

HERITAGE IMPACT ASSESSMENT

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

prepared for

Airports Company South Africa (ACSA)

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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

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Subdivision 3 of the Farm Sunnyside No. 2620

BRAM FISCHER AIRPORT, BLOEMFONTEIN

Executive summary

Airports Company South Africa (ACSA) intends developing Boulevard Precinct at Bram Fischer Airport, Bloemfontein. *vidamemoria heritage consultants* were appointed by *The Environmental Partnership* to conduct notification of intent to develop in terms of Section 38 of the National Heritage Resources Act (NHRA 25 of 1999). NID was submitted to Heritage Free State for consideration. However, as Heritage Free State does not yet deal with Section 38(8) applications, notification was submitted to South African Heritage Resources Agency (SAHRA) for consideration.

SAHRA requested a heritage impact assessment incorporating archaeological and palaeontological specialist input. SAHRA requested archaeological report incorporating mitigation measures and palaeontological report to assess whether development will impact on palaeontological resources. Any other heritage resources that may be impacted are also to be assessed. *vidamemoria* appointed Dr John Almond (Natura Viva cc) to conduct paleontological specialist study and Dave Halkett (ACO Associates cc) to conduct archaeological impact assessment.

The proposed development triggers Section 38(1) (c) (a) relating to an activity that will change the character of a site exceeding 5 000 m². As the development triggers General Notices 544 (23) and 546 (12) in terms of NEMA, this heritage submission is therefore being undertaken in terms of Section 38(8) of NHRA. Heritage impact report is aimed at satisfying the requirements of section 38 (3) of NHRA and is submitted to SAHRA for comment in terms of section 38(8).

The entire Free State is viewed as a paleontological sensitive area and thus it is thus standard procedure that specialist Paleontological Impact Assessment be conducted. The diverse vertebrate, invertebrate and plant fossil assemblages of the Beaufort Group are renowned worldwide for their rich record of continental biotas. The palaeontological sensitivity of these rocks is considered as high.

The site has no known historical, social, or spiritual significance and no built environment issues and / or cultural landscape issues have been identified. 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. No archaeological resources were identified and the site is considered to possess very low archaeological significance.

The key heritage concern regarding proposed intervention at the Boulevard Precinct relates to potential impact on palaeontological resources. Should palaeontological mitigation measures be adhered to, residual impact significance of construction and operational phase impacts on local palaeontological resources would be considered as low. Overall status of heritage impact would thus be considered as low subject to implementation of palaeontological mitigation.

It is therefore recommended that a professional paleontologist be commissioned to monitor all, or at least a representative sample of, large scale, deep excavations into bedrocks. Before development starts a realistic programme of monitoring and mitigation should therefore be negotiated between the developer and paleontologist contracted. The proposed development be supported and comment be issued that proposed activity may proceed in terms of Section 38(8) of the NHRA.

1. Introduction

Airports Company South Africa (ACSA) intends developing Boulevard Precinct at Bram Fischer International Airport, Bloemfontein. *vidamemoria heritage consultants* were appointed by *The Environmental Partnership* to conduct notification of intent to develop in terms of Section 38 of the National Heritage Resources Act (NHRA 25 of 1999). NID was submitted to Heritage Free State for consideration. However, as Heritage Free State does not yet deal with Section 38(8) applications, notification was submitted to South African Heritage Resources Agency (SAHRA) for consideration.

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Report structure

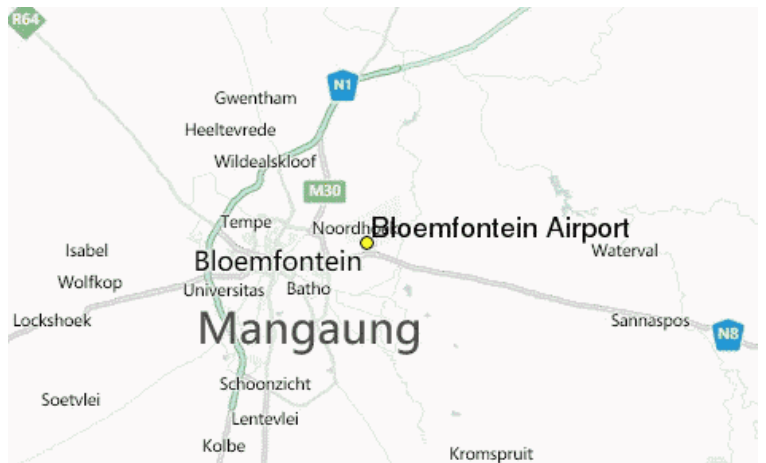
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Site location and description

Bram Fischer International Airport formerly known as Bloemfontein Airport, subdivision 3 of the Farm Sunnyside No 2620 is located approximately 8km to the east of Bloemfontein CBD. The site, owned by Airports Company South Africa (ACSA) is located within the urban edge and is zoned Special Use Zone in terms of the Bloemfontein Town Planning Scheme 1 of 1954.

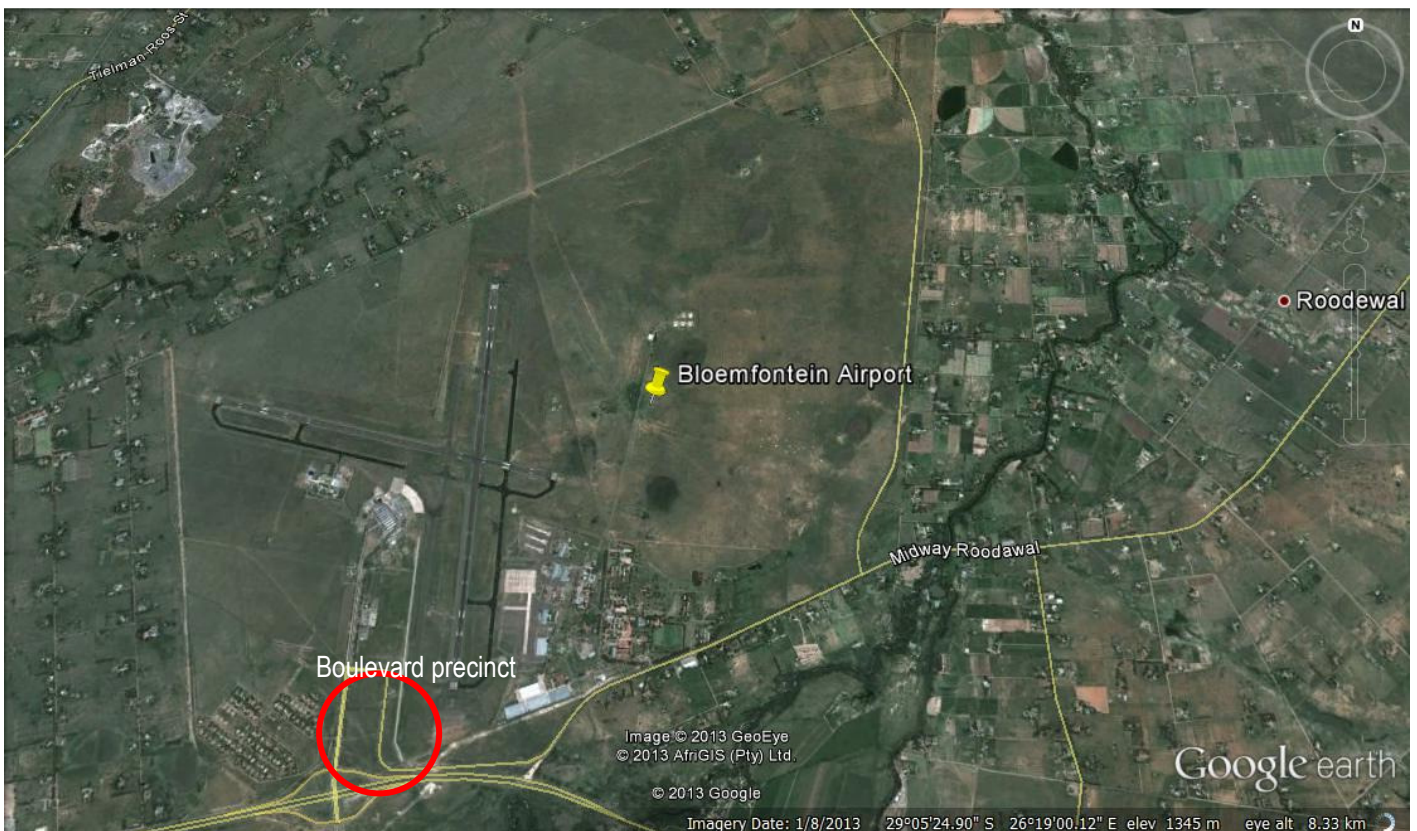
In 2009, the site was rezoned to a Special Use Zone with specific rights to accommodate existing development. In 2012, the Special Use Zone was amended to include additional development within the Boulevard Precinct.

The site is located along the N8 Corridor and has been identified by the Mangaung Metropolitan Municipality as one of Bloemfontein's key corridor nodes. The airport is perceived as a catalyst to the successful development of the N8 corridor. The airport underwent R46 million of construction and upgrading in preparation for the 2010 FIFA World Cup. In November 2012, the South African government announced that the airport's name was to be changed and was officially renamed Bram Fischer International Airport by President Jacob Zuma in Dec 2012.



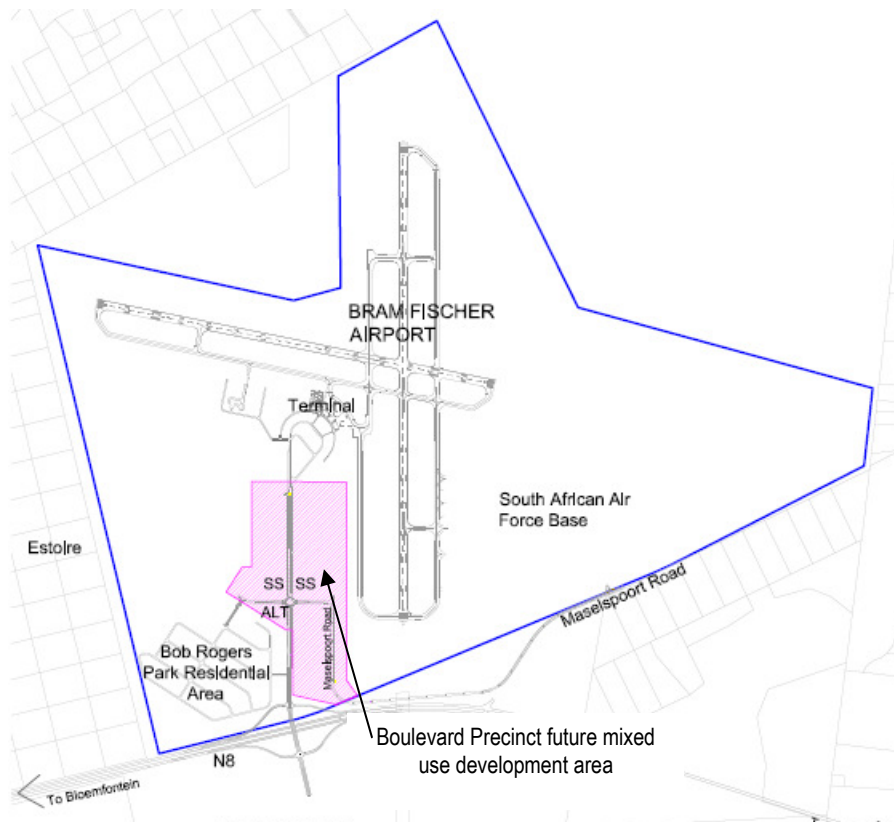
Bram Fischer Airport location, Bloemfontein (February 2013)

The Bloemfontein Airport Development Framework (2010) conceptually divides the site into five precincts namely Terminal, Boulevard, General Aviation, Airport Industria and Grasslands. The focus of this application is the Boulevard Precinct located in the south western precinct of the airport.



Bram Fischer Airport indicating Boulevard Precinct, Bloemfontein (Google earth image, February 2013)

The Boulevard Precinct measures approximately 53ha representing largely grass-covered and partially disturbed areas. The precinct is located adjacent to the N8 and the airport terminal. A small tributary of the Renosterspruit drainage system runs less than one kilometre to the south of the site.



Description of proposals

The Boulevard Precinct is proposed to accommodate total bulk of approximately 176 500m². Development is to comprise:

- Office space
- Commercial land uses
- Motor car dealer and showroom
- 2 service stations and a convenience shop
- Retail component
- Auctioneer business
- 100 bed hotel with 80 seat conferencing facility
- 300 seat conference facility and showground
- Medical facilities
- Industrial land use including industrial shops
- Warehousing and a distribution centre
- Car rental
- Logistics centre

In addition to the above bulk and associated land uses, approximately 100 000m² of bulk will be accommodated in the future. Land use composition of additional bulk has not been defined as development will occur in the long term.

Results of consultation

The National Museum of Bloemfontein and Heritage Free State were consulted with regard to local conservation bodies operating in the vicinity of the Bram Fischer Airport. No heritage body in Bloemfontein has registered in terms of Section 25 (1)(b) of the NHRAct.

Heritage Free State comment in response to notification highlighted palaeontological sensitivity of the Free State. The entire Free State is viewed as a paleontological sensitive area. For all development in the Free State that triggers Section 38 of the NHRA it is thus standard procedure that specialist Paleontological Impact Assessment be conducted. Such requirement is in addition to any other specialist reports SAHRA may request and should be submitted to SAHRA for commenting.

No further heritage related comments and / or concerns were noted.

2. Heritage resources

Identification of heritage resources

Bram Fischer International Airport is named after Abram Louis Fischer, commonly known as Bram Fischer, born in Bloemfontein in 1908. Bram Fischer was a South African lawyer of Afrikaner descent notable for anti-apartheid activism and for legal defence of anti-apartheid figures, including Nelson Mandela at the Rivonia Trial. Following the trial he was himself put on trial accused of furthering communism and was sentenced to life imprisonment of which he served eleven years. At the official renaming of Bram Fischer International Airport by President Jacob Zuma in 2012, he said the government was honoured to name the airport after a national hero and in doing so reflecting shared heritage and providing a beacon of the liberation struggle.

Paleontology

Dr John Almond conducted desktop paleontological impact study and provided a report outlining geological context, paleontological heritage and paleontological sensitivity. The Boulevard Precinct study area is underlain at depth by continental sediments of the Adelaide Subgroup (Karoo Supergroup) that can probably be assigned to the Normandien Formation of Late Permian age. This formation is known for its rich fossil assemblages of plants of the *Glossopteris* Flora of Gondwana, together with associated insects and other invertebrates, trace fossils and rare vertebrate remains such as dicynodont therapsids. In the flat-lying study area these potentially fossiliferous bedrocks are mantled by fossil-poor superficial sediments (soils, residual gravels *etc*) of much younger, Quaternary to Recent age.

In general, the following broad categories of fossils might be expected within the Adelaide Subgroup (*Dicynodon* Assemblage Zone) in the Bloemfontein study area:

- isolated petrified bones as well as articulated skeletons of terrestrial vertebrates such as true reptiles (notably large herbivorous pareiasaurs, small lizard-like millerettids and younginids) and therapsids (diverse dicynodonts such as *Dicynodon* and the much smaller *Diictodon*, carnivorous gorgonopsians, therocephalians)
- aquatic vertebrates such as large, crocodile-like temnospondyl amphibians like *Rhinesuchus* (usually disarticulated), and palaeoniscoid bony fish (*Atherstonia*, *Namaichthys*)
- freshwater bivalves (*Palaeomutela*)
- trace fossils such as worm, arthropod and tetrapod burrows and trackways, coprolites (fossil droppings)
- vascular plant remains including leaves, twigs, roots and petrified woods (“*Dadoxylon*”) of the *Glossopteris* Flora (usually sparse, fragmentary) especially glossopterids and arthropytes (horsetails)

Archaeology

Dave Halkett conducted a desktop archaeological impact study and provided a report identifying and assessing archaeological resources, associated impact, assessment of significance and recommendations regarding any mitigation required. The report highlighted eastern part of the site as being heavily disturbed and unlikely to contain archaeological or historical material. Land to the west has been used for agriculture in the past and is therefore unlikely to preserve any in situ archaeological or historical remains.

No built structures older than 60 years are located on site, no sites of significance associated with oral histories are present, no burial grounds and graves were identified and no key views to and from heritage sites and / or areas were identified.

Heritage significance

Paleontology

The diverse vertebrate, invertebrate and plant fossil assemblages of the Beaufort Group are renowned worldwide for their rich record of continental biotas on the supercontinent Gondwana during the Permo-Triassic interval. The palaeontological sensitivity of these rocks is therefore generally assessed as high. Pervasive calcretisation and chemical weathering of near-surface bedrocks in the Great Karoo has however compromised original fossil heritage in many areas (Almond 2014: 14).

Archaeology

No archaeological resources were identified and the site is considered to possess very low archaeological significance (Halkett 2013: 10).

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

Heritage indicators

Heritage indicators are identified to ensure that significance would not be adversely impacted on by the proposed development of the Boulevard Precinct. Indicators relate specifically to impact on palaeontological resources. As such, assessment is concerned with the impact on rich fossil assemblages.

No archaeological material of significance was identified and the site does not contribute towards rural or natural landscape of cultural significance.

3. Assessment of impacts

An assessment of potential development impacts on significance considers identification of heritage resources, significance and indicators. Assessment of impacts on paleontological resources is outlined as well as consideration of the landscape and assessment of cumulative impacts.

Paleontological

Overall impact significance of the proposed development is medium, with cumulative impacts likely to be of low significance given the scarcity of important fossils within sedimentary rock units concerned as well as the huge outcrop area of the Normadieu Formation as a whole (Almond 2014: 18). Significant fossil resources within the rocks underlying the development footprint are generally rare. However, if well-preserved fossil vertebrate remains are present subsurface, the impact intensity would be locally high.

Impact assessment for the Boulevard Precinct development in terms of disturbance, damage or destruction of palaeontological heritage resources is summarised within the following table:

Criteria	Rating	Comments
Extent of impact	Low	Limited to development footprint (which is albeit large)
Duration of impact	Permanent	
Intensity of impact	Medium	Significant fossil resources within the rocks underlying the development footprint are generally rare. However, if well-preserved fossil vertebrate remains are present subsurface, the impact intensity would be locally HIGH. The impact intensity is accordingly assessed as MEDIUM here, applying the precautionary principle.
Probability of impact	High	Trace fossils (invertebrate burrows, plant root casts <i>etc.</i>), plant remains <i>etc</i> are likely to occur within the development footprint. Vertebrate remains are probably uncommon but may well be present.
Degree of reversibility	Low	Damage, destruction of fossil material and loss of contextual geological data is irreversible.
Irreplaceability of resource	High	This applies to the rarer vertebrate remains or well-preserved plant remains.
Cumulative impacts	Low	Cumulative impacts cannot be accurately assessed in the absence of data on other developments in the broader study region. However, given the large outcrop area of the Normandieu Formation in the northern Free State, cumulative impacts are provisionally assessed as LOW.
Significance rating	Medium	This rating applies pending the exposure of any significant fossil vertebrate remains (e.g. bones, teeth, horn cores) during the construction phase of the development. Such findings would increase the significance of the potential impacts to HIGH.

(extracted Almond 2014: 19)

Archaeology

No impact on archaeological resources is expected as a result of the proposed development.

Cultural landscape

Proposed development will not result in an 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.

Impact relative to sustainable social and economic benefits

Proposed intervention will result in social and economic benefits for the local community in terms of provision of services and employment opportunities.

Overview of anticipated heritage impacts

- **Cultural landscape:** No impact on the cultural landscape is expected
- **Archaeological impact:** No impact expected
- **Palaeontological impact:** Medium – high impact expected depending on preserved fossil vertebrate remains
- **Visual impact:** Low intensity visual impact limited to the immediate surroundings.
- **Cumulative impact:** The proposed moderate intensity intervention lies within a disturbed context. Proposed intervention area lies within the existing airport footprint and land uses are deemed complementary to airport use and functioning. No impact is expected on built structures older than 60 years, sites related to oral histories, burial grounds and graves or key viewsheds.
- **Impact relative to sustainable social and economic benefits:** The project will result in social and economic benefits
- **Overall status:** of heritage impact is considered as low, subject to implementation of palaeontological mitigation

4. Discussion

The key heritage concern regarding proposed intervention at the Boulevard Precinct relates to potential impact on palaeontological resources. Overview of anticipated heritage impacts revealed that no impact on the cultural landscape is expected. The proposed moderate intensity intervention lies within a disturbed context. Proposed intervention area lies within the existing airport footprint and land uses are deemed complementary to airport use and functioning. No impact is expected on built structures older than 60 years, sites related to oral histories, burial grounds and graves or key viewsheds. The project will however result in social and economic benefits with little to no impact on heritage resources, subject to mitigation measures as proposed for palaeontological monitoring.

No archaeological impact is expected. However, as there is always the possibility that buried remains may be uncovered in the course of bulk earthworks, it should be a requirement that any heritage resources found on the affected site must be reported to SAHRA. If human remains are found, work must cease in that location until a forensic examination is undertaken by an archaeologist.

The Boulevard Precinct has been assessed as being of medium significance in terms of potential impacts on fossil heritage as there is a significant possibility that scientifically valuable fossil remains will be exposed during deeper excavations into Karoo Supergroup sedimentary bedrocks during construction phase. Dr Almond has therefore recommended that a professional palaeontologist be commissioned to monitor all, or at least a representative sample of, large scale, deep excavations into bedrocks. It is important that the opportunity for professional monitoring and mitigation is given while the bedrock excavations are fresh and *before* they are infilled, covered over or degraded by weathering and plant growth.

Before development starts a realistic programme of monitoring and mitigation should therefore be negotiated between the developer and the palaeontologist contracted for the project to maximize the scientific and conservation benefits of the work, while minimizing disruption of the construction programme. Monitoring and mitigation by a qualified palaeontologist should entail:

- field examination of new bedrock excavations
- recording of sedimentological and palaeontological data
- judicious sampling and curation of fossil material
- recommendations for any further action required to safeguard fossil heritage

Palaeontologist involved in monitoring and mitigation work will need to obtain a fossil collection permit from SAHRA and make arrangements with an approved repository to store and curate any fossil material collected.

Should palaeontological mitigation measures be adhered to, residual impact significance of construction and operational phase impacts on local palaeontological resources would be considered as low. Overall status of heritage impact is thus considered as low subject to implementation of palaeontological mitigation.

5. Recommendations

It is therefore recommended that:

1. A professional paleontologist be commissioned to monitor all, or at least a representative sample of, large scale, deep excavations into bedrocks. Before development starts a realistic programme of monitoring and mitigation should therefore be negotiated between the developer and contracted paleontologist
2. Proposed development be supported
3. Comment be issued that proposed activity may proceed in terms of Section 38(8) of the NHRAct

References

- ACO (final report December 2013): *A desktop Archaeological Impact Assessment of the Boulevard Precinct, Bram Fischer Airport, Bloemfontein*
- ACO (draft report November 2013): *A desktop Archaeological Impact Assessment of the Boulevard Precinct, Bram Fischer Airport, Bloemfontein*
- Almond John E PhD (January 2014) *Palaeontological specialist assessment: desktop study : Proposed development of the boulevard precinct, Bram Fischer Airport, Subdivision 3 of the farm Sunnyside no 2620 near Bloemfontein, Mangaung Metropolitan Municipality, Free State.*
- Almond John E PhD (August 2013) *Palaeontological specialist study: field assessment & recommendation for exemption from further studies & mitigation*

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