

**Palaeontological Heritage Impact assessment for residential  
development (student accommodation) of Erf 9623,  
Makhanda/Grahamstown.**

**Prepared for: Habitat Link Consulting**

**Compiled by: Dr Robert Gess**

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## **General Declaration**

I, Dr Rob Gess, declare that –

- I act as the independent Specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favorable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not;
- all the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realize that a false declaration is an offence and is punishable in terms of section 24F of the Act.

## **Disclosure of Vested Interest**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Amendments to Environmental Impact Assessment Regulations, 2014 as amended.

## Legislative Background

The National Heritage Act (Act 25 of 1999) safeguards all heritage resources. As per Sections 35 and 38 of the Act, any palaeontological report is a part of the Heritage Impact Assessment. Section 35 is concerned with the protection of archaeological, palaeontological, and meteorite resources found in South Africa, except for fossils that originate outside of the country.

(1) the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority.

(2) all archaeological objects, palaeontological material and meteorites are the property of the State. (3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority –

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

(5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –

(a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;

(b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;

(c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and

(d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the

order being served.

(6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or a meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

According to Section 38 (1), a Heritage Impact Assessment is necessary to assess any potential impacts on palaeontological heritage within the development footprint where:

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
  - i. exceeding 5 000 m<sup>2</sup> in extent; or
  - ii. involving three or more existing erven or subdivisions thereof; or
  - iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority,
  - v. the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent;
  - vi. or any other category of development provided for in regulations by SAHRA or a Provincial heritage resources authority.

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## Background

Habitat Link Consulting (Pty) Ltd has been appointed by Africa Construction Platform (the Proponent) to submit an application for the abovementioned development in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended). The proponent intends to conduct a Basic Assessment process for the proposed development of student accommodation located in Makhanda (previously Grahamstown). Rob Gess Consulting was contracted to conduct a PIA as part of the EIA process.

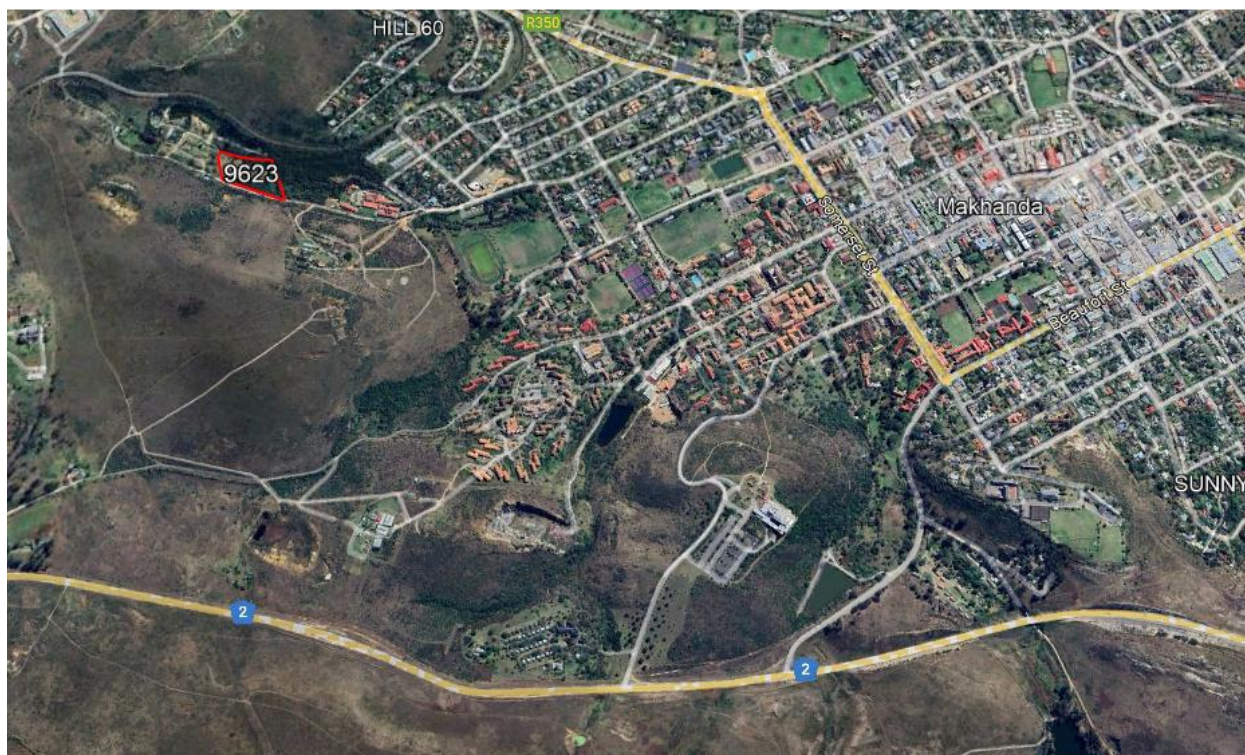


Figure 1: Map showing position of Erf 9623.

## Geology and Palaeontology

Erf 9623 is underlain by strata of the (early to mid Carboniferous) Lake Mentz subgroup of the upper Witteberg Group, the upper portion of the Cape Supergroup (Fig. 2). These strata range in age from about 360 to approximately 330 million years old.

Cape Supergroup rocks represent sediments deposited in the Agulhas Sea, which had opened to the south of the current southern African landmass, in response to early rifting between Africa and South America during the Ordovician period. The Witteberg Group is the uppermost of three subdivisions of the Cape.





**SEDIMENTARY AND VOLCANIC ROCKS**  
**SEDIMENTÊRE EN VULKANIESE GESTEENTES**

	GROUP GROEP	SUBGROUP SUBGROEP	FORMASIE FORMATION	LITHOLOGY LITOLOGIE	
CRETACEOUS KRYT			Grahamstown Grahamstad	Silcrete, kaolinite Silkreet, kaoliniet	Kg
	PERMIAN PERM	ECCA	Fort Brown	Shale Skalie	Pf
Ripon			Sandstone, shale Sandsteen, skalie	Pr	
Collingham Whitehill Prince Albert Prins Albert			Shale, carbonaceous shale, tuff Skalie, koolstofhoudende skalie, tuf	Pp	
			Tillite Tilliet	C-Pd	
CARBONIFEROUS KARBON	DWYKA	KOMMADAGGA LAKE MENTZ MENTZMEER (Ci)	Dirskraal (Cd)	Sandstone / Sandsteen Shale, quartzite, sandstone, diamictite Skalie, kwartsiet, sandsteen, diamiklet	Cd
			Witpoort	Quartzite Kwartsiet	Ci
DEVONIAN DEVOON	WITTEBERG		Weltevrede	Shale, quartzite Skalie, kwartsiet	Dwi
		BOKKEVELD			Dw
					Db

Figure 2: Extract of the Geological Survey map of the Makhanda/Grahamstown area with the position of Erf 9623 marked (above) and closeup (below).

Some plant fossils, including lycopod stem impressions are known from the Lake Mentz Subgroup, though it is best known for horizons rich in ray-finned-fish fossils. Most famous of these is the 'Lake Mentz' site from near the Darlington Dam in the Addo National Park. Here several layers of rock covered in fossil fish of many species have been discovered. These appear to have died suddenly from cold or lack of oxygen. Some shark and acanthodian remains have also been recovered from the Lake Mentz Subgroup.



Figure 3: Figure 7: Layers of ray finned fish fossils from rocks of the Lake Mentz subgroup near Darlington Dam, now in the Greater Addo National Part.



## Site visit

The proposed development area was surveyed on foot on the 15<sup>th</sup> of May 2023. It was established that most of the area intended for development comprises a level area (Figs 5-7) underlain by fill from the adjacent former brickworks (Figs 8-9). This terrace ends abruptly to the eastern extremity of the area (Fig. 10). Where the natural river bank is encountered this also exhibits a thick overburden of alluvium (Fig. 11).



Figure 4: Satellite image of the proposed development area with pictures where photos were taken marked in red.





Figure 5: View north-east from point 1 (Fig. 4).



Figure 6: View eastwards from point 2 (Fig. 4).





Figure 7: View westwards from point 4 (Fig. 4).



Figure 8: Hole near point 2 (Fig. 4), revealing deep fill of bricks and soil.





Figure 9: Deep hole at point 3 (Fig. 4) showing deep fill of soil and bricks.





Figure 10: View of front of filled terrace looking southwards from point 5 (Fig. 4).



Figure 11: View of river bank at point 6 (Fig. 4).



## Conclusions and Recommendations

Although the area is deeply underlain by strata of the Lake Mentz Subgroup, inspection of the site reveals that the area intended for development is a thick terrace created by filling the valley with debris, old bricks and top soil derived from the adjacent former brickworks.

There is therefore no chance that any palaeontological heritage material will be disturbed by the proposed development.

## References

Council for Geosciences (Geological Survey) 1:250 000 Geological Maps, map Sheet 3326 B Grahamstown.

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