BANZAI ENVIRONMENTAL

PALAEONTOLOGICAL DESKTOP ASSESSMENT

PROPOSED DEVELOPMENT OF THE ADAMS BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE, NORTHERN CAPE PROVINCE

July 2023

COMPILED FOR: NCC Environmental Services

Declaration of Independence

I, Elize Butler, declare that –

General declaration:

- I act as the independent palaeontological 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 palaeontological 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 section 38 of the NHRA 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 ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application.
- 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 a palaeontological specialist in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realize that a false declaration is an offense in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

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 Regulations.

PALAEONTOLOGICAL CONSULTANT: Banzai Environmental (Pty) Ltd

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Email: info@banzai-group.com

SIGNATURE: 

This Palaeontological Impact Assessment report has been compiled considering the National Environmental Management Act 1998 (NEMA) and Environmental Impact Regulations 2014 as amended, requirements for specialist reports, Appendix 6, as indicated in the table below.

***Table 1**: NEMA Table*	
Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	**Relevant section in report**
1.(1) (a) (i) Details of the specialist who prepared the report	Page ii and Section 2 of Report – Contact details and company and Appendix A
(ii) The expertise of that person to compile a specialist report including a curriculum vitae	Section 2 – refer to **Appendix A**
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 4 -Methods and TOR
(cA) An indication of the quality and age of base data used for the specialist report	Section 5 – Geological and Palaeontological history
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 8
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Desktop Assessment
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 4 -Methods and TOR
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative;	Section 1 and 9
(g) An identification of any areas to be avoided, including buffers	Section 5 No buffers or areas of sensitivity identified
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 5 – Geological and Palaeontological history

***Table 1**: NEMA Table*	
Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	**Relevant section in report**
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 4.1 – Assumptions and Limitation
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 1and 9
(k) Any mitigation measures for inclusion in the EMPr	Section 1and 9
(l) Any conditions for inclusion in the environmental authorisation	Section 1and 9
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 1and 9
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 1and 9
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and	
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 1and 9
(o) A description of any consultation process that was undertaken during the course of carrying out the study	N/A
(p) A summary and copies if any comments that were received during any consultation process	N/A
(q) Any other information requested by the competent authority.	N/A
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 3 compliance with SAHRA guidelines

EXECUTIVE SUMMARY

Banzai Environmental was appointed by NCC Environmental Services to conduct the Palaeontological Desktop Assessment (PDA) to assess the proposed Adams Battery Energy Storage System (BESS) and associated infrastructure on Portion 0 of Farm Adams 328. Under the National Environmental Management Act 107 of 1998 (NEMA) and to comply with the National Heritage Resources Act (No 25 of 1999, section 38) (NHRA), this PDA is necessary to confirm if fossil material could potentially be present in the approved development area and to evaluate the potential impact of the proposed changes to the development on the Palaeontological Heritage.

The proposed Adams BESS is situated on the southern end of the Kalahari Manganese Field and is basically underlain by Kalahari Group deposits underlain at depth by the Griqualand West Basin rocks (Transvaal Supergroup). Updated Geology (Council of Geosciences, Pretoria) indicates that the study area entirely is underlain by the Kalahari Group. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Kalahari Group is Moderate (Almond and Pether, 2009; Almond *et al*., 2013, Groenewald et al 2014).

The fossil assemblages of the Kalahari are generally very low in diversity and occur over a wide range. These fossils represent terrestrial plants and animals with a close resemblance to living forms. The proposed Adams BESS development is located in the Griqualand West Basin, which consists of clastic sediments as well as volcanic rocks, diamictites and banded iron formations. Algal growth structures, also known as Stromatolites, are fossil structures described from the dolomites of the Transvaal Supergroup. The oxygen atmosphere that we depend on was generated by numerous cyanobacteria photosynthesizing during the Archaean and Proterozoic Era.

If fossil remains are discovered during any phase of construction, either on the surface or exposed by excavations the ECO/site manager in charge of these developments must be informed immediately. These discoveries ought to be secured (preferably *in situ*) and the ECO/site manager ought to alert SAHRA so that appropriate mitigation (documentation and collection) can be undertaken by a professional palaeontologist.

The specialist would need a collection permit from SAHRA. Fossil material must be curated in an approved collection (museum or university) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.

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1 INTRODUCTION

Enel Green Power South Africa (Pty) Ltd proposes the construction and operation of a Battery Energy Storage System (BESS) and associated infrastructure at the authorised in the proximity of the existing Adams Solar Photovoltaic Facility (Environmental Authorisation (EA) Ref No: 12/12/20/2567/1) located in the Joe Morolong Local Municipality in the Northern Cape province (Figure 1-3). The project will include the development of the BESS of up to 4ha in extent to be located adjacent to (within 100m of) the existing Photovoltaic Facility (PV) and associated substation.

Associated infrastructure includes:

i A Substation with a maximum height of - HV busbar up to 10m max and an HV Building up to 4m max.

ii Access road to the BESS (the existing access road will be utilized) branching off the existing roads, and internal roads (up to 8m wide) within the footprint of the BESS, as needed.

iii MV Cabling (underground or overhead) between the BESS and the HV/MV BESS substation.

iv HV Cabling (underground or overhead) between the HV/MV BESS substation and the existing HV substation or for loop in and loop out to the existing HV connection line

v Fencing around the BESS and the substation for increased security measures.

vi Temporary laydown area within the 4ha footprint of the BESS.

vii Possible firebreak around the BESS facility which is to be located within the 4ha BESS footprint.

The general purpose and utilization of a BESS is to save and store excess electrical output as it is generated, allowing for a timed release of electricity to the grid when the capacity is required. BESS systems therefore provide flexibility in the efficient operation of the electricity grid through decoupling of the energy supply and demand.

The preferred location of the BESS facility and all associated infrastructure is proposed to be on Portion 0 of Farm Adams No. 328. An alternative location, to the North of the Adams Solar Park Photovoltaic (PV) Facility, was considered by the project specialists however at the request of the landowner and due to the suitability for the development of a BESS based on the requirement for such to be in close proximity to the approved and currently existing Adams PV Facility and substation to maximize synergies with existing connection infrastructures and to potentially shift the energy injected into the grid from Adams PV Facility and neighbouring generators to hours of higher demand. Only the one site location was considered for this project.

NCC Environmental Services (Pty) Ltd (NCC) was appointed to undertake the required EA process for the proposed BESS development in terms of the regulatory EIA frameworks, including the required public participation processes and development of the BAR and EMPr. Banzai Environmental was in turn appointed to conduct the Palaeontological Desktop Assessment for the project.

Two (2) site/locations were initial considered, one located to the North of existing PV Facility, and the other located to the South (Preferred). Specialists explored both sites however due to the landowner not agreeing with the Northern site it was considered a no-go and not included as an alternative option.

Only the southern site (Preferred Alternative) was therefore considered.

Above mentioned Information was obtained from the Draft BAR prepared by NCC for the project.

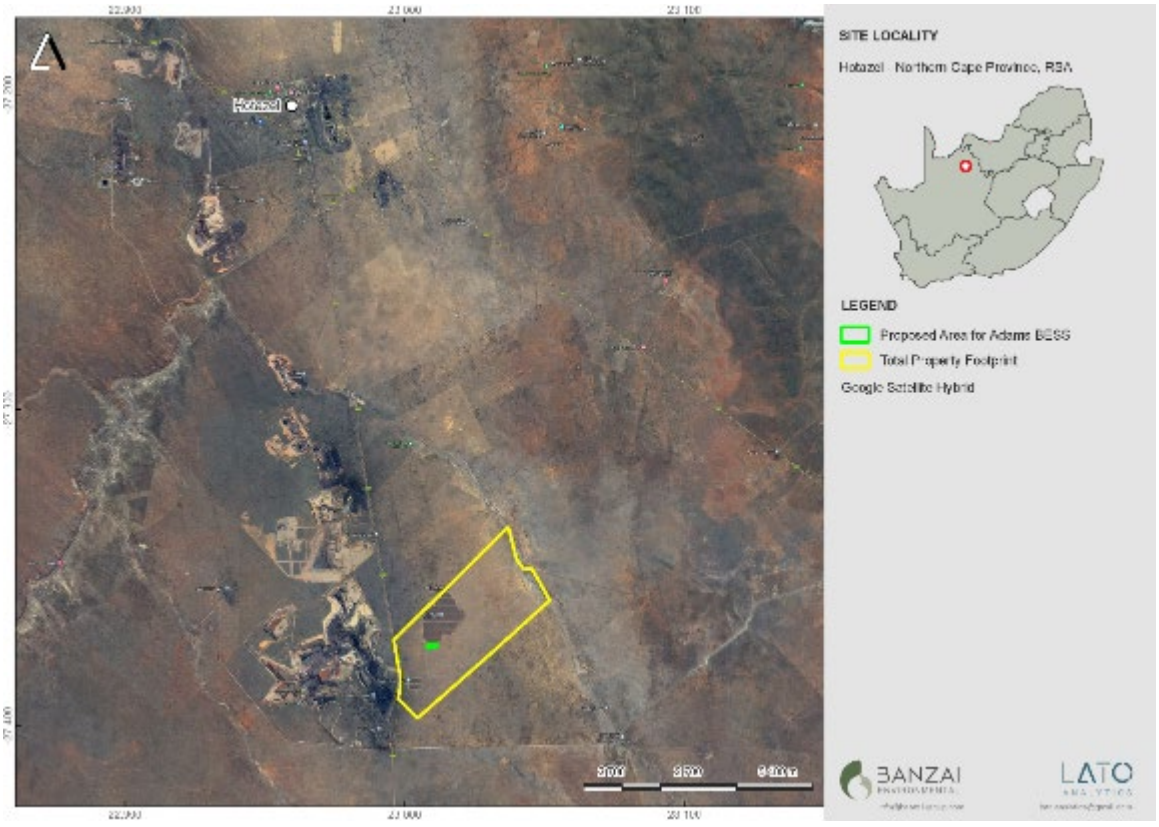

***Figure 1**: Location of the proposed Adams BESS and associated infrastructure on Portion 0 of Farm Adams 328, south of Hotazel in the Northern Cape Province.*

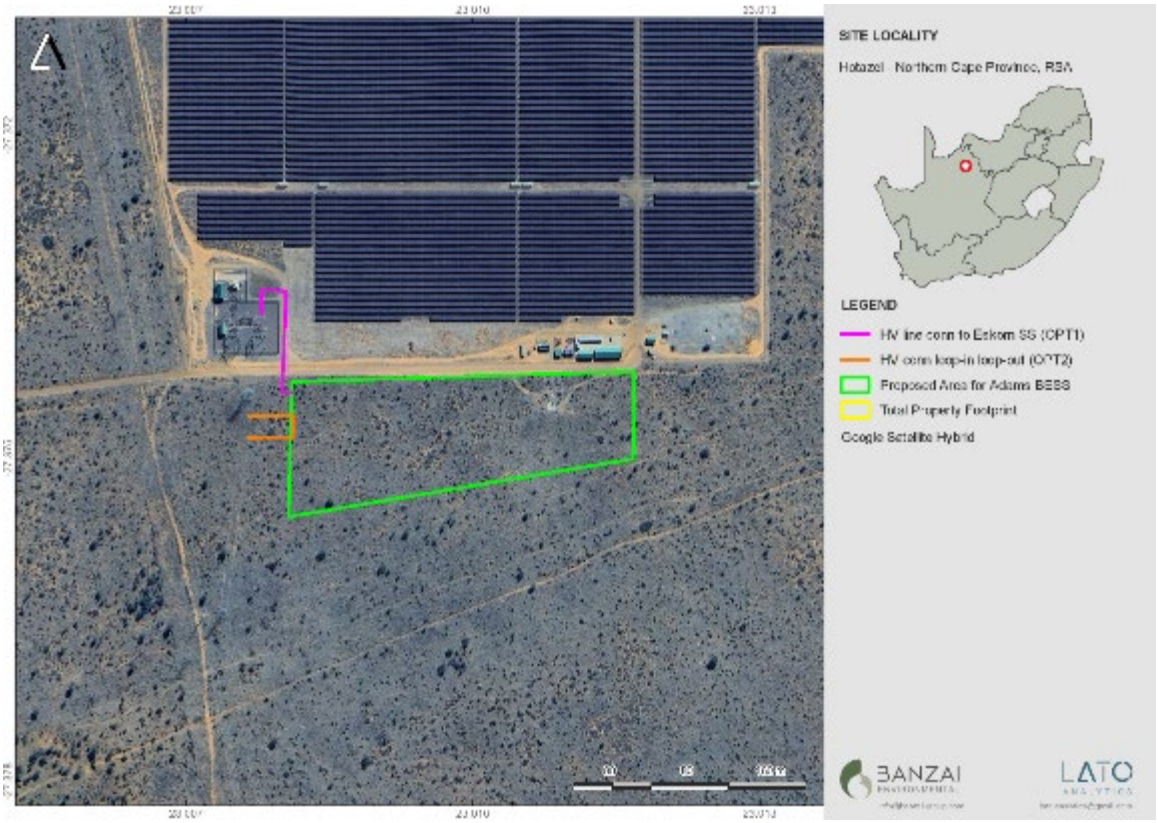

***Figure 2**: Close-up view of the location of the BESS development.*

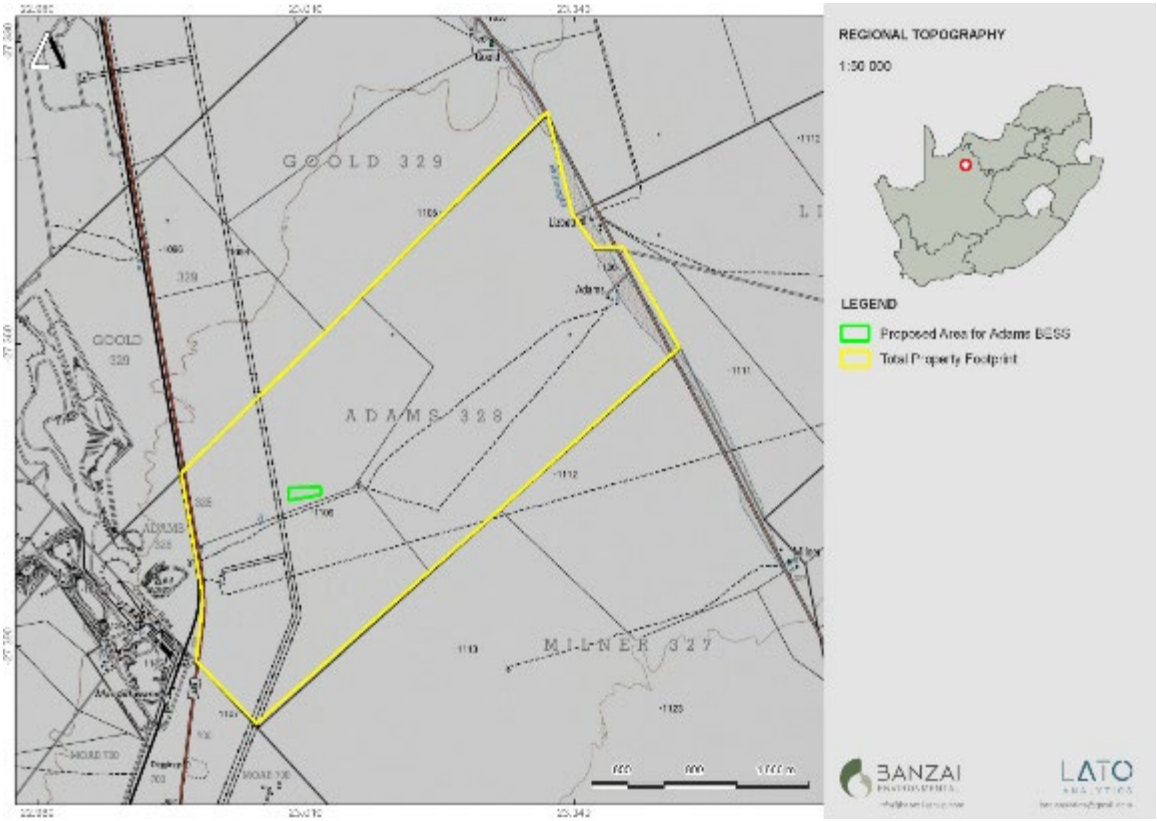

Figure 3: *Regional topography of the proposed Adams BESS development.*

2 SPECIALIST CREDENTIALS

This present study has been conducted by Mrs Elize Butler. She has conducted approximately 500 palaeontological impact assessments for developments in the Free State, KwaZulu-Natal, Eastern, Central, and Northern Cape, Northwest, Gauteng, Limpopo, and Mpumalanga. She has an MSc (*cum laude*) in Zoology (specializing in Palaeontology) from the University of the Free State, South Africa and has been working in Palaeontology for more than twenty-five years. She has experience in locating, collecting, and curating fossils. She has been a member of the Palaeontological Society of South Africa (PSSA) since 2006 and has been conducting PIAs since 2014.

Her *Curriculum Vitae* is included in Appendix 1 of this specialist input report.

3 LEGISLATION

3.1 National Heritage Resources Act (25 of 1999)

Cultural Heritage in South Africa, includes all heritage resources, is protected by the National Heritage Resources Act (Act 25 of 1999) (NHRA). Heritage resources as defined in Section 3 of the Act include "all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens".

The identification, evaluation and assessment of any cultural heritage site, artefact or finds in the South African context is required and governed by the following legislation:

- National Environmental Management Act (NEMA) Act No. 107 of 1998
- National Heritage Resources Act (NHRA) Act No. 25 of 1999
- Minerals and Petroleum Resources Development Act (MPRDA) Act No. 28 of 2002
- Notice 648 of the Government Gazette 45421- general requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified.

The next section in each Act is directly applicable to the identification, assessment, and evaluation of cultural heritage resources.

GNR 982 (Government Gazette 38282, 14 December 2014) promulgated under the National Environmental Management Act (NEMA) Act 107 of 1998

- Basic Assessment Report (BAR) – Regulations 19 and 23
- Environmental Impacts Assessment (EIA) – Regulation 23
- Environmental Scoping Report (ESR) – Regulation 21

- Environmental Management Programme (EMPr) – Regulations 19 and 23

National Heritage Resources Act (NHRA) Act No. 25 of 1999

- Protection of Heritage Resources – Sections 34 to 36
- Heritage Resources Management – Section 38

The NEMA (No. 107 of 1998) states that an integrated EMP should (23:2 (b)) "*…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage*".

In agreement with legislative requirements, EIA rating standards as well as SAHRA policies the following comprehensive and legally compatible PIA report have been compiled.

Palaeontological heritage is exceptional and non-renewable and is protected by the NHRA. Palaeontological resources and may not be unearthed, broken moved, or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA.

This Palaeontological Impact assessment forms part of the Heritage Impact Assessment (HIA) and adhere to the conditions of the Act. According to Section 38 (1), an HIA is required to assess any potential impacts to palaeontological heritage within the development footprint where:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length.
- the construction of a bridge or similar structure exceeding 50 m in length.
- any development or other activity which will change the character of a site—
    - Exceeding 5 000 m^2 in extent; or
    - involving three or more existing erven or subdivisions thereof; or
    - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
    - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
    - the re-zoning of a site exceeding 10 000 m² in extent.
    - or any other category of development provided for in regulations by SAHRA or a Provincial heritage resources authority.

4 METHODS AND TERMS OF REFERENCE

This study forms part of the Heritage Impact Assessment Report. According to the "SAHRA APM Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports" the purpose of the PIA is: 1) to identify the palaeontological importance of the rock formations in the footprint; 2) to evaluate the palaeontological magnitude of the formations; 3) to clarify the impact on fossil heritage; and 4) to suggest how the developer might protect and lessen possible damage to fossil heritage.

The palaeontological status of each rock section is calculated as well as the possible impact of the development on fossil heritage by a) the palaeontological importance of the rocks, b) the type of development and c) the quantity of bedrock removed.

All possible information is consulted to compile a scoping report, and this includes the following: Provisional DFFE Screening Tool, SAHRIS Palaeosensitivity map, all Palaeontological Impact Assessment reports in the same area; aerial photos and Google Earth images, topographical and geological maps as well as scientific articles of specimens from the development area and Assemblage Zones.

When the development footprint has a moderate to high palaeontological sensitivity a field-based assessment is necessary. The desktop and the field survey of the exposed rock determine the impact significance of the planned development and recommendations for further studies or mitigation are made. Destructive impacts on palaeontological heritage usually only occur during the construction phase while the excavations will change the current topography and destruct or permanently seal-in fossils at or below the ground surface. Fossil Heritage will then no longer be accessible for scientific research.

During a site investigation the palaeontologist does not only survey the development but also tries to determine the density and diversity of fossils in the development area. This is confirmed by examining representative exposures of fossiliferous rocks (sedimentary rocks contain fossil heritage whereas igneous and metamorphic rocks are mostly unfossiliferous). Rock exposures that are investigated usually contains a large portion of the stratigraphic unit, can be accessed easily and comprise of unweathered (fresh) exposed rock. These exposures may be natural (rocky outcrops in stream or river banks, cliffs, dongas) but could also be artificial (quarries, open building excavations and even railway and road cuttings). It is common practice for palaeontologist to log well-preserved fossils (GPS, and stratigraphic data) during field assessment studies.

Mitigation usually precedes construction or may occur during construction when potentially fossiliferous bedrock is exposed. Mitigation comprises the collection and recording of fossils. Preceding excavation of any fossils, a permit from SAHRA must be obtained and the material will have to be housed in a permitted institution. When mitigation is applied correctly, a positive impact is possible as knowledge of local palaeontological heritage may be increased.

The terms of reference of a PIA are as follows:

General Requirements:

- Adherence to the content requirements for specialist reports in accordance with Appendix 6 of the EIA Regulations 2014, as amended;
- Adherence to all applicable best practice recommendations, appropriate legislation and authority requirements;
- Submit a comprehensive overview of all appropriate legislation, guidelines;
- Description of the proposed project and provide information regarding the developer and consultant who commissioned the study,
- Description and location of the proposed development and provide geological and topographical maps
- Provide palaeontological and geological history of the affected area.
- Identification of sensitive areas to be avoided (providing shapefiles/kmls) in the proposed development;
- Evaluation of the significance of the planned development during the Pre-construction, Construction, Operation, Decommissioning Phases and Cumulative impacts. Potential impacts should be rated in terms of the direct, indirect and cumulative:
    a. Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity.
    b. Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity.
    c. Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities.
- Fair assessment of alternatives (infrastructure alternatives have been provided):
- Recommend mitigation measures to minimise the impact of the proposed development; and
- Implications of specialist findings for the proposed development (such as permits, licenses etc).

4.1 Assumptions and Limitations

The focal point of geological maps is the geology of the area and the sheet explanations of the Geological Maps were not meant to focus on palaeontological heritage. Many inaccessible regions of South Africa have never been reviewed by palaeontologists and data is generally based on aerial photographs alone. Locality and geological information of museums and universities databases have not been kept up to date or data collected in the past have not always been accurately documented.

Comparable Assemblage Zones in other areas is also used to provide information on the existence of fossils in an area which has not documented in the past. When using similar Assemblage Zones and geological formations for Desktop studies it is generally assumed that exposed fossil heritage is present within the footprint. A field-assessment will thus improve the accuracy of the desktop assessment.

5 GEOLOGICAL AND PALAEONTOLOGICAL HISTORY

The proposed Adams BESS development is depicted on the 1: 250 000 Kuruman 2722 Geological Map (1995) (Council of Geosciences, Pretoria) (Figure 4; Table 4). The Adams BESS study area is mantled by the Kalahari Group (Qg/Qs, beige). Updated Geology (Council of Geosciences, Pretoria) indicates that the study area is entirely underlain by the Kalahari Group (Figure 5). The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) (Figure 6) indicates that the Palaeontological Sensitivity of the Kalahari Group is Moderate (Almond and Pether, 2009; Almond *et al*., 2013, Groenewald et al 2014).

The Cenozoic sands and calcretes of the Kalahari Group range in thickness from a few metres to more than 180m (Partridge et al., 2006). The youngest formation of the Kalahari group is the Gordonia Formation which is generally termed Kalahari sand and comprises of red aeolian sands that covers most of the Kalahari Group sediments. The pan sediments of the area originated from the Gordonia Formation and contains white to brown fine-grained silts, sands and clays. Some of the pans consist of clayey material mixed with evaporates that shows seasonal effects of shallow saline groundwaters. Quaternary alluvium, aolian sands, surface limestone, silcrete, and terrace gravels are also included in the Kalahari Group (Kent 1980). Partridge *et al*., (2006) describes numerous types of superficial deposits of Late Caenozoic age (Miocene to Pliocene to Recent) throughout the Karoo Basin. Sands and gravel in the development footprint h as a possible fluvial origin.

The fossil assemblages of the Kalahari are generally very low in diversity and occur over a wide range and thus the palaeontological diversity of this Group is low. These fossils represent terrestrial plants and animals with a close resemblance to living forms. Fossil assemblages include bivalves, diatoms, gastropod shells, ostracods and trace fossils. The palaeontology of the superficial deposits has been relatively neglected in the past. Late Cenozoic calcrete may comprise of bones, horn corns as well as mammalian teeth. Tortoise remains have also been uncovered as well as trace fossils which includes termite and insect's burrows and mammalian trackways. Amphibian and crocodile remains have been uncovered where the depositional settings in the past were wetter.

Hotazel is located in the Griqualand West Basin, Northern Cape Province which consists of clastic sediments as well as volcanic rocks, diamictites and banded iron formations (Table 6-7). Manganese deposits is present in the Hotazel Formation, upper Postmasburg Group (approximately 2222 Ma). The Vryburg Formation is the basal unit and overlies unconformably the granite and rocks of the Ventersdorp Supergroup. The Campbell Group overlies the Vryburg Formation and consists of the Schmidtsdrif Formation and the upper Ghaap Plateau Formation. The Griquatown Group is divided into two formations namely the Asbestos Hills and Koegas Formations. The Gamagara Formation follows and is positioned on the Maremane Anticline and is overlain by the Makganyene Formation. The Cox Group comprises of the lower Ongeluk Formation and the upper Voëlwater Formation. The

Ongeluk Formation was deposited under water and reaches a thickness of between 400 and 900 m. This Formation is basal and is mainly volcanic (Visser 1989). Manganese is present in the upper Voëlwater Formation (Snyman 1996). According to Kent (1980) and Snyman (1996) Griqualand West Basin attains a maximum thickness of 4500 m.

Algal growth structures, also known as Stromatolites, are fossil structures described from the dolomites of the Transvaal Supergroup (Figure 7). Stromatolites are layered mounds, columns and sheet-like sedimentary rocks. These structures were originally formed by the growth of layer upon layer of cyanobacteria, a single-celled photosynthesizing microbe. Cyanobacteria are prokaryotic cells (simplest form of modern carbon-bases life). Stromatolites are first found in Precambrian rocks and are known as the earliest known fossils. The oxygen atmosphere that we depend on was generated by numerous cyanobacteria photosynthesizing during the Archaean and Proterozoic Era.

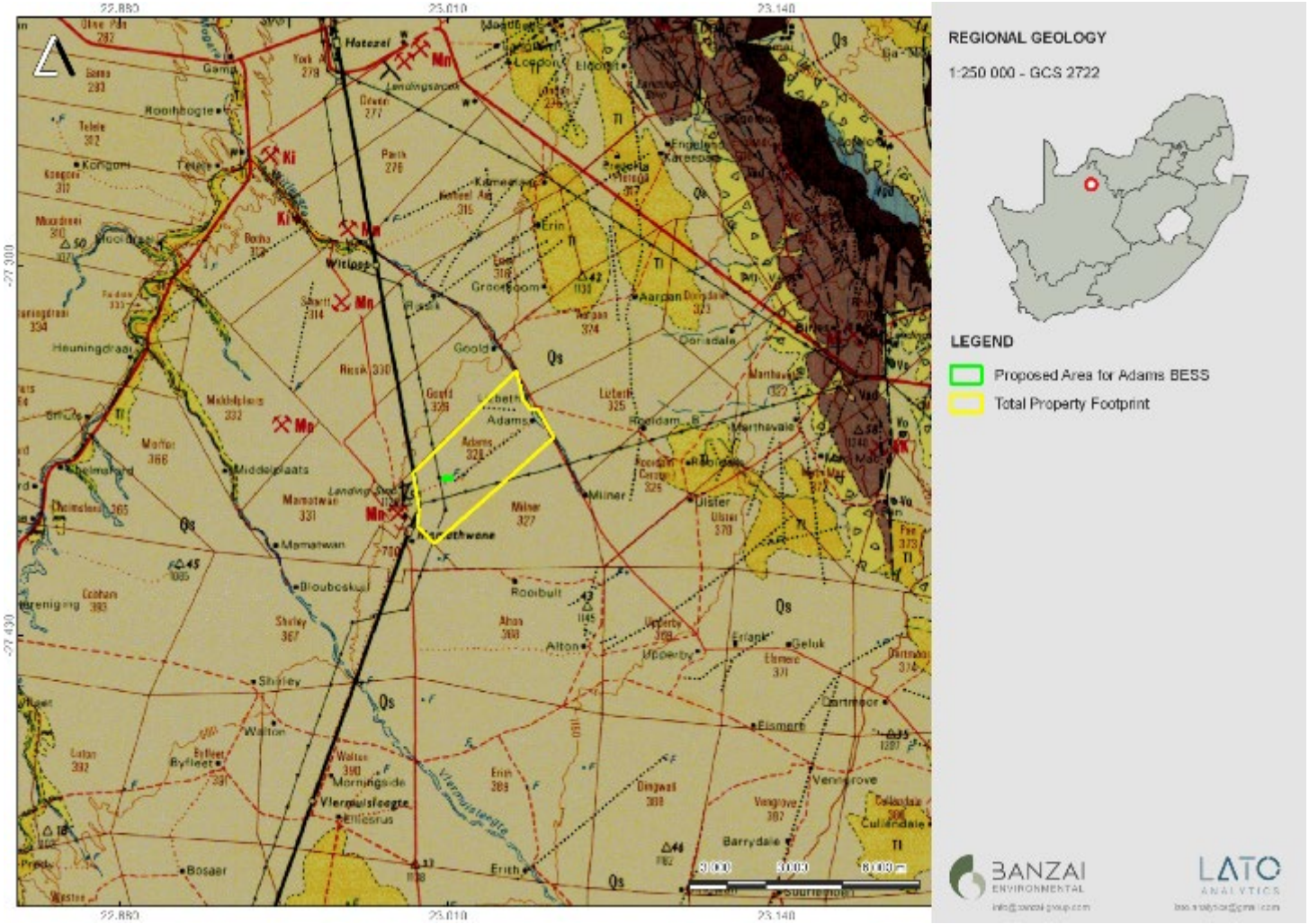

***Figure 4**: Extract of the 1:250 000 Kuruman 2722 (1979) geological map (Council for Geoscience, Pretoria) indicates that the study area near Hotazel is underlain by Cenozoic Superficial sands.*

***Table 2**: Legend of the 2626 West-Rand (1986) Geological Map (Council for Geoscience, Pretoria) Relevant sediments are indicated in red squares.*

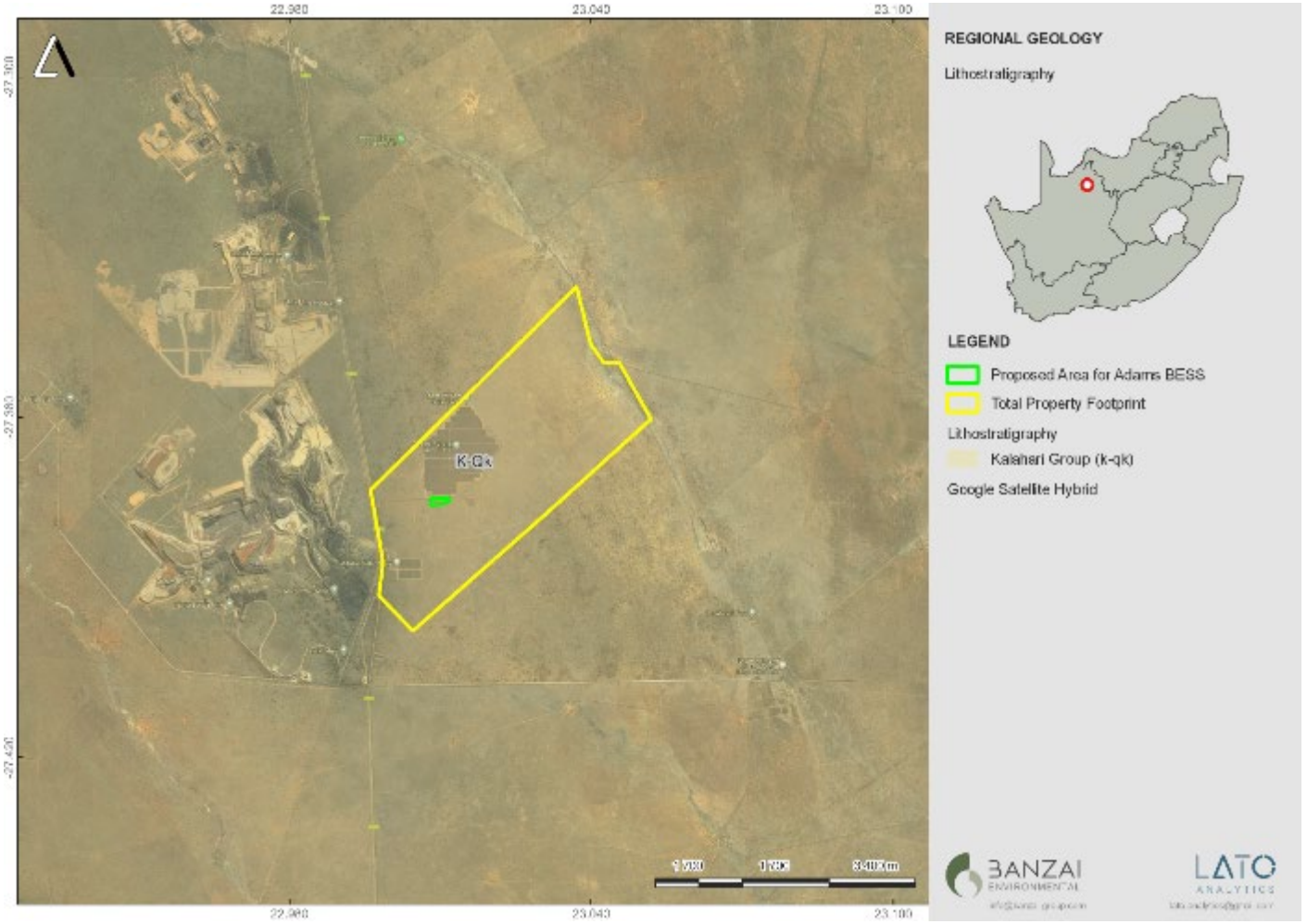

Figure 5: *Updated Geology (Council of Geosciences, Pretoria) of the proposed study area indicates that the development is underlain by the Kalahari Group.*

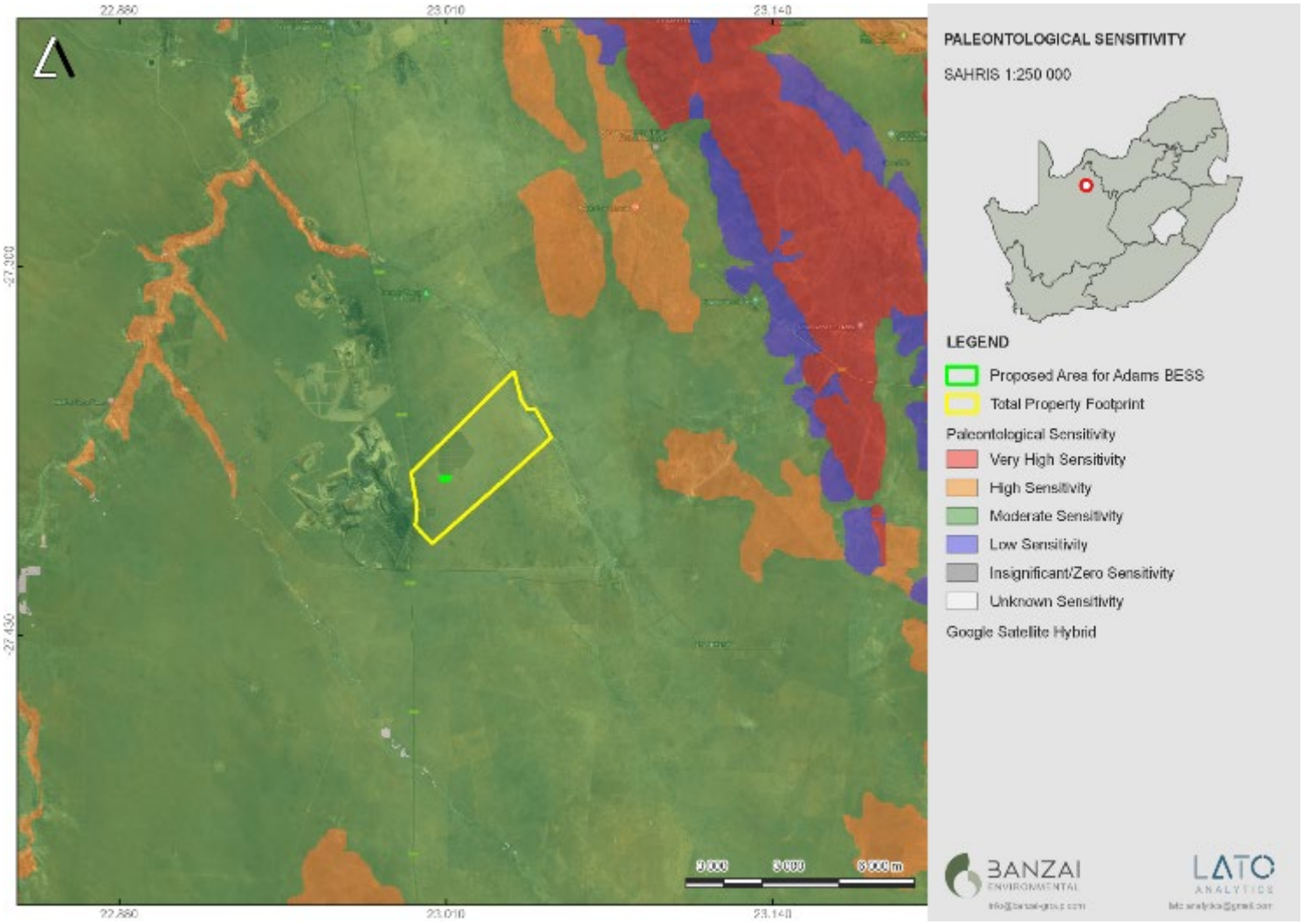

Figure 6: *Extract of the SAHRIS PalaeoMap (Council of Geosciences) indicates that the Palaeontological Sensitivity of the study area is Moderate (green).*

***Table 3**: SAHRIS Palaeosensitivity ratings table. The relevant sensitivities are highlighted.*

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study; a field assessment is likely
GREEN	**MODERATE**	**Desktop study is required**
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

***Figure 7**: Example of a well-preserved stromatolite from the Archaean Era.*

<table>
<tr><td colspan="5">Table 4: Generalised Stratigraphic Column and Associated Geology.</td></tr>
<tr><td colspan="3">Stratigraphy</td><td colspan="2">Lithology</td></tr>
<tr><td colspan="3">Kalahari Formation (Qs and Q)</td><td colspan="2">Clay, limestone and sand</td></tr>
<tr><td rowspan="8">Transvaal Supergroup</td><td rowspan="8">Postmasburg Group</td><td rowspan="8">Voëlwater Subgroup</td><td rowspan="7">Hotazel Formation</td><td>Iron Formation</td></tr>
<tr><td>Upper Mn ore body</td></tr>
<tr><td>Middle Mn ore body</td></tr>
<tr><td>Iron Formation</td></tr>
<tr><td>Lower Mn ore body</td></tr>
<tr><td>Mn-rich iron formation</td></tr>
<tr><td>Iron Formation</td></tr>
<tr><td>Ongeluk Formation</td><td>Basaltic lava</td></tr>
</table>

Several other Palaeontological studies have been undertaken by other Palaeontological specialists and include: Almond 2010, 2012a, 2012b, 2013a, 2013b, 2016; Butler 2017a, 2017b; Butler 2019a, 2019b, 2019c, 2019d, 2019e; Bamford, 2017; Fourie 2018; Groenewald 2013, 2014. These studies have been listed in the references.

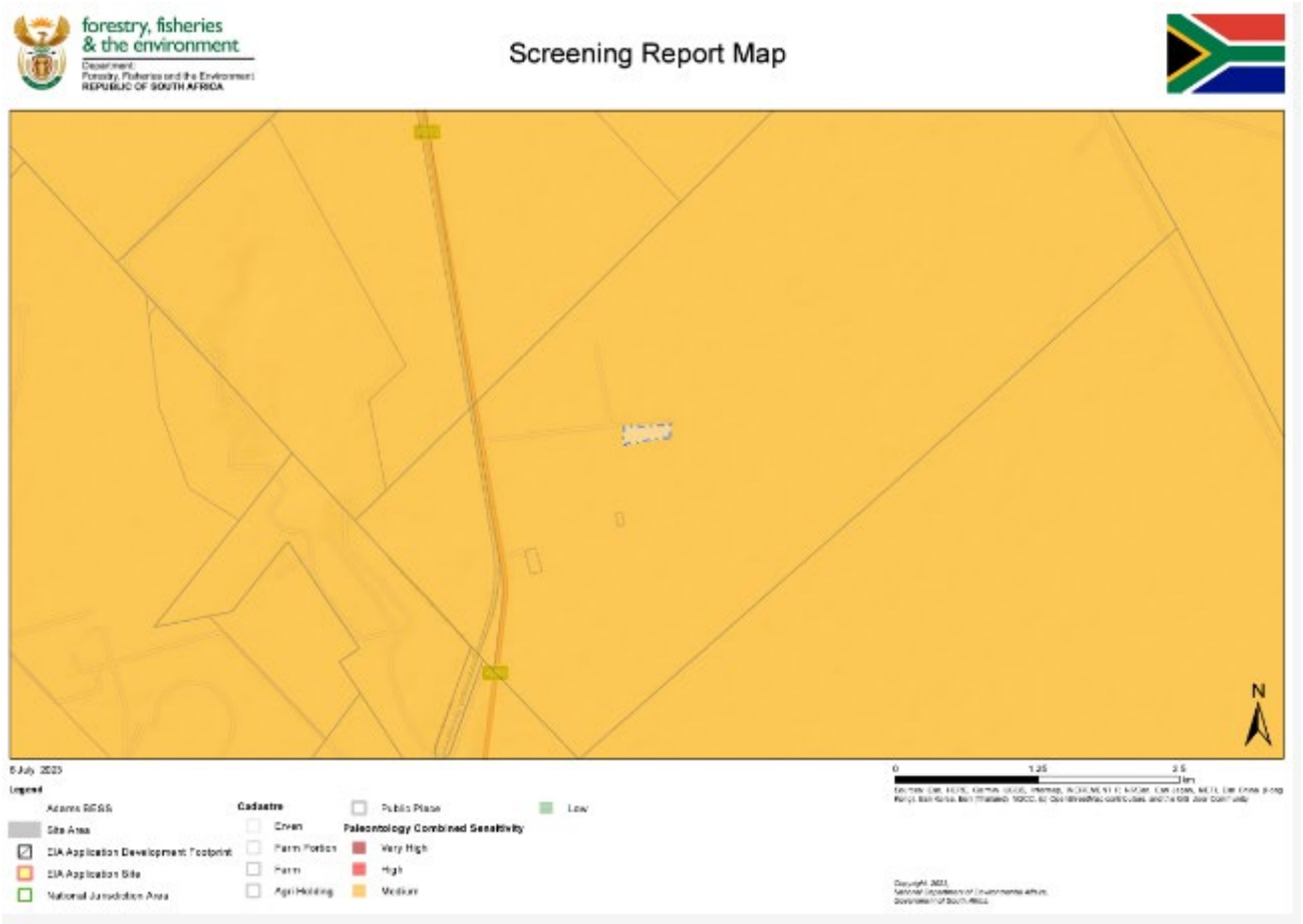

***Figure 8**: Palaeontological Sensitivity of the Adams BESS study site by the National Environmental Web-bases Screening Tool.*

The National Environmental Web-based Screening Tool indicates that the Palaeontological Sensitivity of the Adams BESS study area is Moderate (orange).

6 GEOGRAPHICAL LOCATION OF THE SITE

The Adams BESS and associated infrastructure is located to the east of the R380 about 33 km south of Hotazel in the John Taolo Gaetsewe District Municipality and Joe Morolong Local Municipality of the Northern Cape Province.

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7 ADDITIONAL INFORMATION CONSULTED

In compiling this report the following sources were consulted:

- Geological map 1:100 000, Geology of the Republic of South Africa (Visser 1984).
- A Google Earth map with polygons of the proposed development was obtained from Milnex cc.
- 1: 250 000 Kuruman 2722 (1979) Geological Map (Council of Geosciences, Pretoria)
- Updated Geology produced by the Council of Geosciences (Pretoria).

8 IMPACT ASSESSMENT METHODOLOGY

Impact assessment must take account of the nature, scale and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the following project phases:

• Construction.
• Operation; and
• Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact, the following criteria is used:

Table 5: The rating system

NATURE		
The Nature of the Impact is the possible destruction of fossil heritage		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.

3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur

		in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/ component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.

4	Irreversible	The impact is irreversible, and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects
SIGNIFICANCE		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: (**Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity = X.** The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.		

Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive

8.1 Summary of Impact Tables

Loss of fossil heritage will be a negative impact. The expected duration of the impact is assessed as potentially permanent too long term. In the absence of mitigation procedures (should fossil material be present within the affected area) the damage or destruction of any palaeontological materials will be permanent. Impacts on palaeontological heritage during the construction phase could potentially occur but are regarded as having a low probability. The significance of the impact occurring will be low.

Table 6: Summary of Impact Tables

Site	Probability	Duration	Magnitude	Reversibility	Irreplicable Loss	Cumulative Effect	Impact Significance
1	2	4	1	4	4	2	17

9 FINDINGS AND RECOMMENDATIONS

The proposed Adams BESS is situated on the southern end of the Kalahari Manganese Field and is basically underlain by Kalahari Group deposits underlain at depth by the Griqualand West Basin rocks (Transvaal Supergroup). Updated Geology (Council of Geosciences, Pretoria) indicates that the study area entirely is underlain by the Kalahari Group. The PalaeoMap of the South African Heritage Resources Information System (SAHRIS) indicates that the Palaeontological Sensitivity of the Kalahari Group is Moderate (Almond and Pether, 2009; Almond *et al*., 2013, Groenewald et al 2014).

The fossil assemblages of the Kalahari are generally very low in diversity and occur over a wide range. These fossils represent terrestrial plants and animals with a close resemblance to living forms. The proposed Adams BESS development is located in the Griqualand West Basin, which consists of clastic sediments as well as volcanic rocks, diamictites and banded iron formations. Algal growth structures, also known as Stromatolites, are fossil structures described from the dolomites of the Transvaal Supergroup. The oxygen atmosphere that we depend on was generated by numerous cyanobacteria photosynthesizing during the Archaean and Proterozoic Era.

If fossil remains are discovered during any phase of construction, either on the surface or exposed by excavations the ECO/site manager in charge of these developments must be informed immediately. These discoveries ought to be secured (preferably *in situ*) and the ECO/site manager ought to alert SAHRA so that appropriate mitigation (documentation and collection) can be undertaken by a professional palaeontologist.

The specialist would need a collection permit from SAHRA. Fossil material must be curated in an approved collection (museum or university) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.

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10 BIBLIOGRAPHY

Almond, 2013b. Proposed new railway compilation yard at Mamatwan near Hotazel, John Taolo Gaetsewe District Municipality, Northern Cape. Palaeontological specialist assessment: combined desktop and field-based study, 29 pp. Natura Viva cc, Cape Town.
Almond, J., Pether, J, and Groenewald, G. 2013. South African National Fossil Sensitivity Map. SAHRA and Council for Geosciences. Schweitzer *et al.* (1995) pp p288
Almond, J.E. 2010. Prospecting application for iron ore and manganese between Sishen and Postmasburg, Northern Cape Province: farms Jenkins 562, Marokwa 672, Thaakwaneng 675, Driehoekspan 435, Doringpan 445 and Macarthy 559: desktop palaeontological assessment, 20 pp. Natura Viva cc, Cape Town.
Almond, J.E. 2012a. Proposed westerly extension of Sishen Iron Ore Mine near Kathu, Kalagadi District Municipality, Northern Cape. Palaeontological specialist study" desktop study, 18 pp. Natura Viva cc, Cape Town.
Almond, J.E. 2012b. Proposed 16 Mtpa expansion of Transnet's existing manganese ore export railway line & associated infrastructure between Hotazel and the port of Ngqura, Northern & Eastern Cape. Part 1: Hotazel to Kimberley, Northern Cape. Palaeontological assessment desktop study, 28 pp.
Almond, J.E. 2013a. Proposed 16 Mtpa expansion of Transnet's existing manganese ore export railway line & associated infrastructure between Hotazel and the Port of Ngqura, Northern & Eastern Cape. Part 1: Hotazel to Kimberley, Northern Cape. Palaeontological specialist assessment: combined desktop and field-based study, 85 pp. Natura Viva cc, Cape Town.
Almond, J.E. 2016. Proposed Hotazel Solar Park on the Farm Hotazel Annex Langdon (f278/0), Joe Morolong Local Municipality, Northern Cape. Recommended exemption from further palaeontological studies, 12 pp. Natura Viva cc, Cape Town.
Almond, J.E. and Pether, J. 2009. SAHRA Palaeotechnical Report: Palaeontological Heritage of the Northern Cape Province. South African Heritage Resources Agency, Pp 1-143.
Almond, J.E. And Pether, J. 2009. SAHRA Palaeotechnical Report: Palaeontological Heritage of the Northern Cape Province. South African Heritage Resources Agency, Pp 1-143.
Bamford, M. 2017. Palaeontological Impact Assessment for the proposed new underground Khwara Manganese mine near Hotazel, Northern Cape Province
Banzai Environmental. 2017. Palaeontological Desktop Assessment for the Proposed Changes to Operations at the UMK Mine near Hotazel, in the John Toala Gaetsewe Distrcit Municipality in the Northern Cape Province.
Barnosky, A.D. 2005. Effects of Quaternary Climatic Change on Speciation in Mammals. *Journal of Mammalian Evolution.* 2005(12):247-264, June
Butler, E. 2017 (Updated 2019). Palaeontological Desktop Assessment for the Establishment of a Diesel Farm and a Haul Road for the Tshipi Borwa Mine Near Hotazel, in the John Toalo Gaetsewe District Municipality in the Northern Cape Province
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed changes to operations at the UMK Mine Near Hotazel, in the John Taolo Gaetsewe District Municipality in the Northern Cape Province.
Fourie, W and Butler, E. 2019. Exemption Letter and reply. An 18m wide (on surface) boundary is located between the MMT and the Tshipi Borwa Mine. Tshipi and MMT have approval to mine the 18m wide boundary pillar. Additional capacity is required to store waste rock generated as part of mining the boundary pillar. To cater for the additional storage, it is proposed that the Mamatwan Sinterfontein and the Tshipi Eastern waste rock dumps are merged to fill the void between the two dumps. MMT is proposing on amending their approved EMP to cater for the merging of the waste rock dumps - Case id: 13652
Butler, E. 2019. Palaeontological Desktop Assessment of the proposed updated Environmental Management Programme (EMPr) for the Assmang (Pty) Ltd Black Rock Mining Operations, Hotazel, Northern Cape
Butler, E. 2019. Palaeontological Desktop Assessment for the Proposed Waste Rock Dump Project at Tshipi Borwa Mine, near Hotazel, Northern Cape Province
Butler, E. 2019. Palaeontological Desktop Assessment of the proposed updated Environmental Management Programme (EMPr) for the Assmang (Pty) Ltd Black Rock Mining Operations, Hotazel, Northern Cape
Butler, E. 2019. Palaeontological Exemption Letter of the proposed 2.5ml Process Water Reservoir at Gloria Mine, Black Rock, Hotazel, Northern Cape
Butler, E. 2019. Palaeontological Desktop Assessment for the Establishment of a Super Fines Storage Facility at Gloria Mine, Black Rock Mine Operations, Hotazel, Northern Cape.
De Wit, M.C.J. Post-Gondwana drainage and the development of diamond placers in western South Africa. Economic Geology, vol. 94, 1999. pp. 721–740.
Du Toit, A. 1954. The geology of South Africa. xii + 611pp, 41 pls. Oliver & Boyd, Edinburg.

Fourie. H.C. 2018. East Manganese: Phase 1 Palaeontological Impact Assessment on the farm East 270 near Hotazel Gamagara Local Municipalities, John Taolo Gaetsewe District Municipality, Northern Cape Province.
Gresse, P. G.,2003. Journal of The South African Institute of Mining and Metallurgy:535-538
Groenewald, G. 2013. Palaeontological desktop assessment of the Farm Gloria 266, near Hotazel town in the John Toalo Gaetsewe District Municipality in the Northern Cape Province, 9 pp. PGS Heritage & Grave Relocation Consultants.
Groenewald, G. and Groenewald, D. 2014. SAHRA Palaeotechnical Report: Palaeontological Heritage of the North West Province. South African Heritage Resources Agency, Pp 1-20.
Groenewald, G., 2014. Palaeontological Impact Assessment for a Manganese mine. Kudumane Manganese Resources (Pty) Ltd.
Haddon, I.G. 2000. Kalahari Group sediments. In: Partridge, T.C. & Maud, R.R. (Eds.) The Cenozoic of southern Africa, pp. 173-181. Oxford University Press, Oxford.
Hunter, D.R., Johnson, M.R., Anhaeusser, C. R. And Thomas, R.J. 2006. Introduction. (*In*: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J. (Eds), *The Geology of South Africa*. Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria, 585-604.)
Kent, L.E. 1980. Part 1: Lithostratigraphy of the Republic of South Africa, South West Africa/Namibia and the Republics of Bophuthatswana, Transkei and Venda. SACS, Council for Geosciences, pp. 535-574.
Macrae, C. 1999. Life etched in stone. Fossils of South Africa. 305 pp. The Geological
Macrae, C. 1999. Life etched in stone. Fossils of South Africa. 305 pp. The Geological
Maud, R. 2012. Macroscale Geomorphic Evolution. (*In* Holmes, P. and Meadows, M. Southern Africa Geomorphology, New trends, and new directions. Bloemfontein: Sun Press. p. 7- 21)
McCarthy, T. & RUBIDGE, B. 2005. The story of Earth and life: a southern African perspective on a 4.6-billion-year journey. 334pp. Struik, Cape Town.
Moen, H.F.G. 1979. Geological Map 2722 of Kuruman 1:250 000. South African Committee for Stratigraphy, Council for Geoscience, Pretoria.
Moore, A.E. And Blenkinsop, T. The role of mantle plumes in the development of continental-scale drainage patterns: The southern African example revisited. South African Journal of Geology, vol. 105, 2002. pp. 353–360
Moore, A.E. and Larkin, P.A. Drainage evolution in south-central Africa since the breakup of Gondwana. South African Journal of Geology, vol. 104, 2001. pp. 47–68.
Partridge, T.C., Botha, G.A. & Haddon, I.G. 2006. Cenozoic deposits of the interior. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) The geology of South Africa, pp. 585-604. Geological Society of South Africa, Marshalltown.
SG 2.2 SAHRA APMHOB Guidelines, 2012. Minimum standards for palaeontological components of Heritage Impact Assessment Reports, Pp 1-15.
SG 2.2 SAHRA APMHOB Guidelines, 2012. Minimum standards for palaeontological components of Heritage Impact Assessment Reports, Pp 1-15.
Society of South Africa, Johannesburg.
Thomas, D.S.G. & Shaw, P.A. 1991. The Kalahari environment, 284 pp. Cambridge University Press
Tooth, S. Brandt, D., Hancox P.J. And McCarthy, T. S. 2004. Geological controls on alluvial river behavior: a comparative study of three rivers in the South African Highveld. *Journal of African Earth Sciences,* 38(2004): 79-97, 15 Aug.
Van Der Merwe, S.J. 1997. Basin Analysis of the Kalahari Manganese Basin. Unpublished MSc Thesis, UOFS.
Visser, D.J.L. (ed) 1984. Geological Map of South Africa 1:100 000. South African Committee for Stratigraphy, Council for Geoscience, Pretoria.
Visser, D.J.L. (ed) 1989. *Toeligting: Geologiese kaart (1:100 000). Die Geologie van die Republieke van Suid Afrika, Transkei, Bophuthatswana, Venda, Ciskei en die Koningkryke van Lesotho en Swaziland*. South African Committee for Stratigraphy. Council for Geoscience, Pretoria, Pp 494.

APPENDIX A CURRICULUM VITAE

PROFESSION:	Palaeontologist
YEARS' EXPERIENCE:	30 years in Palaeontology
EDUCATION:	B.Sc Botany and Zoology, 1988
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	M. Sc. *Cum laude* (Zoology), 2009
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Dissertation title: The postcranial skeleton of the Early Triassic non-mammalian Cynodont *Galesaurus planiceps*: implications for biology and lifestyle

MEMBERSHIP

Palaeontological Society of South Africa (PSSA) 2006-currently

EMPLOYMENT HISTORY

Part time Laboratory assistant	Department of Zoology & Entomology University of the Free State Zoology 1989-1992
Part time laboratory assistant	Department of Virology University of the Free State Zoology 1992

Research Assistant	National Museum, Bloemfontein 1993 – 1997
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TECHNICAL REPORTS

Butler, E. 2014. Palaeontological Impact Assessment of the proposed development of private dwellings on portion 5 of farm 304 Matjesfontein Keurboomstrand, Knysna District, Western Cape Province. Bloemfontein.
Butler, E. 2014. Palaeontological Impact Assessment for the proposed upgrade of existing water supply infrastructure at Noupoort, Northern Cape Province. 2014. Bloemfontein.
Butler, E. 2015. Palaeontological impact assessment of the proposed consolidation, re-division, and development of 250 serviced erven in Nieu-Bethesda, Camdeboo local municipality, Eastern Cape. Bloemfontein.
Butler, E. 2015. Palaeontological impact assessment of the proposed mixed land developments at Rooikraal 454, Vrede, Free State. Bloemfontein.
Butler, E. 2015. Palaeontological exemption report of the proposed truck stop development at Palmiet 585, Vrede, Free State. Bloemfontein.
Butler, E. 2015. Palaeontological impact assessment of the proposed Orange Grove 3500 residential development, Buffalo City Metropolitan Municipality East London, Eastern Cape. Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed Gonubie residential development, Buffalo City Metropolitan Municipality East London, Eastern Cape Province. Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed Ficksburg raw water pipeline. Bloemfontein.
Butler, E. 2015. Palaeontological Heritage Impact Assessment report on the establishment of the 65 mw Majuba Solar Photovoltaic facility and associated infrastructure on portion 1, 2 and 6 of the farm Witkoppies 81 HS, Mpumalanga Province. Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed township establishment on the remainder of portion 6 and 7 of the farm Sunnyside 2620, Bloemfontein, Mangaung metropolitan municipality, Free State, Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed Woodhouse 1 photovoltaic solar energy facilities and associated infrastructure on the farm Woodhouse729, near Vryburg, North West Province. Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed Woodhouse 2 photovoltaic solar energy facilities and associated infrastructure on the farm Woodhouse 729, near Vryburg, North West Province. Bloemfontein.
Butler, E. 2015.Palaeontological Impact Assessment of the proposed Orkney solar energy farm and associated infrastructure on the remaining extent of Portions 7 and 21 of the farm Wolvehuis 114, near Orkney, North West Province. Bloemfontein.
Butler, E. 2015. Palaeontological Impact Assessment of the proposed Spectra foods broiler houses and abattoir on the farm Maiden Manor 170 and Ashby Manor 171, Lukhanji Municipality, Queenstown, Eastern Cape Province. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed construction of the 150 MW Noupoort concentrated solar power facility and associated infrastructure on portion 1 and 4 of the farm Carolus Poort 167 and the remainder of Farm 207, near Noupoort, Northern Cape. Prepared for Savannah Environmental. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed Woodhouse 1 Photovoltaic Solar Energy facility and associated infrastructure on the farm Woodhouse 729, near Vryburg, North West Province. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed Woodhouse 2 Photovoltaic Solar Energy facility and associated infrastructure on the farm Woodhouse 729, near Vryburg, North West Province. Bloemfontein.
Butler, E. 2016. Proposed 132kV overhead power line and switchyard station for the authorised Solis Power 1 CSP project near Upington, Northern Cape. Bloemfontein.

Butler, E. 2016. Palaeontological Impact Assessment of the proposed Senqu Pedestrian Bridges in Ward 5 of Senqu Local Municipality, Eastern Cape Province. Bloemfontein.
Butler, E. 2016. Recommendation from further Palaeontological Studies: Proposed Construction of the Modderfontein Filling Station on Erf 28 Portion 30, Founders Hill, City of Johannesburg, Gauteng Province. Bloemfontein.
Butler, E. 2016. Recommendation from further Palaeontological Studies: Proposed Construction of the Modikwa Filling Station on a Portion of Portion 2 of Mooihoek 255 Kt, Greater Tubatse Local Municipality, Limpopo Province. Bloemfontein.
Butler, E. 2016. Recommendation from further Palaeontological Studies: Proposed Construction of the Heidedal filling station on Erf 16603, Heidedal Extension 24, Mangaung Local Municipality, Bloemfontein, Free State Province. Bloemfontein.
Butler, E. 2016. Recommended Exemption from further Palaeontological studies: Proposed Construction of the Gunstfontein Switching Station, 132kv Overhead Power Line (Single or Double Circuit) and ancillary infrastructure for the Gunstfontein Wind Farm Near Sutherland, Northern Cape Province. Savannah South Africa. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed Galla Hills Quarry on the remainder of the farm Roode Krantz 203, in the Lukhanji Municipality, division of Queenstown, Eastern Cape Province. Bloemfontein.
Butler, E. 2016. Chris Hani District Municipality Cluster 9 water backlog project phases 3a and 3b: Palaeontology inspection at Tsomo WTW. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed construction of the 150 MW Noupoort concentrated solar power facility and associated infrastructure on portion 1 and 4 of the farm Carolus Poort 167 and the remainder of Farm 207, near Noupoort, Northern Cape. Savannah South Africa. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed upgrading of the main road MR450 (R335) from Motherwell to Addo within the Nelson Mandela Bay Municipality and Sunday's River valley Local Municipality, Eastern Cape Province. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment construction of the proposed Metals Industrial Cluster and associated infrastructure near Kuruman, Northern Cape Province. Savannah South Africa. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment for the proposed construction of up to a 132kv power line and associated infrastructure for the proposed Kalkaar Solar Thermal Power Plant near Kimberley, Free State and Northern Cape Provinces. PGS Heritage. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment of the proposed development of two burrow pits (DR02625 and DR02614) in the Enoch Mgijima Municipality, Chris Hani District, Eastern Cape.
Butler, E. 2016. Ezibeleni waste Buy-Back Centre (near Queenstown), Enoch Mgijima Local Municipality, Eastern Cape. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment for the proposed construction of two 5 Mw Solar Photovoltaic Power Plants on Farm Wildebeestkuil 59 and Farm Leeuwbosch 44, Leeudoringstad, North West Province. Bloemfontein.
Butler, E. 2016. Palaeontological Impact Assessment for the proposed development of four Leeuwberg Wind farms and basic assessments for the associated grid connection near Loeriesfontein, Northern Cape Province. Bloemfontein.
Butler, E. 2016. Palaeontological impact assessment for the proposed Aggeneys south prospecting right project, Northern Cape Province. Bloemfontein.
Butler, E. 2016. Palaeontological impact assessment of the proposed Motuoane Ladysmith Exploration right application, KwaZulu Natal. Bloemfontein.
Butler, E. 2016. Palaeontological impact assessment for the proposed construction of two 5 MW solar photovoltaic power plants on farm Wildebeestkuil 59 and farm Leeuwbosch 44, Leeudoringstad, North West Province. Bloemfontein.
Butler, E. 2016: Palaeontological desktop assessment of the establishment of the proposed residential and mixed-use development on the remainder of portion 7 and portion 898 of the farm Knopjeslaagte 385 Ir, located near Centurion within the Tshwane Metropolitan Municipality of Gauteng Province. Bloemfontein.
Butler, E. 2017. Palaeontological impact assessment for the proposed development of a new cemetery, near Kathu, Gamagara local municipality and John Taolo Gaetsewe district municipality, Northern Cape. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of The Proposed Development of The New Open Cast Mining Operations on The Remaining Portions Of 6, 7, 8 And 10 Of the Farm Kwaggafontein 8 In the Carolina Magisterial District, Mpumalanga Province. Bloemfontein.

Butler, E. 2017. Palaeontological Desktop Assessment for the Proposed Development of a Wastewater Treatment Works at Lanseria, Gauteng Province. Bloemfontein.
Butler, E. 2017. Palaeontological Scoping Report for the Proposed Construction of a Warehouse and Associated Infrastructure at Perseverance in Port Elizabeth, Eastern Cape Province.
Butler, E. 2017. Palaeontological Desktop Assessment for the Proposed Establishment of a Diesel Farm and a Haul Road for the Tshipi Borwa mine Near Hotazel, In the John Taolo Gaetsewe District Municipality in the Northern Cape Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the Proposed Changes to Operations at the UMK Mine near Hotazel, In the John Taolo Gaetsewe District Municipality in the Northern Cape Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment for the Development of the Proposed Ventersburg Project-An Underground Mining Operation near Ventersburg and Henneman, Free State Province. Bloemfontein.
Butler, E. 2017. Palaeontological desktop assessment of the proposed development of a 3000 MW combined cycle gas turbine (CCGT) in Richards Bay, Kwazulu-Natal. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment for the Development of the Proposed Revalidation of the lapsed General Plans for Elliotdale, Mbhashe Local Municipality. Bloemfontein.
Butler, E. 2017. Palaeontological assessment of the proposed development of a 3000 MW Combined Cycle Gas Turbine (CCGT) in Richards Bay, Kwazulu-Natal. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed development of the new open cast mining operations on the remaining portions of 6, 7, 8 and 10 of the farm Kwaggafontein 8 10 in the Albert Luthuli Local Municipality, Gert Sibande District Municipality, Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed mining of the farm Zandvoort 10 in the Albert Luthuli Local Municipality, Gert Sibande District Municipality, Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed Lanseria outfall sewer pipeline in Johannesburg, Gauteng Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed development of open pit mining at Pit 36W (New Pit) and 62E (Dishaba) Amandelbult Mine Complex, Thabazimbi, Limpopo Province. Bloemfontein.
Butler, E. 2017. Palaeontological impact assessment of the proposed development of the sport precinct and associated infrastructure at Merrifield Preparatory school and college, Amathole Municipality, East London. PGS Heritage. Bloemfontein.
Butler, E. 2017. Palaeontological impact assessment of the proposed construction of the Lehae training and fire station, Lenasia, Gauteng Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed development of the new open cast mining operations of the Impunzi mine in the Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the construction of the proposed Viljoenskroon Munic 132 KV line, Vierfontein substation and related projects. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed rehabilitation of 5 ownerless asbestos mines. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed development of the Lephalale coal and power project, Lephalale, Limpopo Province, Republic of South Africa. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed construction of a 132KV powerline from the Tweespruit distribution substation (in the Mantsopa local municipality) to the Driedorp rural substation (within the Naledi local municipality), Free State province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed development of the new coal-fired power plant and associated infrastructure near Makhado, Limpopo Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed construction of a Photovoltaic Solar Power station near Collett substation, Middelburg, Eastern Cape. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment for the proposed township establishment of 2000 residential sites with supporting amenities on a portion of farm 826 in Botshabelo West, Mangaung Metro, Free State Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed prospecting right project without bulk sampling, in the Koa Valley, Northern Cape Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed Aroams prospecting right project, without bulk sampling, near Aggeneys, Northern Cape Province. Bloemfontein.

Butler, E. 2017. Palaeontological Impact Assessment of the proposed Belvior aggregate quarry II on portion 7 of the farm Maidenhead 169, Enoch Mgijima Municipality, division of Queenstown, Eastern Cape. Bloemfontein.
Butler, E. 2017. PIA site visit and report of the proposed Galla Hills Quarry on the remainder of the farm Roode Krantz 203, in the Lukhanji Municipality, division of Queenstown, Eastern Cape Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed construction of Tina Falls Hydropower and associated power lines near Cumbu, Mthlontlo Local Municipality, Eastern Cape. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed construction of the Mangaung Gariep Water Augmentation Project. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed Belvoir aggregate quarry II on portion 7 of the farm Maidenhead 169, Enoch Mgijima Municipality, division of Queenstown, Eastern Cape. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed construction of the Melkspruit-Rouxville 132KV Power line. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed development of a railway siding on a Portion of portion 41 of the farm Rustfontein 109 is, Govan Mbeki local municipality, Gert Sibande district municipality, Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed consolidation of the proposed Ilima Colliery in the Albert Luthuli local municipality, Gert Sibande District Municipality, Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed extension of the Kareerand Tailings Storage Facility, associated borrow pits as well as a storm water drainage channel in the Vaal River near Stilfontein, North West Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed construction of a filling station and associated facilities on the Erf 6279, district municipality of John Taolo Gaetsewe District, Ga-Segonyana Local Municipality Northern Cape. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed of the Lephalale Coal and Power Project, Lephalale, Limpopo Province, Republic of South Africa. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed Overvaal Trust PV Facility, Buffelspoort, North West Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed development of the H_2 Energy Power Station and associated infrastructure on Portions 21; 22 And 23 of the farm Hartebeestspruit in the Thembisile Hani Local Municipality, Nkangala District near Kwamhlanga, Mpumalanga Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed upgrade of the Sandriver Canal and Klippan Pump station in Welkom, Free State Province. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed upgrade of the 132kv and 11kv power line into a dual circuit above ground power line feeding into the Urania substation in Welkom, Free State Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment of the proposed Swaziland-Mozambique border patrol road and Mozambique barrier structure. Bloemfontein.
Butler, E. 2017. Palaeontological Impact Assessment of the proposed diamonds alluvial & diamonds general prospecting right application near Christiana on the remaining extent of portion 1 of the farm Kaffraria 314, registration division HO, North West Province. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed development of Wastewater Treatment Works on Hartebeesfontein, near Panbult, Mpumalanga. Bloemfontein.
Butler, E. 2017. Palaeontological Desktop Assessment for the proposed development of Wastewater Treatment Works on Rustplaas near Piet Retief, Mpumalanga. Bloemfontein.
Butler, E. 2018. Palaeontological Impact Assessment for the Proposed Landfill Site in Luckhoff, Letsemeng Local Municipality, Xhariep District, Free State. Bloemfontein.
Butler, E. 2018. Palaeontological Impact Assessment of the proposed development of the new Mutsho coal-fired power plant and associated infrastructure near Makhado, Limpopo Province. Bloemfontein.
Butler, E. 2018. Palaeontological Impact Assessment of the authorisation and amendment processes for Manangu mine near Delmas, Victor Khanye local municipality, Mpumalanga. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment for the proposed Mashishing township establishment in Mashishing (Lydenburg), Mpumalanga Province. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment for the Proposed Mlonzi Estate Development near Lusikisiki, Ngquza Hill Local Municipality, Eastern Cape. Bloemfontein.

Butler, E. 2018. Palaeontological Phase 1 Assessment of the proposed Swaziland-Mozambique border patrol road and Mozambique barrier structure. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment for the proposed electricity expansion project and Sekgame Switching Station at the Sishen Mine, Northern Cape Province. Bloemfontein.
Butler, E. 2018. Palaeontological field assessment of the proposed construction of the Zonnebloem Switching Station (132/22kV) and two loop-in loop-out power lines (132kV) in the Mpumalanga Province. Bloemfontein.
Butler, E. 2018. Palaeontological Field Assessment for the proposed re-alignment and de-commissioning of the Firham-Platrand 88kv Powerline, near Standerton, Lekwa Local Municipality, Mpumalanga province. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment of the proposed Villa Rosa development In the Buffalo City Metropolitan Municipality, East London. Bloemfontein.
Butler, E. 2018. Palaeontological field Assessment of the proposed Villa Rosa development In the Buffalo City Metropolitan Municipality, East London. Bloemfontein.
Butler, E. 2018. Palaeontological desktop assessment of the proposed Mookodi – Mahikeng 400kV line, North West Province. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment for the proposed Thornhill Housing Project, Ndlambe Municipality, Port Alfred, Eastern Cape Province. Bloemfontein.
Butler, E. 2018. Palaeontological desktop assessment of the proposed housing development on portion 237 of farm Hartebeestpoort 328. Bloemfontein.
Butler, E. 2018. Palaeontological desktop assessment of the proposed New Age Chicken layer facility located on holding 75 Endicott near Springs in Gauteng. Bloemfontein.
Butler, E. 2018 Palaeontological Desktop Assessment for the development of the proposed Leslie 1 Mining Project near Leandra, Mpumalanga Province. Bloemfontein.
Butler, E. 2018. Palaeontological field assessment of the proposed development of the Wildealskloof mixed use development near Bloemfontein, Free State Province. Bloemfontein.
Butler, E. 2018. Palaeontological Field Assessment of the proposed Megamor Extension, East London. Bloemfontein
Butler, E. 2018. Palaeontological Impact Assessment of the proposed diamonds Alluvial & Diamonds General Prospecting Right Application near Christiana on the Remaining Extent of Portion 1 of the Farm Kaffraria 314, Registration Division HO, North West Province. Bloemfontein.
Butler, E. 2018. Palaeontological Impact Assessment of the proposed construction of a new 11kV (1.3km) Power Line to supply electricity to a cell tower on farm 215 near Delportshoop in the Northern Cape. Bloemfontein.
Butler, E. 2018. Palaeontological Field Assessment of the proposed construction of a new 22 kV single wood pole structure power line to the proposed MTN tower, near Britstown, Northern Cape Province. Bloemfontein.
Butler, E. 2018. Palaeontological Exemption Letter for the proposed reclamation and reprocessing of the City Deep Dumps in Johannesburg, Gauteng Province. Bloemfontein.
Butler, E. 2018. Palaeontological Exemption letter for the proposed reclamation and reprocessing of the City Deep Dumps and Rooikraal Tailings Facility in Johannesburg, Gauteng Province. Bloemfontein.
Butler, E. 2018. Proposed Kalabasfontein Mine Extension project, near Bethal, Govan Mbeki District Municipality, Mpumalanga. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment for the development of the proposed Leslie 1 Mining Project near Leandra, Mpumalanga Province. Bloemfontein.
Butler, E. 2018. Palaeontological Desktop Assessment of the proposed Mookodi – Mahikeng 400kV Line, North West Province. Bloemfontein.
Butler, E. 2018. Environmental Impact Assessment (EIA) for the Proposed 325mw Rondekop Wind Energy Facility between Matjiesfontein and Sutherland in the Northern Cape Province.
Butler, E. 2018. Palaeontological Impact Assessment of the proposed construction of the Tooverberg Wind Energy Facility, and associated grid connection near Touws River in the Western Cape Province. Bloemfontein.
Butler, E. 2018. Palaeontological impact assessment of the proposed Kalabasfontein Mining Right Application, near Bethal, Mpumalanga.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed Westrand Strengthening Project Phase II.
Butler, E., 2019. Palaeontological Field Assessment for the proposed Sirius 3 Photovoltaic Solar Energy Facility near Upington, Northern Cape Province
Butler, E., 2019. Palaeontological Field Assessment for the proposed Sirius 4 Photovoltaic Solar Energy Facility near Upington, Northern Cape Province

Butler, E., 2019. Palaeontological Field Assessment for Heuningspruit PV 1 Solar Energy Facility near Koppies, Ngwathe Local Municipality, Free State Province.
Butler, E., 2019. Palaeontological Field Assessment for the Moeding Solar Grid Connection, North West Province.
Butler, E., 2019. Recommended Exemption from further Palaeontological studies for the Proposed Agricultural Development on Farms 1763, 2372 And 2363, Kakamas South Settlement, Kai! Garib Municipality, Mgcawu District Municipality, Northern Cape Province.
Butler, E., 2019. Recommended Exemption from further Palaeontological studies: of Proposed Agricultural Development, Plot 1178, Kakamas South Settlement, Kai! Garib Municipality
Butler, E., 2019. Palaeontological Desktop Assessment for the Proposed Waste Rock Dump Project at Tshipi Borwa Mine, near Hotazel, Northern Cape Province:
Butler, E., 2019. Palaeontological Exemption Letter for the proposed DMS Upgrade Project at the Sishen Mine, Gamagara Local Municipality, Northern Cape Province
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed Integrated Environmental Authorisation process for the proposed Der Brochen Amendment project, near Groblershoop, Limpopo
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed updated Environmental Management Programme (EMPr) for the Assmang (Pty) Ltd Black Rock Mining Operations, Hotazel, Northern Cape
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed Kriel Power Station Lime Plant Upgrade, Mpumalanga Province
Butler, E., 2019. Palaeontological Impact Assessment for the proposed Kangala Extension Project Near Delmas, Mpumalanga Province.
Butler, E., 2019. Palaeontological Desktop Assessment for the proposed construction of an iron/steel smelter at the Botshabelo Industrial area within the Mangaung Metropolitan Municipality, Free State Province.
Butler, E., 2019. Recommended Exemption from further Palaeontological studies for the proposed agricultural development on farms 1763, 2372 and 2363, Kakamas South settlement, Kai! Garib Municipality, Mgcawu District Municipality, Northern Cape Province.
Butler, E., 2019. Recommended Exemption from further Palaeontological Studies for Proposed formalisation of Gamakor and Noodkamp low-cost Housing Development, Keimoes, Gordonia Rd, Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.
Butler, E., 2019. Recommended Exemption from further Palaeontological Studies for proposed formalisation of Blaauwskop Low-Cost Housing Development, Kenhardt Road, Kai !Garib Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed mining permit application for the removal of diamonds alluvial and diamonds kimberlite near Windsorton on a certain portion of Farm Zoelen's Laagte 158, Registration Division: Barkly Wes, Northern Cape Province.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed Vedanta Housing Development, Pella Mission 39, Khâi-Ma Local Municipality, Namakwa District Municipality, Northern Cape.
Butler, E., 2019. Palaeontological Desktop Assessment for The Proposed 920 KWP Groenheuwel Solar Plant Near Augrabies, Northern Cape Province
Butler, E., 2019. Palaeontological Desktop Assessment for the establishment of a Super Fines Storage Facility at Amandelbult Mine, Near Thabazimbi, Limpopo Province
Butler, E., 2019. Palaeontological Impact Assessment for the proposed Sace Lifex Project, Near Emalahleni, Mpumalanga Province
Butler, E., 2019. Palaeontological Desktop Assessment for the proposed Rehau Fort Jackson Warehouse Extension, East London
Butler, E., 2019. Palaeontological Desktop Assessment for the proposed Environmental Authorisation Amendment for moving 3 Km of the Merensky-Kameni 132KV Powerline
Butler, E., 2019. Palaeontological Impact Assessment for the proposed Umsobomvu Solar PV Energy Facilities, Northern and Eastern Cape
Butler, E., 2019. Palaeontological Desktop Assessment for six proposed Black Mountain Mining Prospecting Right Applications, without Bulk Sampling, in the Northern Cape.
Butler, E., 2019. Palaeontological field Assessment of the Filling Station (Rietvlei Extension 6) on the Remaining Portion of Portion 1 of the Farm Witkoppies 393JR east of the Rietvleidam Nature Reserve, City of Tshwane, Gauteng
Butler, E., 2019. Palaeontological Desktop Assessment of The Proposed Upgrade of The Vaal Gamagara Regional Water Supply Scheme: Phase 2 And Groundwater Abstraction

Butler, E., 2019. Palaeontological Desktop Assessment of The Expansion of The Jan Kempdorp Cemetery on Portion 43 Of Farm Guldenskat 36-Hn, Northern Cape Province
Butler, E., 2019. Palaeontological Desktop Assessment of the Proposed Residential Development on Portion 42 Of Farm Geldunskat No 36 In Jan Kempdorp, Phokwane Local Municipality, Northern Cape Province
Butler, E., 2019. Palaeontological Impact Assessment of the proposed new Township Development, Lethabo Park, on Remainder of Farm Roodepan No 70, Erf 17725 And Erf 15089, Roodepan Kimberley, Sol Plaatjies Local Municipality, Frances Baard District Municipality, Northern Cape
Butler, E., 2019. Palaeontological Protocol for Finds for the proposed 16m WH Battery Storage System in Steinkopf, Northern Cape Province
Butler, E., 2019. Palaeontological Exemption Letter of the proposed 4.5WH Battery Storage System near Midway-Pofadder, Northern Cape Province
Butler, E., 2019. Palaeontological Exemption Letter of the proposed 2.5ml Process Water Reservoir at Gloria Mine, Black Rock, Hotazel, Northern Cape
Butler, E., 2019. Palaeontological Desktop Assessment for the Establishment of a Super Fines Storage Facility at Gloria Mine, Black Rock Mine Operations, Hotazel, Northern Cape:
Butler, E., 2019. Palaeontological Desktop Assessment for the Proposed New Railway Bridge, and Rail Line Between Hotazel and the Gloria Mine, Northern Cape Province
Butler, E., 2019. Palaeontological Exemption Letter of The Proposed Mixed Use Commercial Development on Portion 17 of Farm Boegoeberg Settlement Number 48, !Kheis Local Municipality in The Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment of the Proposed Diamond Mining Permit Application Near Kimberley, Sol Plaatjies Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment of the Proposed Diamonds (Alluvial, General & In Kimberlite) Prospecting Right Application near Postmasburg, Registration Division; Hay, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed diamonds (alluvial, general & in kimberlite) prospecting right application near Kimberley, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Phase 1 Impact Assessment of the proposed upgrade of the Vaal Gamagara regional water supply scheme: Phase 2 and groundwater abstraction. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed seepage interception drains at Duvha Power Station, Emalahleni Municipality, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment letter for the Proposed PV Solar Facility at the Heineken Sedibeng Brewery, near Vereeniging, Gauteng. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Phase 1 Assessment for the Proposed PV Solar Facility at the Heineken Sedibeng Brewery, near Vereeniging, Gauteng. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological field Assessment for the Proposed Upgrade of the Kolomela Mining Operations, Tsantsabane Local Municipality, Siyanda District Municipalitty, Northern Cape Province, Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment of the proposed feldspar prospecting rights and mining application on portion 4 and 5 of the farm Rozynen 104, Kakamas South, Kai! Garib Municipality, Zf Mgcawu District Municipality, Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Phase 1 Field Assessment of the proposed Summerpride Residential Development and Associated Infrastructure on Erf 107, Buffalo City Municipality, East London. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Impact Assessment for the proposed re-commission of the Old Balgay Colliery near Dundee, KwaZulu Natal.
Butler, E., 2019. Palaeontological Phase 1 Impact Assessment for the Proposed Re-Commission of the Old Balgay Colliery near Dundee, KwaZulu Natal. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment for the Proposed Environmental Authorisation and Amendment Processes for Elandsfontein Colliery. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Impact Assessment and Protocol for Finds of a Proposed New Quarry on Portion 9 (of 6) of the farm Mimosa Glen 885, Bloemfontein, Free State Province. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2019. Palaeontological Impact Assessment and Protocol for Finds of a proposed development on Portion 9 and 10 of the Farm Mimosa Glen 885, Bloemfontein, Free State Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Exemption Letter for the proposed residential development on the Remainder of Portion 1 of the Farm Strathearn 2154 in the Magisterial District of Bloemfontein, Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Field Assessment for the Proposed Nigel Gas Transmission Pipeline Project in the Nigel Area of the Ekurhuleni Metropolitan Municipality, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment for five Proposed Black Mountain Mining Prospecting Right Applications, Without Bulk Sampling, in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E. 2019. Palaeontological Desktop Assessment for the Proposed Environmental Authorisation and an Integrated Water Use Licence Application for the Reclamation of the Marievale Tailings Storage Facilities, Ekurhuleni Metropolitan Municipality - Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Impact Assessment for the Proposed Sace Lifex Project, near Emalahleni, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment for the proposed Golfview Colliery near Ermelo, Msukaligwa Local Municipality, Mpumalanga Province
Butler, E., 2019. Palaeontological Desktop Assessment for the Proposed Kangra Maquasa Block C Mining development near Piet Retief, in the Mkhondo Local Municipality within the Gert Sibande District Municipality. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Desktop Assessment for the Proposed Amendment of the Kusipongo Underground and Opencast Coal Mine in Support of an Environmental Authorization and Waste Management License Application. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2019. Palaeontological Exemption Letter of the Proposed Mamatwan Mine Section 24g Rectification Application, near Hotazel, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Field Assessment for the Proposed Environmental Authorisation and Amendment Processes for Elandsfontein Colliery. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Extension of the South African Nuclear Energy Corporation (Necsa) Pipe Storage Facility, Madibeng Local Municipality, North West Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Field Assessment for the Proposed Piggery on Portion 46 of the Farm Brakkefontien 416, Within the Nelson Mandela Bay Municipality, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological field Assessment for the proposed Rietfontein Housing Project as part of the Rapid Land Release Programme, Gauteng Province Department of Human Settlements, City of Johannesburg Metropolitan Municipality. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Choje Wind Farm between Grahamstown and Somerset East, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Prospecting Right Application for the Prospecting of Diamonds (Alluvial, General & In Kimberlite), Combined with A Waste License Application, Registration Division: Gordonia and Kenhardt, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Impact Assessment for the Proposed Clayville Truck Yard, Ablution Blocks and Wash Bay to be Situated on Portion 55 And 56 Of Erf 1015, Clayville X11, Ekurhuleni Metropolitan Municipality, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Hartebeesthoek Residential Development. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Mooiplaats Educational Facility, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Impact Assessment for the Proposed Monument Park Student Housing Establishment. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Field Assessment for the Proposed Standerton X10 Residential and Mixed-Use Developments, Lekwa Local Municipality Standerton, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Field Assessment for the Rezoning and Subdivision of Portion 6 Of Farm 743, East London. Banzai Environmental (Pty) Ltd, Bloemfontein. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2020. Palaeontological Field Assessment for the Proposed Matla Power Station Reverse Osmosis Plant, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Prospecting Right Application Without Bulk Sampling for the Prospecting of Diamonds Alluvial near Bloemhof on Portion 3 (Portion 1) of the Farm Boschpan 339, the Remaining Extent of Portion 8 (Portion 1), Portion 9 (Portion 1) and Portion 10 (Portion 1) and Portion 17 (Portion 1) of the Farm Panfontein 270, Registration Division: Ho, North West Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Prospecting Right Application Combined with a Waste Licence Application for the Prospecting of Diamonds Alluvial, Diamonds General and Diamonds near Wolmaransstad on the Remaining Extent, Portion 7 and Portion 8 Of Farm Rooibult 152, Registration Division: HO, North West Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Prospecting Right Application With Bulk Sampling combined with a Waste Licence Application for the Prospecting of Diamonds Alluvial (Da), Diamonds General (D), Diamonds (Dia) and Diamonds In Kimberlite (Dk) near Prieska On Portion 7, a certain Portion of the Remaining Extent of Portion 9 (Wouter), Portion 11 (De Hoek), Portion 14 (Stofdraai) (Portion of Portion 4), the Remaining Extent of Portion 16 (Portion Of Portion 9) (Wouter) and the Remaining Extent of Portion 18 (Portion of Portion 10) of the Farm Lanyon Vale 376, Registration Division: Hay, Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Prospecting Right Area and Mining Permit Area near Ritchie on the Remaining Extent of Portion 3 (Anna's Hoop) of the Farm Zandheuvel 144, Registration Division: Kimberley, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment of the Proposed Okapi Diamonds (Pty) Ltd Mining Right of Diamonds Alluvial (Da) & Diamonds General (D) Combined with a Waste Licence Application on the Remaining Extent of Portion 9 (Wouter) of the Farm Lanyon Vale 376; Registration Division: Hay; Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Field Assessment of the Proposed Prospecting Right Application for the Prospecting of Diamonds (Alluvial & General) between Douglas and Prieska on Portion 12, Remaining Extent of Portion 29 (Portion of Portion 13) and Portion 31 (Portion of Portion 29) on the Farm Reads Drift 74, Registration Division; Herbert, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Mining Permit Application Combined with a Waste License Application for the Mining of Diamonds (Alluvial) Near Schweitzer-Reneke on a certain Portion of Portion 12 (Ptn of Ptn 7) of the Farm Doornhoek 165, Registration Division: HO, North West Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for Black Mountain Koa South Prospecting Right Application, Without Bulk Sampling, in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Impact Assessment of the Proposed AA Bakery Expansion, Sedibeng District Municipality, Gauteng. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Boegoeberg Township Expansion,! Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Gariep Township Expansion, !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Groblershoop Township Expansion, !Kheis Local Municipality, Zf Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Grootdrink Township Expansion, !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Exemption Letter for the Proposed Opwag Township Expansion,! Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Exemption Letter for the Proposed Topline Township Expansion, !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2020. Palaeontological Desktop Assessment for the Proposed Wegdraai Township Expansion, !Kheis Local Municipality, Zf Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological field Assessment for the Proposed Establishment of an Emulsion Plant on Erf 1559, Hardustria, Harrismith, Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler. 2020. Part 2 Environmental Authorisation (EA) Amendment Process for the Kudusberg Wind Energy Facility (WEF) near Sutherland, Western and Northern Cape Provinces- Palaeontological Impact Assessment. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment Proposed for the Construction and Operation of the Battery Energy Storage System (BESS) and Associated Infrastructure and inclusion of Additional Listed Activities for the Authorised Droogfontein 3 Solar Photovoltaic (PV) Energy Facility Located near Kimberley in the Sol Plaatje Local Municipality, Francis Baard District Municipality, in the Northern Cape Province of South Africa. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Impact Assessment for the Proposed Development of a Cluster of Renewable Energy Facilities between Somerset East and Grahamstown in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the Proposed Amaoti Secondary School, Pinetown, eThekwini Metropolitan Municipality KwaZulu Natal. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Proposed an Inland Diesel Depot, Transportation Pipeline and Associated Infrastructure on Portion 5 of the Farm Franshoek No. 1861, Swinburne, Free State Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed erosion control gabion installation at Alpine Heath Resort on the farm Akkerman No 5679 in the Bergville district Kwazulu-Natal. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed Doornkloof Residential development on portion 712 of the farm Doornkloof 391 Jr, City of Tshwane Metropolitan Municipality in Gauteng, South Africa. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the Proposed Expansion of the Square *Kilometre* Array (SKA) Meerkat Project, on the Farms Mey's Dam RE/68, Brak Puts RE /66, Swartfontein RE /496 & Swartfontein 2/496, in the Kareeberg Local Municipality, Pixley Ka Seme District Municipality, and the Farms Los Berg 1/73 & Groot Paardekloof RE /74, in the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for De Beers Consolidated Mines: Proposed Drilling on Portion 6 of Scholtzfontein 165 and Farm Arnotsdale 175, Herbert District in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for De Beers Consolidated Mines: Proposed Drilling on the Remaining Extent of Biessie Laagte 96, and Portion 2 and 6 of Aasvogel Pan 141, Near Hopetown in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for De Beers Consolidated Mines: Proposed Drilling in the North West Province: on Portions 7 (RE) (of Portion 3), 11, 12 (of Portion 3), 34 (of Portion 30), 35 (of Portion 7) of the Farm Holfontein 147 IO and Portions 1, 2 and the RE) of the Farm Kareeboschbult 76 Ip and Portions 1, 2, 4, 5, 6, (of Portion 3), 7 (of Portion 3), 13, 14, and the Re of the farm Oppaslaagte 100IP and portions 25 (of Portion 24) and 30 of the farm Slypsteen 102 IP. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the Proposed Expansion of the Cavalier Abattoir on farm Oog Van Boekenhoutskloof of Tweefontein 288 JR, near Cullinan, City of Tshwane Metropolitan Municipality, Gauteng. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Proposed Doornkloof Residential Development on Portion 712 of the Farm Doornkloof 391 JR, City of Tshwane Metropolitan Municipality in Gauteng, South Africa. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed High Density Social Housing Development on part of the Remainder of Portion 171 and part of Portion 306 of the farm Derdepoort 326 JR, City of Tshwane. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Red Rock Mountain Farm activities on Portions 2, 3 and 11 of the Farm Buffelskloof 22, near Calitzdorp in the Western Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Mixed-use Development on a Part of Remainder of Portion 171 and Portion 306 of the farm Derdepoort 326 JR, City of Tshwane. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Proposed Realignment of the D 2809 Provincial Road as well as the Mining Right Application for the Glisa and Paardeplaats Sections of the NBC Colliery (NBC) near Belfast (eMakhazeni), eMakhazeni Local Municipality, Nkangala District Municipality, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed construction of Whittlesea Cemetery within Enoch Mgijima Local Municipality area, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the establishment of a mixed-use development on Portion 0 the of Erf 700, Despatch, Nelson Mandela Bay Municipality, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed East Orchards Poultry Farm, Delmas/Botleng Transitional Local Council, Mpumalanga. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed East Orchards Poultry Farm, Delmas/Botleng Transitional Local Council, Mpumalanga. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment to assess the proposed Gariep Road upgrade near Groblershoop, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Ngwedi Solar Plant which forms part of the authorised Paleso Solar Powerplant near Viljoenskroon in the Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Noko Solar Power Plant and power line which forms part of the authorised Paleso Solar Powerplant near Orkney in the North West. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Proposed Power Line as part of the Paleso Solar Power Plant near Viljoenskroon in the Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Thakadu Solar Plant which forms part of the authorised Paleso Solar Powerplant near Viljoenskroon in the Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the proposed Farming Expansions on Portions 50 of the Farm Rooipoort 555 JR, Portion 34 of the Farm Rooipoort 555 JR, Portions 20 and 49 of the Farm Rooipoort 555 JR and Portion 0(RE) of the Farm Oudou Boerdery 626 JR, Tshwane Metropolitan Municipality, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the proposed Saselamani CBD on the Remainder of Tshikundu's Location 262 MT, and the Remainder of Portion 1 of Tshikundu's Location 262 MT, Collins Chabane Local Municipality, Limpopo Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed expansions of the existing Molare Piggery infrastructure and related activities on Portion 0(Re) of the farm Arendsfontein 464 JS, Portion 0(Re) of the farm Wanhoop 443 JS, Portion 0(Re) of the farm Eikeboom 476 JS and Portions 2 & 7 of the farm Klipbank 467 JS within the jurisdiction of the Steve Tshwete Local Municipality, Mpumalanga Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Nchwaning Rail Balloon Turn Outs at Black Rock Mine Operations (BRMO) near Hotazel in the John Taolo Gaetsewe District Municipality in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Black Rock Mining Operations (BRMO) new rail loop and stacker reclaimer Project at Gloria Mine near Hotazel in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2020. Palaeontological Desktop Assessment for the proposed Nchwaning Rail Balloon Turn Outs at Black Rock Mine Operations (BRMO) near Hotazel in the John Taolo Gaetsewe District Municipality in the Northern Cape.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed utilization of one Borrow Pit for the planned Clarkebury DR08034 Road Upgrade, Engcobo Local Municipality, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Kappies Kareeboom Prospecting Project on Portion 1 and the Remainder of the farm Kappies Kareeboom 540, the Remainder of Farm 544, Portion 5 of farm 534 and Portion 1 of the farm Putsfontein 616, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Kameel Fontein Prospecting Project on the Remainder of the farm Kameel Fontein 490, a portion of the farm Strydfontein 614 and the farm Soetfontein 606, ZF Mgcawu District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Lewis Prospecting Project on Portions of the Farms Lewis 535, Spence 537, Wright 538, Symthe 566, Bredenkamp 567, Brooks 568, Beaumont 569 and Murray 570, John Taolo Gaetsewe District Municipality in the Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the Construction of the Ganspan Pering 132kV Powerline, Phokwane Local Municipality, Frances Baard District Municipality in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the Longlands Prospecting Project on a Portion of the farm Longlands 350, Frances Baard District Municipality, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed development of 177 new units in the northern section of Mpongo Park in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Qhumanco Irrigation Project, Chris Hani District Municipality Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Raphuti Settlement Project on Portions of the Farm Weikrans 539KQ in the Waterberg District Municipality of the Limpopo Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Senqu Rural Project, Joe Gqabi District Municipality, Senqu Local Municipality, in the Eastern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed new Township development on portion of the farm Klipfontein 716 and farm Ceres 626 in Bloemfontein, Mangaung Metropolitan Municipality, Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the ECDOT Borrow Pits and WULA near Sterkspruit, Joe Gqabi District Municipality in the Eastern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed SANRAL Stone Crescent Embankment Stabilisation Works along the N2 on the farm Zyfer Fonteyn 253 (Portion 0, 11 and 12RE) and Palmiet Rivier 305 (Portion 34, 36) near Grahamstown in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the Klein Rooipoort Trust Citrus Development, in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed Victoria West water augmentation project in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Campbell Sewer, Internal Reticulation, Outfall Sewer Line and Oxidation Ponds, located on ERF 1, Siyancuma Local Municipality in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed Development and Upgrades within the Great Fish River Nature Reserve, Eastern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for proposed Parsons Power Park a portion of Erf 1. within the Nelson Mandela Bay Municipality in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment for the proposed expansion of the farming operations on part of portions 7 and 8 of farm Boerboonkraal 353 in the Greater Tubatse Local Municipality of Sekhukhune District, Limpopo Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment to assess the proposed low-level pedestrian bridge, in Heilbron, Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment to assess the proposed township developments in Hertzogville, Malebogo, in Heilbron, Free State. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment for the proposed construction of Malangazana Bridge on Farm No.64 Nkwenkwana, Engcobo Local Municipality, Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment to assess the proposed Construction of Middelburg Integrated Transport Control Centre on Portion 14 of Farm 81 Division of Middelburg, Chris Hani District Municipality in the Eastern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.

Butler, E., 2021. Palaeontological Desktop Assessment for the Witteberge Sand Mine on the remainder of farm Elandskrag Plaas 269 located in the Magisterial District of Laingsburg and Central Karoo District Municipality in the Western Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Impact Assessment (PIA) to assess the proposed Agrizone 2, Dube Trade Port in KwaZulu Natal Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2021. Palaeontological Desktop Assessment assessing the proposed Prospecting Right application without bulk sampling for the prospecting of Chrome ore and platinum group metals on the Remaining Extent of the farm Doornspruit 106, Registration Division: HO; North West Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the proposed Ennerdale Extension 2 Township Establishment on the Undeveloped Part of Portion 134 of the Farm Roodepoort 302IQ, City of Johannesburg Metropolitan Municipality, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the Construction of the ESKOM Mesong 400kV Loop-In Loop-Out Project, Ekurhuleni Municipality, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the Proposed Vinci Prospecting Right Application on the Remainder of the Farm Vinci 580, ZF Mgcawu District Municipality, in the Northern Cape Province, Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the proposed Farm 431 Mining Right Application (MRA), near Postmasburg, ZF Mgcawu District Municipality, in the Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Impact Assessment for the Leeuw Braakfontein Colliery Expansion Project (LBC) in the Amajuba District Municipality, KwaZulu-Natal. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the proposed reclamation of the 5L23 TSF in Ekurhuleni, Gauteng Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the Proposed Mogalakwena Mine Infrastructure Expansion (near Mokopane in the Mogalakwena Local Municipality, Limpopo Province). Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment for the proposed 10km Cuprum to Kronos Double Circuit 132kV Line and Associated Infrastructure in Copperton in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Impact Assessment for the proposed Hoekplaas WEF near Victoria West in the Northern Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment (PDA) assessing the proposed Prospecting Right Application without bulk sampling for the Prospecting of Diamonds Alluvial (DA), Diamonds General (D), Diamonds in Kimberlite (DK) & Diamonds (DIA) on the Remaining Extent of the Farm Goede Hoop 547, Remaining Extent of the Farm 548, Remaining Extent of Portion 2 and Portion 3 of the Farm Skeyfontein 536, Registration Division: Hay, Northern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Impact Assessment for the proposed extension of Duine Weg Road between Pellsrus and Marina Martinique as well as a Water Use Authorisation (WUA) for the project. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Proposed Mimosa Residential Development and Associated Infrastructure on Fairview Erven, in Gqeberha (Port Elizabeth), Nelson Mandela Bay Metropolitan Municipality, Eastern Cape Province. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Impact Assessment for the Witteberge Sand Mine on the remainder of farm Elandskrag Plaas 269 located in the Magisterial District of Laingsburg and Central Karoo District Municipality in the Western Cape. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler, E., 2022. Palaeontological Desktop Assessment to assess the Palaeontology for the Somkhele Anthracite Mine's Prospecting Right Application, on the Remainder of the Farm Reserve no 3 No 15822 within the uMkhanyakude District Municipality and the Mtubatuba Local Municipality, KwaZulu Natal. Banzai Environmental (Pty) Ltd, Bloemfontein.
Butler. E. 2022. Palaeontological Desktop Assessment to assess the proposed Altina 120 MW Solar Photovoltaic (PV) Project near Orkney in the Free State,
Butler. E. 2022. Palaeontological Desktop Assessment to assess the proposed SERE Solar Photovoltaic Plant Phase 1A and associated infrastructure in the Western Cape Province.

Butler. E. 2022. Palaeontological Impact Assessment for the proposed development of a 10 MW Solar Photovoltaic (PV) Plant and associated grid connection infrastructure on Portion 9 of the Farm Little Chelsea 10, Eastern Cape Province.
Butler. E. 2022. Palaeontological Desktop Assessment to assess the proposed Dominion 1 Solar Park, located on the Remaining Extent of Portion 18 of Farm 425, near Klerksdorp within the North-West Province.
Butler. E., 2022. Palaeontological Desktop Assessment to assess the proposed Dominion 2 Solar Park, located on the Remaining Extent of Portion 8 of Farm 425, near Klerksdorp within the North-West Province.
Butler. E., 2022.Palaeontological Desktop Assessment to assess the proposed Dominion 3 Solar Park, located on the Remaining Extent of Portion 11 of Farm 425, and Remaining Extent of Portion 31 of Farm 425 near Klerksdorp within the North-West Province
Butler. E., 2022. Palaeontological Impact Assessment to assess the Delta Solar Power Plant on the remaining extent of the farm Kareefontein No. 340, Dr Ruth Segomotsi Mompati District Municipality, Lekwa-Teemane Local Municipality near Bloemhof in the North West Province
Butler. E., 2022. Palaeontological Impact Assessment to assess the Sonneblom Solar Power Plant (SPP) on Portion 1 of the farm Blydschap No. 504 within the Mangaung Metropolitan Municipality, southeast of Bloemfontein in the Free State.
Butler. E., 2022. Palaeontological Impact Assessment for the proposed Naos Solar PV One Project near Viljoenskroon in the Free State.
Butler. E., 2022.Palaeontological Impact Assessment for the proposed Naos Solar PV Two Project near Viljoenskroon in the Free State.
Butler. E., 2022.Palaeontological Impact Assessment for the proposed Naos Solar PV Two Project near Viljoenskroon in the Free State
Butler. E., 2022.Palaeontological Impact Assessment for the Ngwedi Solar Power near Viljoenskroon in the Free State.
Butler. E., 2022. Palaeontological Impact Assessment for the Noko Solar Power Plant and power line near Orkney in the North West.
Butler. E., 2022. Palaeontological Impact Assessment for the Proposed Power Line as part of the Paleso Solar Power Plant near Viljoenskroon in the Free State
Butler. E., 2022. Palaeontological Impact Assessment for the Thakadu Solar Plant which near Viljoenskroon in the Free State
Butler. E., 2022. Palaeontological Impact Assessment of the Kentani, Braklaagte, Klipfontein, Klipfontein 2, Leliehoek and Sonoblomo PV Facilities located near Dealsville in the Free State Province
Butler. E., 2022. Palaeontological Impact Assessment for the proposed Harvard 1 Solar Photovoltaic (PV) facility on Portion 5 of Farm Spes Bona no 2355, Mangaung Metropolitan Municipality in the Free State.
Butler. E., 2022. Palaeontological Impact Assessment for proposed Harvard 2 Solar Photovoltaic (PV) facility on Portion 8 of Farm Spes Bona No 2355, Mangaung Metropolitan Municipality in the Free State.
Butler. E., 2022. Palaeontological Impact Assessment for the proposed Doornrivier Solar 1, southwest of Matjhabeng (formerly Virginia) in the Free State
Butler. E., 2022. Palaeontological Desktop Assessment for the proposed Leeuwbosch PV solar photovoltaic (PV) plant and associated infrastructure on Portion 37 of the Farm Leeuwbosch No. 44 near Leeudoringstad within the Maquassi Hills Local Municipality in the Dr Kenneth Kaunda District Municipality in the North West Province.
Butler. E., 2023. Palaeontological Impact Assessment to assess the Carmel Solar 1 Photovoltaic Solar Energy Facility, near Carletonville, Gauteng Province.
Butler. E., 2023. Palaeontological Impact Assessment to assess the Carmel Solar 2 Photovoltaic Solar Energy Facility, near Carletonville, Gauteng Province
Butler. E., 2023. Palaeontological Impact Assessment to assess the Carmel Solar 3 Photovoltaic Solar Energy Facility, near Carletonville, Gauteng Province.
Butler. E., 2023. Palaeontological Desktop Assessment for the proposed Droogfontein 6 Solar Energy Facility and Battery Energy Storage System, near Kimberley, Northern Cape Province
Butler. E., 2023. Palaeontological Desktop Assessment to assess the Icarus Solar Power Plant near Klerksdorp, North West Province.
Butler. E., 2023. Palaeontological Desktop Assessment to assess the proposed Virgo Solar Power Plant near Kathu in the Northern Cape Province
Butler. E., 2023. Palaeontological Desktop Assessment to assess the proposed Libra Solar Power Plant near Kathu in the Northern Cape Province

Butler. E., 2023. Palaeontological Impact Assessment to assess the proposed Khwezi Solar Grid Infrastructure near Excelsior, in the Free State Province
Butler. E., 2023. Palaeontological Impact Assessment to assess the proposed Khwezi Solar Power Plant near Excelsior, in the Free State Province
Butler. E., 2023. Palaeontological Impact Assessment to assess the proposed Lengana Solar Grid Infrastructure near Excelsior, in the Free State Province
Butler. E., 2023. Palaeontological Impact Assessment to assess the proposed Lengana Solar Power Plant near Excelsior, in the Free State Province
Butler. E., 2023. Palaeontological Desktop Assessment for Luckhoff Solar 1 Photovoltaic Solar Energy Facility (SEF) and associated infrastructure near Luckhoff in the Free State