessed - dimension and/or attribute not considered in determining value.	
0	The resource exhibits attributes that may be considered in a particular dimension, but it is so poorly represented that it cannot or does not contribute to the resource's overall value.	No information potential, complete loss of meaning, Fabric completely degraded, original setting lost



Rating	IMPORTANCE <i>A heritage resource's contribution to aesthetic, historic, scientific and social value.</i>	INTEGRITY <i>The undivided or unbroken state, material wholeness, completeness or entirety of a resource or site</i>
1	Common, well represented throughout diverse cultural landscapes	Fabric poorly preserved, limited information, little meaning ascribed, extensive encroachment on setting
2	Generally well represented but exhibits superior qualities in comparison to other similar examples	Fabric is preserved, some information potential (quality questionable) and meaning evident, some encroachment on setting
3	The resource exhibits attributes that are rare and uncommon within a region. It is important to specific communities.	Fabric well preserved, good quality information and meaning evident, limited encroachment
4	Rare and uncommon, value of national importance	Excellent preservation of fabric, high information potential of high quality, meaning is well established, no encroachment on setting
5	The resource exhibits attributes that are considered singular, unique and/or irreplaceable to the degree that its significance can be universally accepted.	

4.2 Assessment of Culture Significance

The assessment of CS of identified heritage resources considered the criteria and definitions stipulated in Section 3(3) of the NHRA, as detailed in Section 4.1 above. The results of the CS assessment are summarised in Table 3.

Table 3: CS assessment of Site 1, 2 and FT004

Resource ID	Aesthetic	Historic	Scientific	Social	INTEGRITY	CS Value	CS
Burial grounds and graves within Site 1 and 2	- Burial grounds and graves are not assessed against aesthetic criteria as defined in Section 3(3) of the NHRA	- Burial grounds and graves are not assessed against historic criteria as defined in Section 3(3) of the NHRA	- Burial grounds and graves are not assessed against scientific criteria as defined in Section 3(3) of the NHRA	5 Burial grounds and graves have specific connections to communities or groups for spiritual reasons. The significance is universally accepted	4 The integrity of burial grounds is considered to be excellent with the fabric preserved.	20	Very High



Resource ID	Aesthetic	Historic	Scientific	Social	INTEGRITY	CS Value	CS
Site 1	1 The sites do not display any unique aesthetic value and did not employ complex technical skill to create. They are fair common and well represented.	-	3 The sites can be considered to display principle characteristic that will have importance in providing information to the scientific community.	5 The sites contain burial grounds associated with social groups for spiritual reasons. The significance of burial grounds is universally accepted.	4 The integrity is considered high as the fabric of the site is well preserved and the information potential is high.	12	Medium
Site 2							
FT004	- The feature was not assessed against aesthetic criteria as defined in Section 3(3) of the NHRA	- The feature was not assessed against historical criteria as defined in Section 3(3) of the NHRA	1 The feature may contain limited scientific information, but it is common and well represented in diverse landscapes	1 The feature may have some connection to specific social groups, but is common and well represented	2 The fabric of the feature is fairly poor with evidence of encroachment	2	Negligible

5 Impact Assessment

This section considers the potential direct and indirect impacts to heritage resources as requested in the Interim Comments dated 11 May 2016. Considering the CS assessment of FT004 based on the motivations provided in Table 3, this feature has been sufficiently recorded and no further mitigations are required.

An assessment on the potential impacts of blasting on Site 1 is discussed in further detail below.

5.1 Direct impact to Site 1 from blasting activities⁶

The potential impact of blasting activities was considered as a cumulative impact in the HIA (refer to Section 8, page 46 of the HIA). Blasting of overburden rock will result in frequent repetitive vibrations that could through time damage *in situ* heritage resources, such as grave dressings or other structures such as stone walled settlements.

However, as required by SAHRA, a detailed assessment of the potential impact to Site 1 through blasting activities has been completed.

Blasting practices require the movement of rock to facilitate the excavation process, the extent of which is dependent on the scale and type of operation. These vary between

⁶ No detailed Blasting and Vibration study was completed as part of the Environmental Authorisation of the proposed Imvula Project, therefore no project specific information can be provided in reference to the potential impacts of blasting and vibrations on Site 1 situated within the 500 m buffer. Having noted this, a high level assessment of the potential impacts of the effects of blasting on Site 1 was completed.

various operations, however, on coal mines blasts are designed to cast the blasted material potentially resulting in the generation of fly rock.

Site 1 is situated on the periphery of the Imvula Project area, adjacent to the proposed clean water dam and Pit. As described in the HIA (refer to Section 5.3.1 of that report), the site comprises two features, and a burial ground. The features include squared stone foundations and middens associated with a historic homestead. The burial grounds comprise stone surface dressing, with only two recorded as comprising concrete headstone. These are, however, weathered and no information was discernible.

Considering the process of blasting as part of the construction and operational activities associated with the mine, the potential for fly-rock and vibrations to impact upon Site 1 does exist, though no detailed information on the scale of fly rock production or calculations to determine safe distances exist for the Imvula Project. Blast design and implementation should be determined by the appointed blaster, and will be done considering any sensitive area (i.e. infrastructure, heritage sites etc.). The potential impacts to Site 1 are considered to be sporadic, and occur during the activity, potentially having limited impacts to the identified resource. Furthermore, the potential impact is envisaged to result in a minor change to a heritage resource with very high significance.

Considering the methodology for assessing impacts as detailed under Section 3.4 of the HIA, the result of the assessment suggests that this will have a consequence that is slightly detrimental if manifested, and a negligible significance.

The impact assessment is summarised in Table 4.

Table 4: Summary of potential direct impact to Site 1 through blasting activities

Predicted for project phase:		Construction	Operation	
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Immediate (1)	The effects of blasting on Site 1 will be sporadic, and immediate. The potential impact could occur at any time during blasting activities through the construction and operational phases of the Imvula Project	Consequence: Slightly detrimental (-8)	Significance: Negligible - negative (-16)
Extent	Limited (2)	The potential impact, such as degradation of the integrity of the resources will be limited and result in specific issues or effects to components		
Intensity x type of impact	High - negative (-5)	Based on the defined methodology in Table 3.2 of the HIA, the potential impact of blasting may result in a minor change to resources with very high significance (i.e. graves)		
Probability	Improbable (2)	It is improbable that the blasting activities will have an impact on Site 1, but it is conceivable that cumulative impacts may manifest through repetitive blasting over time.		



MITIGATION:				
Adapt the blast design when blasting in proximity to Site 1. Include Site 1 within a Conservation Management Plan (CMP) that will include a monitoring programme that will assess potential impacts to the site, and stipulate mitigation measures in the event that direct impacts to the site manifest.				
POST-MITIGATION				
Duration	Immediate (1)	As for pre-mitigation	Consequence: Slightly detrimental (-8)	Significance: Negligible - negative (-16)
Extent	Limited (2)	As for pre-mitigation		
Intensity x type of impact	High - negative (-5)	As for pre-mitigation		
Probability	Improbable (2)	As for pre-mitigation		

To mitigate the potential impact, blast designs will consider sensitive areas and can be adapted to minimise or prevent any potential impact on sensitive areas such as infrastructure and/or heritage sites. A Conservation Management Plan (CMP) should be developed to monitoring the site, and assess any potential impacts that may have manifested. The CMP should detail the monitoring process, including detailed actions for recording and mitigating realised impacts. In the event that blasting may impact the site directly, consideration to exhume and relocate these graves must be given.

6 Conclusion

The feature FT004 was demonstrated to have a negligible significance. In accordance with the minimum required mitigation measures as outlined in the General Principles outlined in Section 5 of the NHRA, and minimum standards published in the SAHRA Minimum Standards, the feature has been sufficiently recorded and requires no further mitigation.

An assessment of the potential impacts on Site 1 through blasting activities demonstrated that the potential impact to this resource will be negligible. If the site is to remain *in situ*, it must be included within a CMP that makes provision for the monitoring of the site throughout the Life of Mine (LoM), and appropriate processes to mitigate any manifested impacts. Alternatively, the site must be mitigated in accordance with the recommendations stipulated in the Interim Comments, summarised below.

Apart from the recommendations provided in the HIA and this memorandum, Digby Wells acknowledges the requirements stipulated in the Interim Comments issued on the HIA. These include:

- The management or mitigation of identified burial grounds and graves within Site 2, and BGG-008 through the following manner:

- Option A: *In situ* conservation with the maintenance of a minimum buffer of 100 m. If *in situ* conservation is adopted, the developer must undertake a Burial Grounds and Consultation (BGGC) process to record and incorporate comments from the affected parties into a required Conservation Management Plan (CMP). Furthermore, an assessment of the impact to the sense-of-place must be completed and reported to SAHRA prior to approval;
 - Option B⁷: A Grave Relocation Process (GRP) must be undertaken supported by a BGGC process. Once permission for grave relocation has been obtained, a Grave Relocation Plan can be developed and implemented.
- Graves associated within BGG-014 must maintained *in situ* with a minimum buffer of 30 m surrounding the graves;
 - Burial grounds and graves BGG-131 and BGG-191 must be maintained *in situ* with a minimum buffer of 15 m surrounding the graves;
 - Structure Ste-62 must be clearly demarcated during the construction phase, and maintained *in situ* with a minimum buffer of 15 m surrounding the structure;
 - Notwithstanding the requirements for the management or mitigation of graves, archaeological features associated with Site 1 and 2 should be subject to Phase II archaeological mitigations in terms of Section 35 of the NHRA and Chapter IV of the Regulations to the Act (GN R 548);
 - Recommendations as outlined in the Palaeontological Impact Assessment (PIA) must be reflected in the final Environmental Management Programme (EMPr) for the proposed Invula Project; and
 - An effective Chance Finds Protocol (CFP) must be developed for the entire project through construction to decommissioning phase.

Regards,



Justin du Piesanie

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⁷ Option B is the recommended option by SAHRA.