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ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT AND EIA & EMP) FOR THE ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE TEMPORARY WATER PIPELINE FROM THE RÖSSING PIPELINE VIA FARM WEIZENBERG TO THE ETANGO MINE SITE DURING CONSTRUCTION

OCTOBER 2022

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DOCUMENT CONTROL

Report Title	Environmental Impact Assessment (Scoping Report and EIA & EMP) for the Environmental Clearance Certificate for the temporary water pipeline from the Rössing pipeline via farm Weizenberg to the Etango Mine Site during construction
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ACRONYMS

ASEC	A. Speiser Environmental Consultants cc
BID	Background Information Document
DEA	Department of Environmental Affairs
ECC	Environmental Clearance Certificate
EAPAN	Environmental Assessment Professionals of Namibia
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
IAPs	Identify interested and affected parties
MAWLR	Ministry of Agriculture Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism

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1 INTRODUCTION

Bannerman Mining Resources (Namibia) (Pty) Ltd (Bannerman) has an Environmental Clearance Certificate (ECC01608) for the proposed mining and associated activities at the Etango Project. At the time construction starts the permanent water pipeline from the base pump station near Swakopmund to the Etango Project will not yet be commissioned and water for construction to the mine site needs to be supplied from another source.

Bannerman approached A. Speiser Environmental Consultants (ASEC) to submit a proposal to conduct an Environmental Impact Assessment for the temporary water pipeline from the water pipeline along the B2 national road (Rössing Pipeline) supplying water to Rössing Uranium and Arandis as this pipeline has excess capacity (refer to **Figure 1** for the location of the temporary pipeline). As soon as the permanent water pipeline from the base pump station near Swakopmund to the Etango Project site has been finalised the temporary pipeline will be dismantled from the Etango Project to Farm Weizenberg. Bannerman therefore needs to apply for an ECC from the Ministry of Environment, Forestry and Tourism (MEFT) – Department of Environmental Affairs (DEA) for the construction of the temporary water pipeline, as described in **Section 7** of this EIA.

This application only applies to the construction and operation of the temporary construction water pipeline and not to the water supply. This will be as per agreement between Bannerman and NamWater.

Figure 1: Location of the temporary water pipeline.

2 INTRODUCTION TO THE ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF THE TEMPORARY WATER PIPELINE

EIAs are regulated by the MEFT (DEA) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966). The List of Activities that may not be undertaken without an Environmental Clearance Certificate (ECC) and the EIA Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 18 January 2012.

Below is a summary of the activity as listed in the Environmental Regulations from 2012, which is relevant to the proposed water pipeline construction:

10. INFRASTRUCTURE

10.1 The construction of-

(a) oil, water, gas and petrochemical and other bulk supply pipelines.

2.1 EIA process for the proposed water pipeline for the Etango Project

The main purpose of this report is to provide information relating to Bannerman's proposed temporary water pipeline construction to supply water to the Etango Mine during construction and to list the environmental aspects and impacts that are identified during the scoping process; to assess them; and to provide relevant management and mitigation measures to avoid or minimize the potential impacts (included in the EMP).

The area where the pipeline will be situated was included in the previous Etango Project Environmental Impact Assessment (ASEC and ERM 2009 – 2011) and background information in the EIA will be drawn from the existing specialist studies. Please note that a 'full EIA' has been conducted for the Etango Project (Mine) by ERM in 2011 (Etango Project Environmental and Social Impact Assessment (ESIA)) and approved by MEFT:DEA. The ECC1608 was renewed as set out in the Environmental Act. The last renewal was granted in September 2021.

Beginning of October 2022 an archaeological survey was conducted along the temporary water pipeline to ensure that no heritage sites will be damaged during construction.

The EIA Scoping process and corresponding activities are outlined in **Table 1** below.

Table 1: EIA Scoping process.

Objectives	Corresponding activities
Scoping phase (including assessment of impacts) (August 2022 – October 2022)	
• Identify interested and/or affected parties (IAPs) and involve them in the EIA (scoping) process through information sharing. • List environmental issues associated with the project. • Provide a description of the affected environment. • Assessment of potential environmental impacts associated with the proposed project.	• Submission of Application Form No. 1 to the Ministry of Agriculture Water and Land Reform (MAWLR) as the Competent Authority. • Register the application with MEFT. • Identify government authorities and IAPs and notify them of the project and EIA process. • Email a Background Information Document (BID) to all IAPs on the project EIA database.

Objectives	Corresponding activities
• Compile an EMP with mitigation measures.	• IAP registration and initial comments period. • Compilation of Scoping (including impact assessment) Report and EMP. • Distribute Scoping Report and EMP to relevant authorities and IAPs for review. • Meetings with I&APs were conducted in August 2022, where the study findings associated with the proposed temporary water pipeline were shared, during the review period of the EIA report. • Forward finalised Scoping Report and EMP with IAPs comments to MAWLR and MEFT for decision making.

2.3 Environmental Assessment Practitioner Team

ASEC is a successful Namibian company founded in 2003 with vast experience in conducting environmental and socio-economic related projects in Namibia.

The project team will comprise Ms Alex Speiser (Project Manager) and Mr. Werner Petrick (Project Assistant). Ms Speiser is registered Environmental Assessment Practitioners and members of the Environmental Assessment Professionals of Namibia (EAPAN). Ms Speiser is also member of the Chamber of Mines of Namibia and Chamber of Environment of Namibia.

The primary aims of ASEC are to promote and implement the three pillars of sustainable development (social, biophysical and economic) while providing efficient, cost-effective solutions that take current best practices into account at the planning, strategic and operational levels.

Mr. Petrick has more than twenty-one (21) years of relevant experience in environmental management, conducting/managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems. Mr. Petrick is certified as a lead Environmental Assessment Practitioner and Reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

The relevant curriculum vitae documentation is attached in **Appendix A**.

The environmental project team is outlined in **Table 2**.

Table 2: Environmental Project Team.

Team	Name	Designation	Tasks and roles	Company
Bannerman	Werner Ewald	Managing Director/ Project proponent	Responsible for the interface between Bannerman and the environmental team, and for ensuring implementation of the EIA / EMP outcomes.	Bannerman Mining Resources (Namibia) (Pty) Ltd
Project management	Alexandra Speiser	Project Manager	Management of the process, team members and other stakeholders. Report compilation. Review	ASEC

Team	Name	Designation	Tasks and roles	Company
	Werner Petrick	Project Management Assistant	Management of the process, team members and other stakeholders. Report review	Namisun
Specialist investigations	John Kinahan	Archaeologist	Conduct archaeological field study	QRS

3 EIA PROCESS METHODOLOGY

3.1 Information collection

Various sources to identify the environmental issues associated with the temporary water pipeline construction were used. The main sources of information for the preparation of this Scoping (including impact assessment) Report include:

- Project information were provided by Bannerman,
- Environmental Impact Assessment (ASEC and ERM 2009 – 2011) and specialist studies conducted during this EIA, and
- Specialist study including a site visit by Dr. J. Kinahan (archaeologist).

3.2 Scoping/Assessment Report

The main purpose of this Scoping/Assessment Report is to state which environmental aspects relating to the construction and operation of the water pipeline might have an impact on the environment, to assess them and to set out management and mitigation measures to avoid or reduce these impacts. **Table 3** outlines the Scoping Report requirements contained in Section 8 of the EIA Regulations under the Environmental Management Act, 7 of 2007. The table includes reference to the relevant sections in the report.

Table 3: Scoping report requirements stipulated in the EIA regulation.

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(a) the curriculum vitae of the EAP who prepared the report;	Appendix A
(b) a description of the activity;	Section 7
(c) a description of the site on which the activity is undertaken and the location of the activity on the site	Section 7
(d) a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Section 8
(e) an identification of laws and guidelines that have been considered in the preparation of the Scoping Report;	Section 5
(f) details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including - (i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; and (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Section 4 Appendix D, C Section 4.4 summary of issues raised
(g) a description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Section 6
(h) a description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning	Section 9

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
associated with the undertaking of the proposed listed activity;	
(i) terms of reference for the detailed assessment; and	
(j) a draft management plan, which includes - (i) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure; (ii) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and (iii) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.	Appendix G

4 PUBLIC PARTICIPATION PROCESS

The public participation process for the construction and operation of the water pipeline aimed to ensure that all Interested and Affected Parties (IAPs) and/or organizations that might be affected by the proposed project were informed and could register their views and concerns. By consulting with IAPs the range of environmental issues to be considered in the EIA Report (including the assessment of impacts) has been given specific context and focus.

Included below is a summary of the people consulted, the process that was followed, and the issues that were identified.

4.1 Stakeholders

Table 4 provides a list of stakeholders to whom the Background Information Document (BID) (**Appendix B**) has been directly emailed. No further IAPs have contacted the EIA team to register as an IAP after the newspaper adverts had been placed on 06 and 13 September 2022. The detailed list of IAPs can be found in **Appendix C**.

Table 4: Stakeholder list

Organisations
Government – National, Regional & Local
Business and Commerce
Farmers
Industry
Industry associations
Tourism
Academic
Registered as an IAP:
Namibian Chamber of Environment (Dr. Chris Brown)
Orano (Sandra Muller)
Resilient Environmental Solutions cc (John Pallett)
Walter Mining & Engineering Supplies cc (Erwin Walter Garoeb)
Fred Krenz

4.2 Steps in the consultation process

Table 5 sets out the steps in the consultation process that were conducted during the EIA Scoping process:

Table 5: Consultation process with IAPs.

TASK	DESCRIPTION	DATE
Notification - regulatory authorities and IAPs		
IAP identification	See **Table 4 and the comprehensive list in Appendix C**	August / September 2022
Newspaper Advertisements	Block advertisements were placed as follows: • Allgemeine Zeitung • Republikein • Namibian Sun Copies of the advertisements are attached in **Appendix D**.	06 & 13 September 2022

TASK	DESCRIPTION	DATE
Distribution of background information document (BID)	BIDs were emailed to I&APs listed in **Table 4** on 06 September 2022. The purpose of the BID was to inform IAPs about the proposed temporary water pipeline from the Roessing take-off to the Etango Project site, the EIA (Scoping) process being followed, potential environmental impacts identified by the Environmental Team and means of providing input to the EIA (Scoping) process. Attached to the BID was a registration and response form, which provided IAPs with an opportunity to submit their names, contact details and comments on the project. A copy of the BID is attached in **Appendix B**.	06 September 2022
Site notices	A site notice was placed at Goanikontes in September 2022 (**Appendix D**).	September 2022
IAP Study Focus Group Meetings	A site visit with the Chief Warden of the Dorob National Park (Mr. Riaan Salomon) was conducted on 25 August 2022. Mr. Masen (Chief Warden of the Namib Naukluft National Park) advised that he does not have time to come to Swakopmund for a site visit. The BID was mailed to him and enquiries were made, if anyone else from his department could assist Bannerman. On 13 October 2022 Bannerman received an email that Mr. Mason does not see any need for a site visit, as he knows the area well and does not foresee and environmental issues with the construction of a temporary pipeline. See **Appendix E** for the communication with Mr. Masen. During the following week Focus Group Meetings with key stakeholders (farmers and tourism) were held. Details are provided in **Section 4.3**.	August / September 2022
Comments		
Comments and Responses	See **Table 7**	August / September 2022
Review of draft Scoping (including Impact Assessment) Report and EMP		
IAPs and authorities (excluding MEFT) review of Scoping Report and EMP	The EIA Scoping / Assessment Report (with EMP) has been distributed to all IAPs that are registered on the IAP database via e-mail. Authorities and IAPs have 21 working days to review the EIA documents and submit comments in writing to ASEC or Bannerman. The closing date for comments is 17 November 2022.	19 October 2022
MEFT review of Scoping Report and EMP	A copy of the final Scoping / Assessment Report, including authority and IAP review comments, will be delivered to MAWLR and MEFT on completion of the public review process, for their review and decision.	Mid November 2022

4.3 Focus group meetings

Focus group meetings were scheduled from end of August to September 2022. **Table 6** lists the meetings. Correspondence can be found in **Appendix E**.

Table 6: List of Focus Group Meetings.

Organization / Date	Comment
Site visit with the Chief Warden of the Dorob National Park (Mr. Riaan Salomon) / 25 August 2022.	Mr. Salomon did not raise any concern, especially, as the section from the Roessing pipeline take-off to farm Weizenberg is following the existing pipeline to the farms and this section will be buried. Also no concerns were mentioned for the above-ground section from Goanikontes to the Etango Project, as the pipe will be removed after the permanent one has been commissioned.
Coastal Tourism Association of Namibia (CTAN) (Peter Baron van Ginkel) / 22 August 2022	He does not see a need for a meeting; he said thank you that he was informed as this would allow him to answer any questions that may arise.
Charly's Desert Tours (Gerald Kolb) / 22 August 2022	He was also satisfied with the route but requested a map that he can just visualize where exactly the pipeline will be located. (This was provided) Furthermore he requested that he be informed once construction starts.
Farm Goanikontes (Mr. Baard) / 22 August 2022	He said that he thinks this can only be a positive thing for them and they will support us with the pipeline going through their property. He also indicated that he does not see a need for a meeting.
Farm Goanikontes East (Mr. Livingstone) / 22 August 2022	He has no issue with the pipeline going on his side of the Swakop River as well; did not see a need for a meeting
Farm Weizenberg (Mr. Winni Metzger) / 24 August 2022	He indicated that 'all if fine' and that he gives his consent that the pipeline goes through his property. Also indicated that this would be a positive outcome for the farms in the Swakop River
Farm Brock (Mrs. Bianca Blatt) / 25 August 2022	She had no issues with the pipeline going along her property. However, on 06 October 2022 (see **Appendix E**) Mrs. Blatt informed Mr. W. Ewald (Bannerman) that Bannerman should 'clarify in a written confirmation that the pipeline will not be crossing the boundaries of her property'.

4.4 Summary of issues raised

Table 7 below summaries the comments received (through e-mails) and during the Focus Group and the responses.

Table 7: Issues and comments received after the newspaper advertisements.

Issues / Comments	Raised by	Responses
There won't be any significant impacts from the pipeline.	Muller Sandra (ORANO)	Noted
As this is a relatively small (16 cm diameter) and temporary pipeline, I see little environmental risk. The only thing I would ask you to think about is the impact of the pipe on the movement of small animals such as reptiles (e.g. tortoises, chameleons) and small mammals. You say that the pipe will be above ground from point 18 to 30. Perhaps consideration could be given to having gaps under the pipe to allow small animals to get from one side to the other. This could be easily done during construction.	Dr. Chris Brown (Namibian Chamber of Environment)	This will be addressed in the assessment and EMP.
The temporary pipeline should not cross her property (Farm Brock).	Mrs. Blatt, owner of Farm Brock	Noted and the alignment of the temporary pipeline has been changed accordingly.

5 LEGAL AND POLICY REQUIREMENTS

The Republic of Namibia has five tiers of law and a number of policies relevant to environmental assessment and protection, which includes:

- The Constitution.
- Statutory law.
- Common law.
- Customary law.
- International law.

Key policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).
- Environmental Management Act, 7 of 2007 and regulations.

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

The management and regulation of mining activities falls within the jurisdiction of the MME (Directorate of Mines). The environmental regulations are guided and implemented by the DEA within the MEFT.

5.1 Applicable laws and policies

In the context of the proposed (bulk water supply pipeline) Project, there are several laws and policies currently applicable. They are reflected in **Table 8**.

Table 8: List of laws applicable to the EIA.

YEAR	NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water / sea	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
1956	Water Act, 1956 (No. 54 of 1956), as amended	X										X		
1969	National Monuments Act 28 of 1969										X			
1969	Soil Conservation Act	X			X				X					
1974	Hazardous Substance Ordinance, No. 14 of 1974													X
1975	Nature Conservation Ordinance 14 of 1975	X			X					X	X			
1976	Atmospheric Pollution Prevention Ordinance 11 of 1976		X											
1990	The Constitution of the Republic of Namibia of 1990	X	X	X	X	X	X	X	X	X	X	X	X	
1990	Petroleum Products and Energy Act, No. 13 of 1990		X	X	X					X			X	X
1990	Nature Conservation General Amendment Act 1990	X			X					X	X			
1996	Nature Conservation	X			X					X	X			

YEAR	NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water / sea	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
	Amendment Act 5;													
2001	The Forestry Act 12 of 2001	**X**							**X**	**X**				
2001	The Wildlife and Protected Areas Management Bill									**X**				
2003	Pollution Control and Waste Management Bill (3rd Draft September 2003)		**X**	**X**	**X**	**X**								
2004	National Heritage Act 27 of 2004										**X**		**X**	
2007	Labour Act, 2007 (No. 11 of 2007)											**X**		
2007	Environmental Management, Act 7 of 2007	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
2012	Regulations promulgated in terms of the Environmental Management, Act 7 of 2007	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
2017	Nature Conservation Amendment Act 3	**X**			**X**					**X**	**X**			

5.2 International treaties and protocols

The following international treaties and protocols have been ratified by the Namibian Government:

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES) (1973)
- Vienna Convention for the Protection of the Ozone Layer (1985)
- Montreal Protocol on Substances that Deplete the Ozone Layer (1987)
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal (1989)
- Convention on Biological Diversity (1992)
- United Nations Framework Convention on Climate Change (1992)
- Kyoto Protocol on the Framework Convention on Climate Change (1998)
- World Heritage Convention (1972)
- Convention to Combat Desertification (1994)
- Stockholm Convention on Persistent Organic Pollutants (2001)

5.3 Permits and other requirements

As stipulated in the Environmental Impact Assessment Regulations, No.30 of 2012, the Environmental Clearance Certificate (ECC) needs to be obtained from MEFT:DEA before the commencement of the Project.

Additional permits, which need to be in place and be obtained by Bannerman are:

Labour Act 11 of 2007	Regulations relating to the health and safety of employees at work are contained in GN 156/1997 (GG 1617). Must be complied with on this project.
Forestry Act No 12 of 2001 **Forest Amendment Act, No. 13 of 2005**	Section 22 of the Act requires a permit for the cutting, destruction or removal of vegetation that are classified under rare and or protected species. The Act also stipulates that trees, shrubs and bushes within 100 m from a watercourse may not be cut, destroyed or removed without a permit.
National Heritage Act No 27 of 2004	No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated.

6 DESIRABILITY AND ALTERNATIVES

Bannerman approached Swakop Uranium Limited and Langer Heinrich mine to investigate the option to obtain water during construction from the two existing pipelines along the district road C28. However, no spare capacity is available from these pipelines as both mines need their full water supply capacity to operate their mines.

Hence the only route to obtain water during construction is from the Roessing pipeline. As a take-off exist from the Roessing pipeline to farm Weizenberg, this was the logical option to lay a water pipeline next to the existing one (see **Figure 1**, point 1 to 17).

From Farm Weizenberg three options have been investigated:

Option 1: the pipeline will continue to Farm Goanikontes and follows the southern edge of the Swakop River (see **Figure 1**, point 17 to 22).

Option 2: the pipeline would continue to Farm Goanikontes East and crosses the Swakop River to the valley (see **Figure 1**, point 22).

Option 3: the pipeline would follow the district road D1991 and crosses over the plain to the Etango Project site.

See Figure 2 which shows the three options considered.

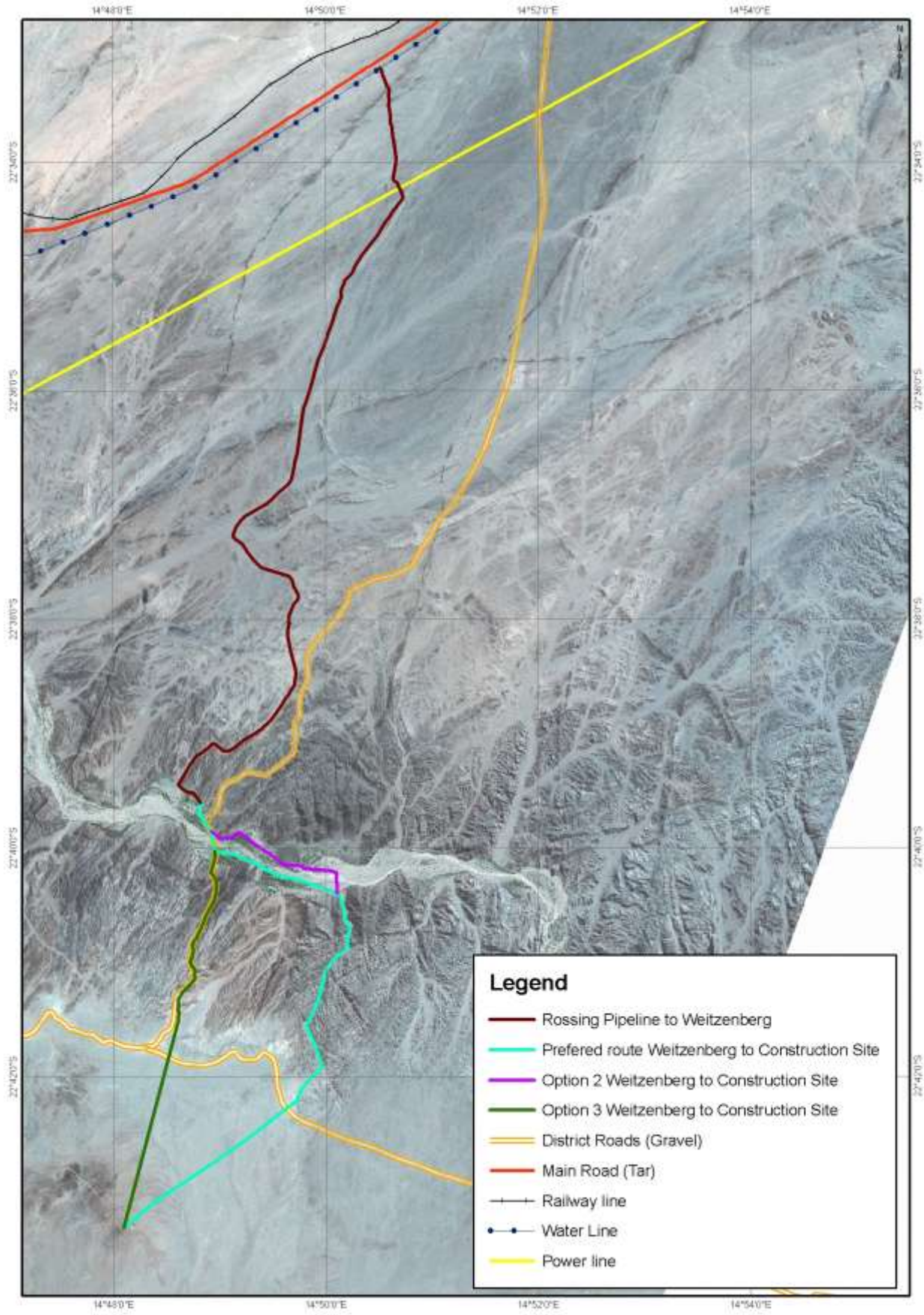

Figure 2: Pipeline route options considered.

At present Options 1 is the preferred route, as the pipeline would be buried along the district road D1991 from Farm Weizenberg to Farm Goanikontes following the same route as the existing water pipeline to Goanikontes. The crossing through the Swakop River from Farm Goanikontes East would be longer and also more vulnerable to been washed away should the Swakop River flow. Option 3 is the most invasive one, as it would follow along the road and be visible to all road users.

The no-go option, as water is needed once construction starts at the Etango Project has not been considered.

7 PROPOSED TEMPORARY WATER PIPELINE – PROJECT DESCRIPTION

7.1 Background

Permanent water supply for the Project will come from NamWater in the form of desalinated water for the processing and domestic requirements.

However, during construction of the Etango Project site water will be sourced temporarily from the Rössing pipeline for approximately 2 years. The proposed construction water pipeline will follow the existing pipeline from the Rössing pipeline take-off (Point 1, see **Figure 1**) to Farm Weizenberg (Point 17, see **Figure 1**), which currently supplies water to the farms Weizenberg and Goanikontes in the Swakop River. The section from the Rössing pipeline to Goanikontes will be buried and after the permanent pipeline to the Etango Project has been commissioned, it will be handed over to Farm Weizenberg to replace the current pipeline which is aging. From Farm Goanikontes the temporary pipeline will be put above ground to the Etango Project Site (point 18 to 30, see **Figure 1**). This section will be removed after the permanent pipeline has been commissioned.

The pipeline will be made of high-density polyethylene (or HDPE) plastic and will have a 160mm outside diameter. The total length of the temporary water pipeline will be approximate 25km.

7.2 Water supply

Bannerman will buy water from NamWater.

7.3 Water pipeline alignment

The alignment is shown in **Figure 1**, while photos in **Plate 1** shows areas of the existing pipeline to Farm Weizenberg. **Plate 2** shows the area from Goanikontes along the Swakop River through the valley to the Etango Project.

The following needs to be considered when putting the temporary water pipeline in place:

- Ensure that as little vegetation is disturbed in the Swakop River as possible;
- Ensure that the above ground section of the pipeline does not proof to be an obstacle for small animals, especially mammals and reptiles.

Water take-off at the Roessing pipeline

Existing pipeline looking North towards the Roessing pipeline

Existing pipeline looking North towards the Roessing pipeline

Existing pipeline looking North just before it goes into the Swakop River to Farm Weizenberg

Water storage on Farm Weizenberg

Plate 1: Existing water pipeline from the Roessing Pipeline take-off to Farm Weizenberg.

Area where the new temporary pipeline will be layed above ground at the southern side of the Swakop River

Valley from the Swakop River towards the Etango Project (left: looking south from the Swakop River; right: looking North towards the Swakop River).

Plate 2: Areas from Farm Goanikontes where the temporary pipeline will be place above ground.

7.4 Infrastructure and construction activities

No power supply is needed for the temporary pipeline, as the altitude difference between the take off at the Roessing pipeline and the Etango Project site allows for a free gravity flow.

Approximately 1km after the Roessing pipeline take off a pressure reduction tank will be installed. This tank is necessary as the pressure in the pipeline would otherwise be too high and a steel pipeline would then have to be used. **Plate 3** shows the tank that will be used for this purpose.

Plate 3: Tank to be used to reduce the water pressure in the pipeline.

Construction activities will take place during the establishment and preparation of the water pipeline and associated infrastructure. The following activities are expected:

- **Activities at Point 1 to 17 (see Figure 1):**
  - Trench excavation (depth: 0.2m, width: 0.3m) by a small Front-end-loader (see below).

  - Manually placing the pipeline into the trench and backfilling.
  - Excess soil to be raked over the pipeline.
- **Activities at Point 17 to 30 (see Figure 1):**
  - The section where it crosses the D1991 will be buried.
  - Manually placing the pipeline on to the ground.

- Minimal vegetation in the Swakop River needs to be removed from point 18 to 22, the width will be kept to a minimum and will be approximately 1.5m wide.
- Construction of pipeline crossings from point 22 – 30. This needs to be monitored to ensure small animals can cross this area.
- Operation and movement of small construction vehicles.

An access track exists from point 1 to farm Goanikontes (point 19), as well from point 22 to 30. The section from point 19 to 22 is within the Swakop River and no access track exists, as mentioned above an approximately 1.5m of vegetation needs to be cleared to place the pipeline.

7.5 Workforce / accommodation

It is estimated that the workforce will be between **8 – 10 people**, which are accommodated outside the National Parks, in Swakopmund or Walvis Bay.

7.7 Waste manage and rehabilitation

The following types of waste will be generated during the construction phase, in relatively small volumes:

- Domestic waste (non-hazardous).
- Industrial waste – non-hazardous (offcuts, empty containers, plastics and packaging)

All waste generated during the construction will be contained and removed from site on a weekly basis to the Swakopmund waste dump.

After removal of the pipeline from point 18 to 30, the area will be rehabilitated as set out in the EMP (see **Appendix G**).

7.7.1 Sanitation

Portable toilets and ablution facilities will be placed onsite to ensure that sewage is contained and regularly disposed of appropriately.

7.8 Construction phase timing

Construction commencement is subject to regulatory approval, i.e. approval of the EIA and issuing of an ECC by MEFT. Furthermore, the implementation of the proposed water pipeline project is subject to the agreement between NamWater and Bannerman for the supply of water from the Roessing pipeline. Approval has been obtained from Namwater and a take-off point has been provided.

At this point in time (depending upon the above-mentioned conditions), Bannerman plans to commence with the construction in the second half of 2023.

Construction of the proposed pipeline would take approximately 5 months.

8 DESCRIPTIONS OF THE CURRENT ENVIRONMENT

This chapter provides an overview of the current baseline conditions of the environment where the temporary water pipeline will be constructed.

The area where the temporary pipeline will be situated was included in the previous Etango Project Environmental Impact Assessment studies (ASEC and ERM 2009 – 2012) and information in the EIA will be drawn from the existing specialist studies. The final EIA report, which was submitted to MEFT was compiled by ERM (Etango Project Environmental and Social Impact Assessment (ESIA) (ERM, 2011) and the ECC has been granted (ECC1608).

Only relevant aspects are discussed below, e.g. the temporary pipeline will have no influence on the groundwater, noise and socio-economic aspects, hence these have not been included.

8.1 Climate

The climate in the project area is arid and falls into southern Africa's summer-rainfall region.

The area lies within the area receiving fog which forms when moist air that has been cooled over the Benguela current is blown on-shore (Pallett, 1995). Along the coast, the air remains humid throughout the year as a result of moist air feeding off the Atlantic. Even at 14h00 in winter, average humidity values drop only to 60% or 70%, while they are generally above 80% at other times (Mendelsohn *et al.*, 2002). Walvis Bay area receives on average >125 fog days per year (Molloy & Reinikainen, 2003). No data could be obtained for Swakopmund; however, experience shows that the number of fog days per year is higher. The number of fog days per year decreases eastwards (Olivier, 1995), but fog does reach the study area and probably provides a proportion of the moisture available.

Although mean annual rainfall is in the region of only about 20 mm, regular fog is observed up to 60 km inland and may exceed rainfall in this area (Hachfeld & Jürgens 2000).

Average daily temperatures vary between a minimum of 10°C in the coldest month and a maximum of 32°C in the warmest month in the area (Mendelsohn et al, 2002). Due to coastal proximity, frost is probably rare.

Winds along the coast are predominately from the south and west. High-pressure systems over the interior of southern Africa cause strong north-easterly winds, the so-called Berg winds, during the winter months. These Berg winds can blow for a number of days and are characterised by very high temperatures associated with dry and dusty conditions (Pallett, 1995).

A detailed description of the climate using the data from the Bannerman weather station was part of the Etango Project Environmental and Social Impact Assessment (ESIA) (ERM, 2011).

8.2 Air Quality

The area lies within the Dorob and Namib Naukluft National Parks, which are regarded as ecologically sensitive. The main air pollution sources within the region, as identified during the 2019 air quality study as part of the SEMP AQMP (Liebenberg-Enslin, et al., 2019), include current mining operations, exploration activities, public roads (paved, unpaved and salt/treated), and natural exposed areas prone to wind erosion.

The main pollutant of concern would be particulate matter (TSP; PM_{10} and $PM_{2.5}$) resulting from vehicle entrainment on the roads (paved, unpaved and treated surfaces), windblown dust, and construction activities. Gaseous pollutants such as SO_2, NOx, CO and CO_2 would result from vehicles emissions, but these are expected to be at low concentrations.

However, only minimal additional vehicle movement will arise from the construction of the temporary pipeline.

8.3 Surface Water

The information was taken from the Etango Project Environmental and Social Impact Assessment (ESIA) (ERM, 2011).

The major hydrological feature of the Project site is the Swakop River, which is one of the four major ephemeral river systems of the central Namib, draining westwards into the Atlantic Ocean. The significant decrease in rainfall from east to west, combined with the erratic nature of runoff, and the increase in evaporation potential (from east to west) results in highly episodic flow of all rivers in the central Namib Desert. These rivers generally contain discharge for a brief period of time, following exceptionally heavy rainfall events in the catchment (BIWAC, 2010a from Ashton, 1991).

An east-west striking watershed separates the Swakop and the Tumas Catchment areas. The area to the north of the watershed forms part of the Swakop Catchment and drains towards the Swakop River in the north. Towards the Swakop River, the terrain becomes hilly and rugged and the drainage lines join to form gorges as the land surface erodes.

Shallow ephemeral washes characterize the area North of the Swakop River.

8.4 Land Use

Land use in the project area is wildlife conservation and tourism. A number of small holdings are situated in the Swakop River.

8.5 Habitat Zones (Flora and Fauna)

The area in which the pipeline will be situated may broadly be divided into four habitat zones (**Figure 3**, for photos please refer to **Plate 1** and **2** in **Section 7**), These were identified during the EIA for the Etango Project. Overall, it consists largely of sandy gravel plains dissected by ephemeral watercourses and washes that generally trend north-east → south-west. These plains are incised towards the southern reaches by the canyon of the westward-flowing ephemeral Swakop River. In the vicinity of the river on both sides the plains (Zone A) tend to gradually change into gravelly, undulating hills dissected by narrow sandy washes (Zone B), finally becoming a broad band of high mountainous ridges forming the canyon, dissected by sandy washes of varying size and accessibility (Zone C), that demarcate the route of the Swakop River (Zone D). Zones B and C drain towards the river.

Many animal taxa are found in more than one habitat, especially larger mammals which move around more widely than small species such as rodents or lizards. The value of describing habitats is that they are clearly distinct components of the total environment, recognizable by humans and by the animals that use them.

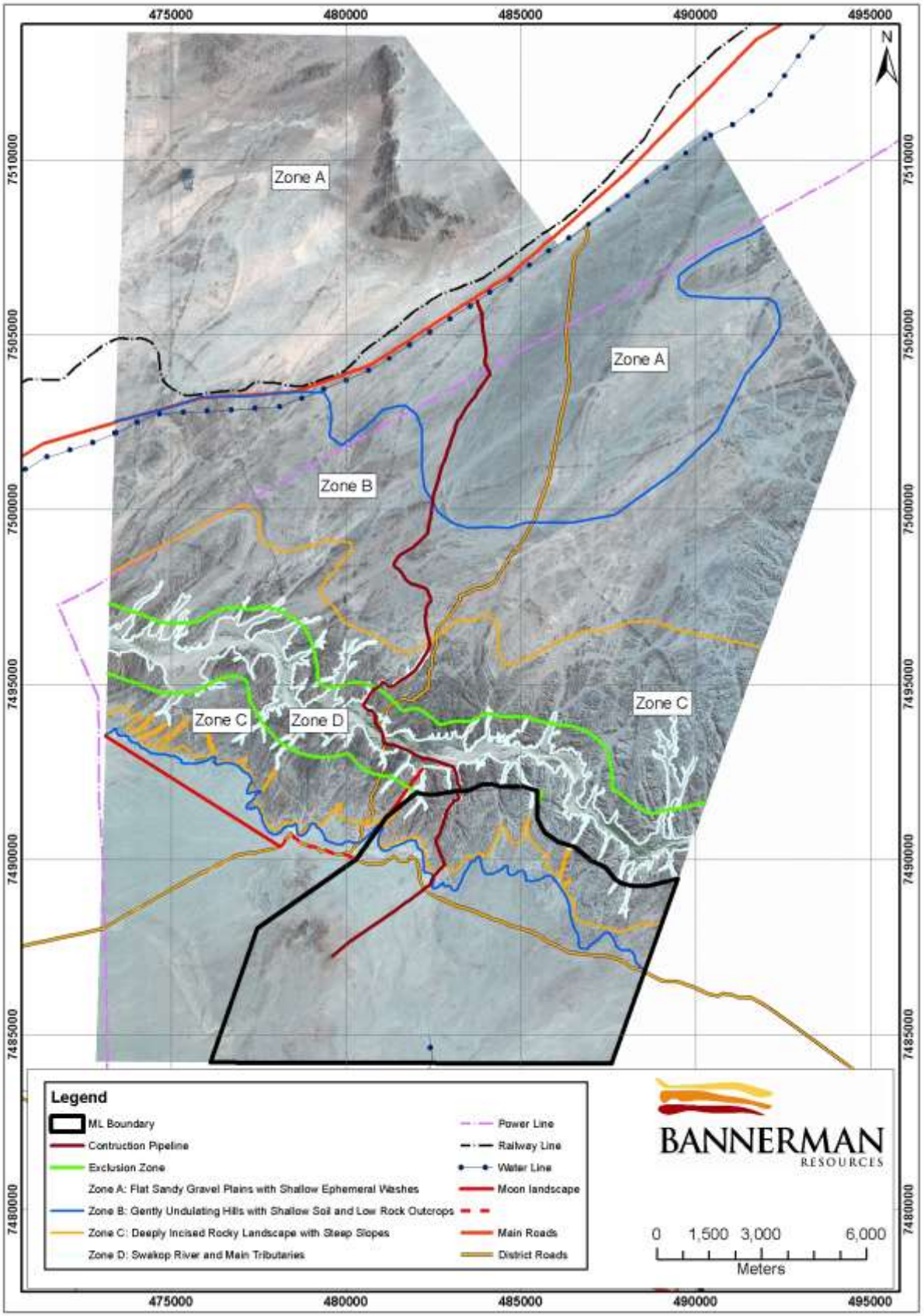

Figure 3: Habitat zones identified during the Etango Project EIA (ASEC, ERM 2009 – 2012).

8.5.1 Habitat Zone A - Sandy gravel plains with shallow washes and rocky outcrops

The plains are almost bare of plants, with almost all growth being confined to the washes. North of the river there are small patches of growth, usually composed of the near-endemic annual grass *Aristida parvula, Enneapogon desvauxii* and *Ophioglossum polyphyllum.* After rains it may be expected that these plains will be covered in grasses, annuals and geophytes that are presently not apparent. Characteristic remains of *Blepharis grossa,* a near-endemic annual herb, is apparent throughout the zone, and many newly-germinated seedlings were present but not identifiable.

Soils are gypsum-rich and have a surface pavement of small stones and grit, underneath which is more fine-grained material mixed with a small proportion of stones.

No rocky outcrops will be affected by the project and hence are not described.

The washes are made conspicuous by the plants they support, which are more numerous, larger and more diverse than on the flat surroundings. This reflects the slightly superior water-concentrating and retaining ability of the washes. The substrate is more sandy and less consolidated, making animal burrowing more difficult. The washes are an important resource for plains-dwelling animals, which find shelter and a concentration of food and moisture in and around the plants (Hachfeld & Jürgens, 2000). For instance, springbok in the area rely largely on the green plant material in washes, and ostrich also fulfill most of their water requirements from wash vegetation. Seed-eating birds such as sandgrouse rely heavily on the products of shrubs in the washes (Lloyd *et al*, 2000). Invertebrates concentrate where there is shade, shelter from wind and food in the green plants or in detritus which collects around them. Scorpions, lizards and other predators feed on the herbivores. Thus animal life on the gravel plains is concentrated in the washes and sustained by the plants in them (Seely & Pallett, 2008). The shallow washes are functional miniature linear oases. None of the washes are affected by the project, as the line will follow the already existing pipeline to Farm Weizenberg.

8.5.2 Habitat Zone B - Gently undulating hills with shallow soil

Shallowly undulating hills fall between the plains and the mountainous ridges that form the canyon of the Swakop River. They comprise mostly granitic-gneissic bedrock covered with rather shallow coarse soils, with rock debris lying on the surface, partly exposed and embedded in soil. Superficially they appear largely unvegetated, but they are dissected by narrow, sandy-rocky washes that harbour considerable plant life, including endemic and near-endemic species, and are characterised by *Z. stapfii, A. leubnitziae, Asparagus pearsonii, Adenolobus pechuelii, Petalidium variabile, Sesuvium sesuvioides* and *Cryptolepis decidua.* Like on the plains, there are no trees in this habitat.

Opportunities for animal inhabitants are linked with the sparse vegetation and shelter on the low rock outcrops and rock debris. Species dependent on rocky habitat, such as crevice-seeking lizards and scorpions, are found here in relatively low abundance, and the same goes for species more typical of flat gravel plains. These habitats will not be affected by the project.

8.5.3 Habitat Zone C - Deeply incised rocky landscape with steep slopes

The flanks of the Swakop River valley comprise deeply dissected terrain where much bedrock is exposed and rock fragments are abundant on the steep scree slopes. This very rugged terrain is mainly made up by schists and gneisses with intruded and deformed alaskite formations and dolerite dykes that tend to stand out in positive relief.

Animal life in this harsh terrain is nourished by the sparse vegetation and the fact that fog precipitation provides fairly regular and adequate water for their survival, year-round. Small rock overhangs, crevices underneath rocks and fissures and cracks on the surface provide ample shelter for small rock-loving animals.

Relatively large animals occupying this habitat are dependent on the security and shelter afforded by rock overhangs and shallow caves, and the inaccessibility of the terrain. Klipspringer, rock dassie, rock rabbit and rock rat are the mammals that live here on a

permanent basis, feeding on the plants that grow on the slopes and also venturing into the valleys where more vegetation is concentrated. Mountain zebra, kudu and gemsbok utilize rocky areas and valleys as well as adjacent plains. Given this food source, mammal predators such as spotted hyena and leopard are likely but probably rare or vagrant, and raptors (eg black eagle, augur buzzard) fill this role from the air.

8.5.4 Habitat Zone D - Swakop River and main tributaries

Swakop River

This sub-zone consists of a broad, sandy riverbed and alluvial floodplain with a robust riparian vegetation characterised by woody species such as *Faidherbia albida, Acacia erioloba, Euclea pseudebenus* (all protected species)*, Tamarix usneoides* and S*alvadora persica.*

The floodplain supports many other species, including endemics and near-endemics such as *Petalidium canescens, Monechma cleomoides, Zygophyllum stapfii* and *Hermannia amabilis,* and other species, such as *Sueda plumosa.*

Valleys

The large, navigable valleys that drain into the Swakop River are characterised by *Acacia erioloba, Euphorbia virosa, Petalidium variabile, Codon royenii* and *Zygophyllum stapfii.*

The trees and large plants are nourished by the alluvial aquifer and provide an important food resource to larger species of wildlife such as gemsbok and steenbok which feed on the leaves and pods (Kok & Nel, 1996; Jacobson *et al,* 1996). This linear oasis also provides food and shelter for birds and of course many smaller invertebrates and reptiles, which make use of the sheltered and relatively mild conditions in the otherwise harsh surroundings. The sandy river bed has deep unconsolidated soil, with clay and silt layers on the surface and interbedded deeper underground. Since it is periodically flooded and is quite unconsolidated, it is not greatly used as a substrate in which small animals make their burrows.

Since this is the only habitat that supports trees, the trees permanently supply green forage and shelter, and they form a linear connection to relatively wetter areas further inland, animals can enter the desert and survive in otherwise inhospitable terrain (Jacobson *et al,* 1996). Steeenbok, kudu, porcupine, leguaan and platanna frog are examples.

Large mammals such as kudu and gemsbok make use of the river bed most during the driest part of the year, between October and January, when there is fodder from trees and pods and small water sources at springs and gorras which gemsbok dig into the river bed. There are no fixed ‘migration routes’ – the animals move away from and towards the river as they need to and along many different routes (Lenssen, pers. comm. 2008)

8.5.5 Restriction of Movement of small Mammals

Bigger mammals and birds are expected to be not negatively affected by the above ground pipeline, as the diameter is only 160mm.

However, this might proof an obstacle for smaller animals, such as tortoises and hence it is recommended to cover wider sections of the pipeline to ensure that these animals are not trapped on either site.

8.8 Archaeology

A field survey was carried out by Dr. J Kinahan over the proposed pipeline route to locate and document its archaeological features in October 2022. The report is attached in **Appendix F**).

8.8.1 Archaeological Setting

The western parts of Namibia are recognized as a globally important archaeological landscape, having abundant evidence of human settlement spanning the last one million years.[1] Within the central Namib Desert which includes MDRL 3345 and the proposed Etango mine, archaeological remains occur as a thinly scattered distribution of stone artefacts and related material with the last 100 000 years, especially the last Interglacial being particularly well represented. This was a period of elevated humidity in the Namib and was followed by primarily unstable climatic conditions. During the last few thousand years human occupation of the central Namib was characterized by small basecamps at temporary water sources, more sustained residence being possible only at the coast and at a small number of sites. Colonial era occupation of the Namib was similarly limited by water supplies but small, relatively successful settlements such as Goanikontes were established along the ephemeral river courses.

8.8.2 Field Observations

The terrain is typical of the Namibian central and western area, with subdued outcrops gneisses and syn- to post-Tectonic granites and pegmatite features, on a landscape otherwise characterized by extensive gravel plains and aeolian sand sheets with broad alluvial deposits marking the courses of ephemeral streambeds. Rainfall averages less than 100mm/$y^{-1}$and vegetation is consequently limited to sparse scrub and succulent bushes such as *Zygophyllum stapfii* and *Adenolobus pechuelli*.

Figure 4 shows the route of the proposed pipeline with a 250m buffer indicating the area covered by the survey. The map indicates the sites that fall within the area surveyed. **Table 9** lists the sites according to their field record numbers, geographical coordinates, their offset distance from the pipeline. In the field, archaeological sites were located by hand-held GPS, and recorded as to size, estimated age and affinity and then assessed as to their archaeological significance and vulnerability (S/V) using the standard parallel scales set out in **Table 10**. The sites

Table 9: Archaeological sites recorded on the Etango pipeline route.

Site	Latitude	Longitude	Offset m	S/V
QRS 89/23	-22,66290	14,80633	>200m	3/1
QRS 89/37	-22,71758	14,80351	150m	3/1
QRS 238/1222	-22,63925	14,82834	40m	2/1
QRS 238/1223	-22,62971	14,82883	2m	0/2
QRS 238/1224	-22,62685	14,82703	5m	1/2
QRS 238/1225	-22,61648	14,82286	50m	3/0

Table 10: Significance and Vulnerability Ranking of archaeological sites.

Significance Ranking (S)	Vulnerability Ranking (V)
0 no significance	0 not vulnerable
1 disturbed or secondary context	1 no threat posed
2 isolated minor find	2 low or indirect threat
3 archaeological site	3 probable threat

4 multi-component site	4 high likelihood of disturbance
5 major archaeological site	5 direct and certain threat

QRS 89/23 is a small colonial-era building erected in 1907. It has been extensively renovated and is currently in use by the owners of Goanikontes. The building is of historical significance. The pipeline construction poses no risk of damage to the site.

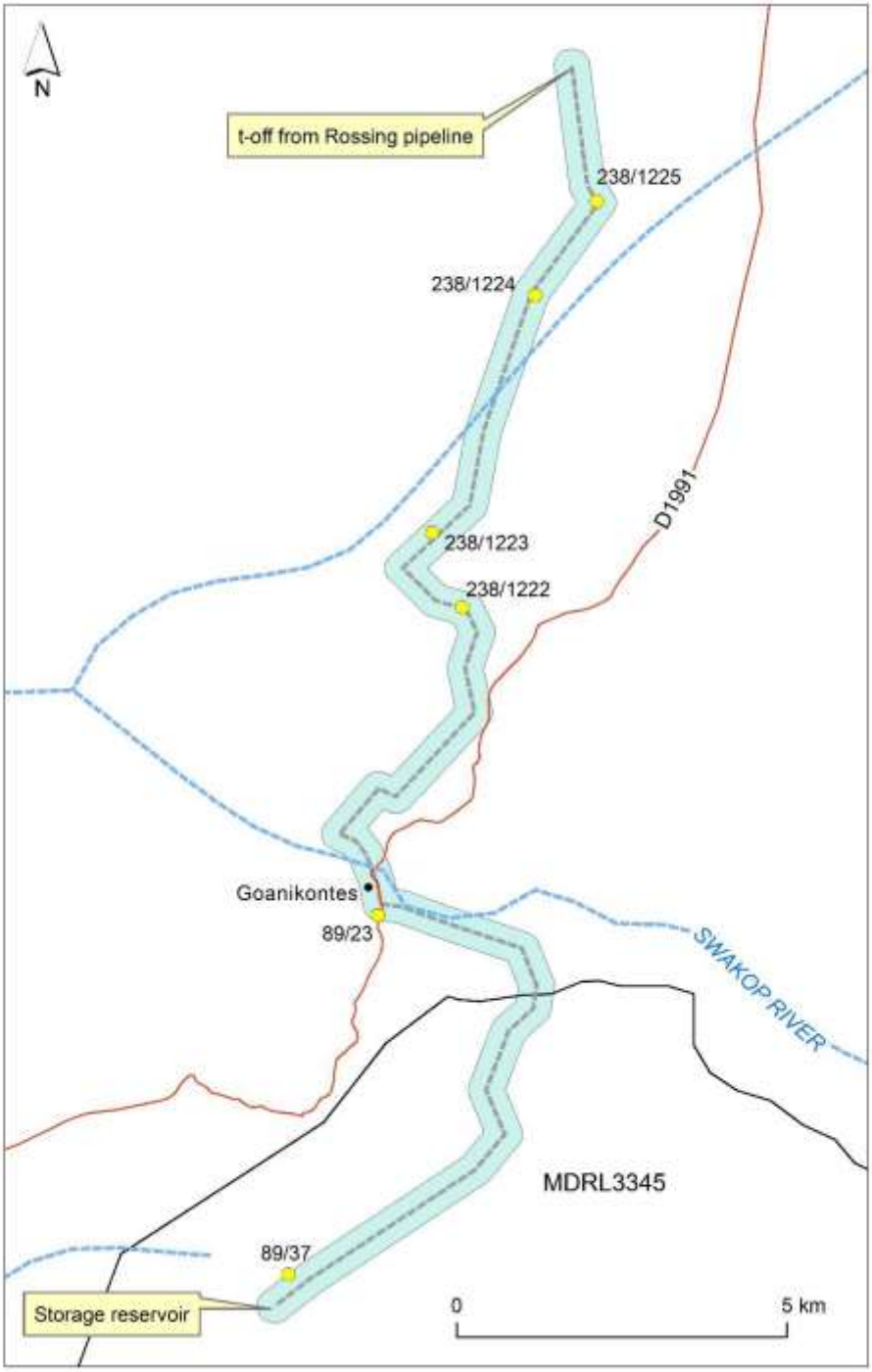

Figure 4: The distribution of archaeological sites (shown as numbered yellow dots) within a distance of 250m from the proposed pipeline from the Rössing pipeline to the Etango mine storage reservoir.

QRS 89/37 is a minor scatter of stone artefact flaking debris (fine-grained chert). The site lies 150m to the north-west of the pipeline route and will not be damaged or disturbed by it.

QRS 238/1222 is a minor granite core-stone outcrop with a small scatter of hydrothermal vein quartz artefact flaking debris. The site lies 40m east of the pipeline route and will not be damaged or disturbed by it.

QRS 238/1223 is an isolated seed-digging in thin pedogenic calcrete. Seed diggings are a common feature of the central Namib and evidence of a highly specialized subsistence strategy based on the collection of grass seed from the underground storage cells of harvester ants. These sites which all date to within the last 1 000 years are mostly concentrated about 100km inland from the coast and at the foot of the escarpment. QRS 238/1223 represents the western limits of seed-digging in the Namib. Seed-diggings are not treated as archaeological sites in themselves but merely as indicators of the likely presence of occupation sites in the same area.

QRS 328/1224 was an isolated surface find of a human tibia (left lower limb) lying 5m east of the pipeline route. The bone which is in a deeply weathered state measures 35.5cm in length, taking account of the missing proximal epiphysis. Following standard formulae[2] the tibia length yields a skeletal stature of 146.9cm with an estimated living stature of 147.05cm. The unfused proximal epiphysis suggests an individual of less than 16 years. The general appearance of the bone is shown in **Figure 5**, while **Figure 6** shows evidence of animal tooth marks which indicate that the bone originates from a burial site that has been disturbed by burrowing animals. No evidence of the burial itself was found.

Figure 5: QRS 328/1224 left human tibia, lateral view on left, frontal view on right. Note missing proximal epiphysis.

Figure 6: QRS 328/1224 lateral view of left human tibia with animal tooth marks indicated.

QRS 238/1225 is a dispersed scatter of hydrothermal vein quartz artefact flaking debris associated with an outcrop of augen gneiss presenting a vantage point which was probably used during a hunting expedition in this area. The site lies 50m north-west of the pipeline route and will not be damaged or disturbed by it.

9 ASSESSMENT – ENVIRONMENTAL IMPACTS OF PROPOSED CONSTRUCTION OF THE TEMPORARY WATER PIPELINE

As indicated earlier the temporary pipeline will be constructed from point 1 to point 19 (see **Figure 1**) in an already disturbed service corridor. Form point 19 to point 30 it will be above ground and minimal vegetation needs to be cleared from point 19 to 21 (see **Figure 1**) The potential impacts will be briefly discussed and assessed without and with mitigation.

Table 11 shows the methodology used to conduct the qualitative assessment.

Appendix G provides the Environmental Management Plan, which sets out the commitments, mitigation and rehabilitation measures to ensure potential impacts are as far as possible avoided or minimised.

Table 11: Criteria for assessing potential impacts.

IMPACT assessment criteria	
SIGNIFICANCE determination	Significance = consequence x probability
CONSEQUENCE	Consequence is a function of: • Nature and Intensity of the potential impact • Geographical extent should the impact occur • Duration of the impact

Ranking the NATURE and INTENSITY of the potential impact	
Negative impacts	
Low (L)	The impact has no / minor effect/deterioration on natural, cultural and social functions and processes. No measurable change. Recommended standard / level will not be violated. (Limited nuisance related complaints).
Moderate (M)	Natural, cultural and social functions and processes can continue, but in a modified way. Moderate discomfort that can be measured. Recommended standard / level will occasionally be violated. Various third party complaints expected.
High (H)	Natural, cultural or social functions and processes are altered in such a way that they temporarily or permanently cease. Substantial deterioration of the impacted environment. Widespread third party complaints expected.
Very high (VH)	Substantial deterioration (death, illness or injury). Recommended standard / level will often be violated. Vigorous action expected by third parties.
Positive impacts	
Low (L) +	Slight positive effect on natural, cultural and social functions and processes Minor improvement. No measurable change.
Moderate (M) +	Natural, cultural and social functions and processes continue but in a noticeably enhanced way. Moderate improvement. Little positive reaction from third parties.
High (H) +	Natural, cultural or social functions and processes are altered in such a way that the impacted environment is considerably enhanced /improved. Widespread, noticeable positive reaction from third parties.
Very high (VH) +	Substantial improvement. Will be within or better than the recommended level. Favourable publicity from third parties.

Ranking the EXTENT	
Low (L)	Local: confined to within the project concession area and its nearby surroundings
Moderate (M)	Regional: confined to the region, e.g. coast, basin, catchment, municipal region, district, etc.
High (H)	National; extends beyond district or regional boundaries with national implications
Very high (VH)	International: Impact extends beyond the national scale or may be transboundary

Ranking the DURATION

Low (L)	Temporary/short term. Quickly reversible. (Less than the life of the project).
Moderate (M)	Medium Term. Impact can be reversed over time. (Life of the project).
High (H)	Long Term. Impact will only cease after the life of the project.
Very high (VH)	Permanent

Ranking the PROBABILITY	
Low (L)	Unlikely
Moderate (M)	Possibly
High (H)	Most likely
Very high (VH)	Definitely

SIGNIFICANCE Description		
	Positive	**Negative**
Low (L)	Supports the implementation of the project	No influence on the decision.
Moderate (M)	Supports the implementation of the project	It should have an influence on the decision and the impact will not be avoided unless it is mitigated.
High (H)	Supports the implementation of the project	It should influence the decision to not proceed with the project or require significant modification(s) of the project design/location, etc. (where relevant).
Very high (VH)	Supports the implementation of the project	It would influence the decision to not proceed with the project.

DETERMINING THE CONSEQUENCE

DETERMINING THE CONSEQUENCE					
INTENSITY OF IMPACT = LOW					
DURATION	**VH**	**Moderate**	**Moderate**	**High**	**High**
	H	**Moderate**	**Moderate**	**Moderate**	**Moderate**
	M	**Low**	**Low**	**Low**	**Moderate**
	L	**Low**	**Low**	**Low**	**Moderate**
INTENSITY OF IMPACT = MODERATE					
DURATION	**VH**	**Moderate**	**High**	**High**	**High**
	H	**Moderate**	**Moderate**	**High**	**High**
	M	**Moderate**	**Moderate**	**Moderate**	**Moderate**
	L	**Low**	**Moderate**	**Moderate**	**Moderate**
INTENSITY OF IMPACT = HIGH					
DURATION	**VH**	**High**	**High**	**Very High**	**Very high**
	H	**High**	**High**	**High**	**Very High**
	M	**Moderate**	**Moderate**	**High**	**High**
	L	**Moderate**	**Moderate**	**High**	**High**
INTENSITY OF IMPACT = VERY HIGH					
DURATION	**VH**	**Very high**	**Very High**	**Very High**	**Very high**
	H	**High**	**High**	**Very High**	**Very high**
	M	**High**	**High**	**High**	**Very High**
	L	**Moderate**	**High**	**High**	**Very High**
		L	**M**	**H**	**VH**
		EXTENT			

DETERMINING the SIGNIFICANCE

DETERMINING THE SIGNIFICANCE					
PROBABILITY	**VH**	**Moderate**	**High**	**High**	**Very high**
	H	**Moderate**	**Moderate**	**High**	**Very high**

	M	Low	Moderate	High	High
	L	Low	Low	Moderate	High
		L	M	H	VH
		CONSEQUENCE			

9.1 Impact Assessment

Potential environmental impacts were identified by ASEC and comments from registered IAPs are addressed. The main impacts, which need assessment and mitigation arise from flora, fauna and archaeological aspects.

Other impacts, such as air pollution, traffic, noise, etc. have been assessed in the Etango Project: Linear Infrastructure Environmental Impact Assessment, Environmental Impact Report (March /April 2011) conducted by Environmental Resources Management (see **Section 8** and **9**). Mitigation measures to these impacts are not important to the construction of the temporary water pipeline and have not been assessed or included into the EMP. Similarly, impacts relating to waste management and socio-economic impacts are not assessed below due to the scale of the project and similar impacts assessed as part of the above-mentioned project. The relevant management and mitigation measures are included in the EMP.

9.1.1 Loss of vegetation and associated biota due to the building of the pipeline

Impact description	The excavation (point 1 to point 19, see **Figure 1**) for the pipeline will not disturbed any vegetation. The pipeline will follow the existing alignment from the Roessing pipeline to Farm Weizenberg. Should any plants be encountered, the pipeline will be routed around the plants. Some vegetation needs to be cleared in the Swakop River from point 19 to point 21. This will mainly affect tamarisks, which occurrence is widely distributed in the Swakop River. As the pipeline is laid above-ground in this section, vegetation will be cut back, but no roots taken out.	
Intensity: Low	**Extent: Low**	**Duration: Moderate**
Consequence: Low	**Probability: Moderate** Vegetation will be cut back in the Swakop River.	**Significance: Low**

Assessment assuming that all mitigation measures are effectively implemented:

Mitigation measures	Ensure that no plants will be disturbed from point 1 to point 19. Minimise the cut back of tamarisks in the Swakop River to the necessary minimum to place the pipeline and do not remove any roots.	
Intensity: Low Natural processes will remain altered in some areas	**Extent: Low** Local	**Duration: Moderate** Vegetation in the Swakop River will recover after the removal of the pipeline.
Consequence: Low	**Probability: Moderate**	**Significance: Low**

In both scenarios, without and with mitigation the rating is the same. However, good practice will be to introduce the mitigation measures.

9.1.2 Impacts on vertebrate fauna - Movement of small species

Impact description	Small species might not be able to cross the pipeline from the point where it is laid above-ground.	
Intensity: Low	**Extent: Low**	**Duration: Moderate**
Consequence: Low	**Probability: Moderate**	**Significance: Low**

Assessment assuming that all mitigation measures are effectively implemented:

Mitigation measures	• Create at least 1 m wide pipeline crossings in certain intervals. • Monitor the above-ground pipeline section for any trapped animals and create crossings at that area if encountered more than once.	
Intensity: Low	**Extent: Low**	**Duration: Low**
Consequence: Low	**Probability: Moderate**	**Significance: Low**

9.1.4 Impacts on archaeological sites

As no sites observed during the field work will be affected by the construction of the temporary pipeline no assessment has been carried out. In additional, all sites are of low significance and are not considered to be vulnerable to the construction of the pipeline.

However, in view of the fact that the assessment is based on surface finds which in this case include a single human bone, it is recommended that during construction the Archaeological Chance Finds Procedure should be adopted. This is included in the EMP (**Appendix G** in **Appendix 2**).

10 ENVIRONMENTAL IMPACT STATEMENT AND CONCLUSION

No significant negative environmental impacts have been identified during the EIA process.

The environmental aspects associated with the proposed construction of the temporary water pipeline have been identified and assessed as part of this EIA process. Relevant mitigation measures have been provided and are included in the EMP (**Appendix G**) that accompanies this EIA report.

ASEC believes that a thorough assessment of the proposed project has been achieved and that an environmental clearance certificate should be issued on condition that the management and mitigation measure in the EMP be adhered to.

A. Speiser Environmental Consultants cc

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Appendix A: Curriculum Vitae

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Alexandra Speiser
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CURRICULUM VITAE

MARIE ALEXANDRA ANGELIKA SPEISER

A. PROFESSIONAL INFORMATION

First Names:	Marie Alexandra Angelika
Surname:	Speiser
Nationality:	German (Permanent Residence in Namibia 1999)
Countries worked:	Namibia, Mozambique, Angola, Botswana, Germany
Language:	German and English (fluent)
	Portuguese (reading, understanding: good; writing: poor)
	Afrikaans (fair)
Profession:	Environmental Scientists (MPhil), Geologist (MSc)
Contact details:	P.O. Box 40386 Windhoek – Namibia
	Tel +264 61 244782 Namibian cell 081 1245655; Portuguese mobile +351 922289857 E-mail: amspeiser@yahoo.com, aspeiser1910@gmail.com

B. EDUCATION

2000 **Master of Philosophy** in Environmental Science, University of Cape Town, South Africa.
Group Thesis Title: *Environmental Situation Analysis of the Orange and Fish River Catchments*
Individual Paper Title: *Small Scale Mining in Namibia*

1994 **Master of Science** in Geology and Paleontology, Georg-August University Göttingen/Germany.
Thesis Titles: *Fluid inclusion studies in vein quartz from the Kansanshi Mine (Zambia)* and *Geological mapping of the Kansanshi Mine and surroundings.*

C. RELEVANT COURSES

November 2004

Environmental Auditor Trainings Course, Institute of Environmental Impact Assessment (IEMA) approved, Crystal Clear Consulting & Merchants (Pty) Ltd, RSA

D. PROFESSIONAL ACTIVITIES

Professional Institutes & Membership:

- Lead Practitioner and Reviewer, Environmental Assessment Professionals of Namibia (EAPAN)
- Chamber of Mines of Namibia (member)
- Namibian Chamber of Environment (member)
- Geological Society of Namibia (member)

E. EMPLOYMENT HISTORY

2012 – to 2016 Associated Environmental Consultant to SLR Namibia

2003 - to date A. Speiser – Environmental Consultants cc, Director

Main work conducted and ongoing:

- **Environmental Consultant to LK Mining Pty Ltd**: Scoping Report including Environmental Impact Assessment & Environmental Management Plan for the offshore diamond mining activities on the proposed ML 220 of LK Mining, required for an Environmental Clearance Certificate.
- **Environmental Consultant to** Hope Namibia Mineral Exploration (Pty) Ltd (part of Bezant Resources PLC): Environmental Impact Assessment process for Hope Namibia Mineral Exploration activities on EPL 6605, located east of the Namib Naukluft National Park – overlapping the Erongo and Khomas Regions
- Work packages 6 leader of the **HiTech AlkCarb Project** funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 689909 (Feb. 2016 to Jan. 2020)
- **Environmental Consultant to Virgo Resources Limited**: Environmental Impact Assessment (Scoping report & Environmental Management Plan (EMP)) for exploration activities on EPL 5796 (Namib Naukluft Park)
- **Environmental Consultant** to Kerry McNamara Architects Inc: Combined Scoping & EIA Report & EMP for the proposed Edelweiss Development (part of Okahandja Extension 7) in Okahandja
- **Environmental Consultant** to Bannerman Resources (Namibia) (Pty) Ltd: EIA/EMP for the proposed Pilot Plant on Bannerman Resources (Namibia) (Pty) Ltd EPL 3345
- **Environmental Consultant** to RPZC (Trevali): EIA/EMP for the proposed expansion of water and power infrastructure for RPZC Mine
- **Environmental Consultant** to RPZC (Glencore): EIA/EMP for the proposed zinc concentrate Storage shed at Lüderitz harbour
- **Environmental Consultant** to Metals Namibia. EO and EMP for exploration activities
- **Environmental Consultant** for the bulk chemical store of Crest Chemical Pty Ltd at Walvis Bay harbour
- **Environmental Coordinator** for the Kassinga (Angola) North and South Iron Ore Project – Area 1 (SMP / AEMR). JV between ASEC and Environmental Resource Management
- **Environmental Coordinator** for the exploration phase at Lofdal, Namibian Rare Earth (Pty) Limited
- **Environmental Consultant** to conduct bi-annual environmental audit reports for Glencore, Bannerman Resources (Namibia) Pty Ltd, Okorusu Fluorspar Pty Ltd, Namibia Rare Earth Pty Ltd, Swakop Uranium,
- **ESIA Coordinator** (amendments to the approved ESIA & ESMP) for the proposed U-mine at Etango (Bannerman Mining Resources Namibia (Pty) Ltd)
- **External Environmental Consultant** to Rössing Uranium (Rio Tinto) – SEMP: exploration drilling in the ML area within the Namib Naukluft Park
- **Reviewer** of Swakop Uranium SEIA conducted by Metago
- **ESIA Coordinator** (scoping phase) for the proposed Cu mine at Omitiomire (Craton Mining & Exploration (Pty) Ltd)
- **Mine Closure Plan** for Okorusu Fluorspar (Okorusu Fluorspar Pty Ltd)
- **Preliminary Environmental Overview** for Omitiomire Cu-deposit (Craton Mining & Exploration (Pty) Ltd)
- **ESIA Coordinator** for the proposed U-mine at Etango (Bannerman Mining Resources Namibia (Pty) Ltd) (Scoping & final ESIA approved by Government)
- **ESIA Coordinator** for the proposed Au-mine at Otjikoto, Central Namibia (Teal Exploration & Mining Inc.)
- Environmental Consultant to Walvis Bay Bulk Terminal (Pty) Ltd (EIA to construct a bulk sulphur loading & storage facility at WB harbour
- **Environmental Consultant** providing input to set up ISO 14001 & OSHAS 18000 at Rosh Pinah Mine, Rosh Pinah Zinc Corporation (Pty) Ltd
- **EIA Coordinator** for the proposed change to bulk sulphur at Skorpion Zinc, Chemical Initiatives (Pty) Ltd
- **September 2005 – June 2006, Environmental Coordinator** for the construction phase of Langer Heinrich Uranium (Pty) Ltd

- **EIA and EMP Coordinator** for proposed exploration activities for dimension stones, relevant document to grant licence by the Ministry of Mines and Energy, Olea Investment Number One (Pty) Ltd.
- **Standard Environmental Guidelines** for exploration activities, Helio Resource Corp., Canada
- **Coordinator** to compile the **Initial EMP for construction and operation** of the Langer Heinrich Uranium Mine, Paladin Resources Ltd
- **EIA & EMP (Phase 1 & 2) Coordinator** for exploration activities in the NW Namib Naukluft Park, West Africa Gold Exploration (Namibia) Pty. Ltd
- **EMP Coordinator** for Sarusas Mine, Skeleton Coast Park, Namibia, Igneous Mining Projects (Pty) Ltd
- **EIA & EMP Coordinator** for current & proposed mariculture projects of Alexkor, Alexander Bay, RSA
- **Environmental Consultant –** updating the EA & EMS for infrastructure changes at Navachab Mine, Anglogold Namibia (Pty) Ltd.
- **Team Leader**, Environmental and social assessment for World Bank/GEF Project 'Integrated ecosystem management in Namibia through the national conservancy network'
- **Bi-annual monitoring reports** auditing environmental performance of exploration activities (RPZC, B2Gold, Swakop Uranium, Okorusu Fluorspar, Namibia Rare Earth) - **ongoing**

2000 - 2003 Environmental Scientist at eco.plan (Pty) Ltd.

During this period I conducted environmental assessments and developed environmental management plans for exploration and infrastructure projects. I further was involved in the project management, public participation processes and office administration.

1999 – 2000 University of Cape Town studying Environmental Science (MPhil degree)

1997 – 1999 Self employed, Contract Geologist Scientist

- RC drilling supervision – Apatite Project / Monapo, Mozambique, subcontracted by GeoAfrica Prospecting Services (Pty.) Ltd.
- Mapping and evaluation of possible talc deposits in Central Namibia, subcontracted by Dr. T. Smaley.
- Involvement in the preliminary fact finding phase to conduct an EIA to upgrade the Cement Factory in Otjiwarongo, Namibia.
- Several Desk Studies for Anglovaal Namibia (Pty) Ltd.
- Various investigations of diamondiferous gravels of the northern bank of the Orange River.
- Drilling Supervision in the Okavango Area for InterConsult Namibia (Pty) Ltd.
- Organization of the Public Meeting for the 'Proposed Klein Windhoek River Bridge and Upgrading of Mission Road.'

1995 to 1996 Project Assistant / Geologist at the German Technical Cooperation (GTZ)

- Participation in a six-week training course at the (GTZ) Headquarter in Eschborn/Frankfurt. Focus of the training course was on project management, rural public participation appraisal and social development workshops.
- Project Assistant to the GTZ-Adviser in the Ministry of Environment & Tourism. In cooperation with the Desert Research Foundation of Namibia (DRFN) the *Chemical Residue Analysis – Kavango Region* Project was conducted. The project assessed the environmental impacts of irrigation schemes along the Okavango River, special attention was given to the use of fertilisers and pesticides.
- Project Assistant/Geologist in the *Mineral Prospecting Promotion Project*. This project was set up in cooperation with the Geological Survey of Namibia (GSN) and the Federal Institute for Geo-science and Natural Resources (BGR). The work comprised geophysical interpretation and detailed geological/geophysical ground follow-ups.

1994 – 1995 Contract Geologist

- Supervision of construction sites and conduction of soil surveys to establish possible hydrocarbon-contamination (Germany).

F. PUBLICATIONS

Alexandra Speiser, Frances Wall, Kate Smith and Kathryn Moore (2019). Policy Brief - Social licence for exploration/mining in Europe is influenced by other georesource projects such as deep and shallow geothermal energy. Deliverable of the HiTech AlkCarb Project funded by the European Union's Horizon 2020 research and innovation programme (grant agreement No. 689909.

Boonzaier A., Kuiper S. and Speiser A. (1999). Community Benefits from the Richterveld National Park: The Golden Road to the future? in IAIAsa 1999 Conference Proceedings.

Speiser A., Hein U.F. and Porada H. (1995). The Kansanshi Copper Mine (Solwezi Area, northwestern Zambia): Geology, wall rock alteration and fluid inclusions, in Pasava J. Kirbek B. and Zak K. eds., Mineral deposits: From their origin to their environmental impacts: Third Biennial Society for Geology Applied to Ore Deposits Meetings, Rotterdam, Balkema, p. 289 – 392.

Du Plessis P., Eberle D. and Speiser A. Chapter 1: Enabling Host: Southern Namibia. in Eberle D. (eds.) (1997). Promising Patterns. A new approach to the Mineral Potential of Southern Namibia.

Speiser A., Hein U.F. and Porada H. (1995). The Kansanshi Copper Mine (Solwezi Area, northwestern Zambia): Geology, wall rock alteration and fluid inclusions, in Pasava J. Kirbek B. and Zak K. eds., Mineral deposits: From their origin to their environmental impacts: Third Biennial Society for Geology Applied to Ore Deposits Meetings, Rotterdam, Balkema, p. 289 – 392.

Appendix B: Background Information Document

BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT AND EIA & EMP) FOR THE ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE TEMPORARY WATER PIPELINE FROM THE RÖSSING PIPELINE VIA GOANIKONTES TO THE ETANGO MINE SITE DURING CONSTRUCTION

INTRODUCTION

Bannerman Mining Resources (Namibia) (Pty) Ltd (Bannerman) has an Environmental Clearance Certificate (ECC) for the proposed mining and associated activities at the Etango Project. At the time construction starts the permanent water pipeline form the base pump station near Swakopmund to the Etango Project will not yet be commissioned and water for construction to the mine site needs to be supplied from another source.

Bannerman approached A. Speiser Environmental Consultants (ASEC) to submit a proposal to conduct an Environmental Impact Assessment for the temporary water pipeline from the water pipeline along the B2 national road (Rössing Pipeline) supplying water to Rössing Uranium and Arandis as this pipeline has access capacity (refer to **Figure 1** for the location of the temporary pipeline). As soon as the permanent water pipeline from the base pump station near Swakopmund to the Etango Project site has been finalised the temporary pipeline will be dismantled from the Etango Project to Farm Weizenberg. Bannerman therefore needs to apply for an ECC from the Ministry of Environment, Forestry and Tourism (MEFT) for the construction of the temporary water pipeline.

ENVIRONMENTAL APPROVAL

In terms of the Environmental Management Act, 7 of 2007, a project of this nature requires an environmental impact assessment (EIA) process to apply for Environmental Clearance from the MEFT (Department of Environmental Affairs (DEA)).

PURPOSE OF THIS DOCUMENT

This document has been prepared to inform you:

- about the proposed construction of a temporary water pipeline
- about the EIA process to be followed
- of possible environmental impacts, and
- how you can have input into the EIA process.

YOUR ROLE

Public involvement is an essential part of the EIA process.

You have been identified as an interested and affected party (IAP) who may want to know about the temporary water pipeline construction activities and also have input into the EIA process.

All comments will be recorded and addressed in the EIA process.

HOW TO RESPOND

Responses to this document can be submitted by means of the comment sheet or through communication with the contact person listed below.

If you would like your comments to be addressed in the EIA report, please submit them by

06th October 2022

WHO TO CONTACT

Alexandra Speiser (ASEC)
Email: amspeiser@yahoo.com

or

Werner Ewald
Email: wewald@bannermanresources-na.com
Fax: +264 416240
Telephone: 081 122 4470

Figure 1: Location of the proposed temporary water pipeline.

DESCRIPTION OF THE PROPOSED ACTIVITIES

The Etango Uranium Project is located on the Mineral Deposit Retention Licence 3345 (MDRL3345) for which Bannerman has now applied for a Mining License (ML 250). In 2012 Bannerman completed a Definitive Feasibility Study for this project and received the Environmental Clearance Certificate from the Ministry of Environment, Forestry and Tourism (MEFT). This certificate has been renewed on several occasions and is still valid. Following extensive metallurgical testing at Bannerman's Heap Leach Demonstration Plant and investigating the option of staging the project in phases, Bannerman now proposes to start the project at a smaller scale, called the Etango-8 Project and expanding to the larger project depending on the uranium market conditions. Bannerman completed a pre-feasibility study for the Etango-8 Project in August 2021 and is currently doing a Definitive Feasibility Study due to be completed in Quarter 4, 2022.

Permanent water supply for the Project will come from NamWater in the form of desalinated water for the processing and domestic requirements. However, during construction of the Etango Project site water will be sourced temporarily from the Rössing pipeline for approximately 2 years. The proposed construction water pipeline will follow the existing pipeline from the Rössing pipeline take-off (Point 1 on Figure1) to Farm Weizenberg (Point 17), which currently supplies water to the farms Weizenberg and Goanikontes in the Swakop River. The section from the Rössing pipeline to Goanikontes will be buried and after the permanent pipeline to the Etango Project has been commissioned, it will be handed over to Farm Weizenberg to replace the current pipeline which is aging. From Farm Goanikontes the temporary pipeline will be put above ground to the Etango Project Site, point 18 to 30 on **Figure 1**. This section will be removed after the permanent pipeline has been commissioned.

The pipeline will be made of high-density polyethylene (or HDPE) plastic and will have a 160mm outside diameter. The total length of the temporary water pipeline will be approximate 25km.

The area where the pipeline will be situated was included in the previous Etango Project Environmental Impact Assessment (ASEC and ERM 2009 – 2012) and information in the EIA will be drawn from the existing specialist studies.

PROJECT SCHEDULE

The implementation of the proposed Etango Project and associated infrastructure (including the bulk water supply pipeline) is dependent on licensing and market conditions. Furthermore, the issuing of an ECC by MEFT for the temporary pipeline, as well as the Mining Licence by the Ministry of Mines and Energy are requirements for the implementation of the project. The construction of the temporary pipeline will be carried out shortly before construction of the Etango Project starts. Depending on the above-mentioned factors, construction of the temporary pipeline could commence as early as Quarter 2 of 2023.

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

ENVIRONMENTAL ASPECT	POTENTIAL ISSUES TO BE CONSIDERED IN THE EIA PROCESS
Biodiversity	Physical destruction and general disturbance of biodiversity during construction of the temporary pipeline.
Archaeology	The selected route of the pipeline does not impact any identified archeological sites. However, a detailed archeological study will be done in Quarter 4 of 2022.
Socio-economic	Positive economic impacts associated with income and employment during construction of the temporary pipeline.

These aspects and others raised by interested and affected parties (IAPS) and the Environmental Team, will be considered in the EIA and mitigation measures put into the Environmental Management Plan (EMP).

THE WAY FORWARD

IAPs can register on the Project involvement database and submit any comments or questions to ASEC before 06th October 2022. These will be considered for inclusion in the draft EIA report and EMP. Meetings with focus groups are currently planned, where the study findings associated with the temporary water pipeline will be shared, during the review period of the EIA report.

Bannerman Mining Resources (Namibia) (Pty) Ltd
ENVIRONMENTAL IMPACT ASSESSMENT FOR BANNERMAN MINING RESOURCES' PROPOSED NEW WATER PIPELINE FROM THE BASE PUMPSTATION NEAR SWAKOPMUND TO THE ETANGO PROJECT TURN OF FROM THE C28 ROAD
REGISTRATION AND RESPONSE FORM FOR INTERESTED AND AFFECTED PARTIES

DATE		**TIME**	
PARTICULARS OF THE INTERESTED AND AFFECTED PARTY			
NAME			
POSTAL ADDRESS			
		POSTAL CODE	
STREET ADDRESS			
		POSTAL CODE	
WORK/ DAY TELEPHONE NUMBER		**WORK/ DAY FAX NUMBER**	
CELL PHONE NUMBER		**E-MAIL ADDRESS**	
PLEASE IDENTIFY YOUR INTEREST IN THE PROPOSED PROJECT			
PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE			

Appendix C: Interested & Affected Parties

Academics	
Gillian Maggs-Koelling	Gobabeb Research and Training Centre
Silke Rügheimer	National Botanical Research Institute
Bussiness and Commerce	
NAME	**ORGANISATION**
Bob Meiring	AB Financial Services
SM Fast	Alexander Forbes
Michan Bassoon	Bank Windhoek
Robin Sherbourne	Economist
Fritz Schnelle	Exotherm Energy
D Meyer	SME Compete
Adri Spangenberg	Standard Bank - Corporate Finance
Philip Coetzee	Manica Supply Chain Logistics (Philip Coetzee)
Jochi Braune	Walfish Electric
E Himner	Walfishelectric
Walter Garoeb	Oryx Mining
Santania Gerber	Woker Freight Services
Kirsten Beeker	Woker Freight Services
Lyzanne Januarie	Africa Personnel Services
Rudolf Ouseb	Erongo Red
Jacky Eyuva	EyuvaEua
Marcel Fobian	Marcels Electronics
Farmers	
NAME	**ORGANISATION**
Mr. W. Metzger	Weizenberg (Winfried Metzger)
Mr. & Ms. Jacobs	Goanikontes Oasis (Charl & Rene Baard)
	Goanikontes East (Colin Livingstone)
	Haikamgab (Hartmut Fahrbach)
Ms. A. Tanzi and Mr. N. Gre	Palmenhorst (Alexandra Tanzi)
Mr. and Ms. Kirchner	Hildenhof (Armin & Stephanie Kirchner)
Governmant - National, Regional & Local	
NAME	**ORGANISATION**
	Erongo Region Governor (Hon. Neville Andre)
	Chief Regional Officer (L. Doëses)
	Chairperson Erongo Regional Council (Ciske Smith-Howard)
His Worship Nehemia Solom	Mayor of Swakopmund
Damian Nchindo	MEFT - DEA
Saima Angula	MEFT - DEA
Maria.Amakali	Ministry of Agriculture Water and Land Reform
Bertram Swartz	Ministry of Agriculture Water and Land Reform - Hydrogeologist
Amakali A	Ministry of Agriculture Water and Land Reform- Deputy Director Water Environment
Manie Le Roux	MEFT – DPW (Chief Control Warden Central Parks)
	Warden - Namib Naukluft Park (Arnold Uwu-Khaib)
	Chief Warden: Namib Naukluft Park (David Masen)
	Warden of Ganab (Armstrong Sinvula)
Erasmus Shivolo	Ministry of Mines and Energy (Mining Commissioner)
	National Radiation Protection Authority (Mr. Axel Tibinyane)
Annalize Swart	Municipality of Swakopmund (Executive Assistant to the CEO)
Muller, Andre	Municipality of Walvis Bay
Dreyer D	Municipality of Walvis Bay
Nambahu, Ephraim	Municipality of Walvis Bay

Mr Archie Benjamin	Swakopmund Municipality - CEO
Hailaula Lovisa	Walvis Bay Municipality- Environmental Officer
Industry	
NAME	**ORGANISATION**
Abrahams, Achmet	Rossing Uranium - HSE Manager (Jacklyn Mwenze)
Schneeweiss, Rainer	Rossing Uranium - MD (Johan Coetzee)
The Chamber of Mines of	Chamber of Mines CEO (Malango, Veston)
Yusheug Cai	Swakop Uranium (Irvinne Simaata)
	Orano Mining Namibia (Hilifa Mbako)
Sandra Müller	Orano Mining Namibia (Sandra Muller)
Francis Anderson	Langer Heinrich Uranium Mine - Environmental Manager (Francis Anderson)
Johan Roux	Langer Heinrich - MD (Johan Roux)
	Chairperson Farmers Working Group NUA (Valereis Geldenhuys)
	Reptile Mineral Resources & Exploration (Dr. Katrin Kaerner)
Magda van Wyk	ESLBE Mining
Ingrid Slaney	Toussaint – Director
J Mansfield	Keyplan
Jaco Mulder	Africa Range Group of Companies
Chris Stöck	AQUA SERVICES & ENGINEERING
Ferreira, Johnny	Grindrod
Kirstin Beeker	Woker Freight Services
Pine van Wyk	Stewardship Drilling (Pine van Wyk)
Nico Scholtz	Geologist (Nico Scholtz)
Riana Scholtz	Environmentalist (Riana Scholtz)
Karika Laas	Protea Chemicals MD (Fritz Schutz)
Industry Associations	
NAME	**ORGANISATION**
Chris Brown	National Chamber of Environment (Dr Chris Brown)
Gabi Schneider	Namibian Uranium Association (Dr Gabi Schneider)
Kohrs Bertchen	Earthlife Namibia
Fennessy Julian	Namibian Nature Foundation (NNF)
Greg Stuart-Hill	World Wildlife Fund in Namibia (WWF)
Selma Shitilifa	Namibian Coast Conservation and Management Project
Nadine Kohlstaedt	Scientific Society of Swakopmund
Frank Löhnert	Namib Botanical Garden
Tourism	
NAME	**ORGANISATION**
Danie Van Niekerk	Abenteuer Africa
Rowena Hoffmann	All Round Namibia
Harold Metzner	Charly's Desert Tours (Gerald Kolb)
James Tromp	Desert Explorers
Berry, H. C.,	Eco guide
Hans-Dieter Göthje	Kallisto Tours and Safaris
Chris Nel	Living Desert Adventures
Raini Becker	Namib Enviro Tours
Erb, George	Swakop Tour Guide
Lenssen, Joachim	Tours & Safari Association
Stacey, Jonathan	Birdlife
John Pallet	Environmental Evaluation Associates of Namibia (Pty) Ltd
Durr, Elinor	Wildlife Society of Namibia - Swakopmund
Bridgeford, Peter	Vultures Namibia
K Denker	Africa Leisure Travel

Cartwright, D	Info Tours
K Denker	Erongo Safaris (Pty) Ltd
//Naobeb, Digu	Namibian Tourist Board - CEO
Erasmus R	Suzuki Dune 7 Quad Bikes
Freer, Mark	Coastal and Tourism Association of Namibia (CTAN)
Kolb, Gerald	Coastal and Tourism Association of Namibia (CTAN)
Paetzold, Gitta	HAN - Hospitality Association of Namibian - CEO
Alte Brucke Resort	Alte Brucke Resort
Ingrid and Philip	Damarana Safaris cc
Activity Operator	Flamingo Travel CC
N Wellington	Pleasure Flights Atlantic Aviation
Activity Operator	Mola Mola Safaris CC
James Tromp	Desert Explorers
K Denker	S Kohrs Tours
James Van der Westhuizen	Business Manager for TASA
Nathaly Ahrens	TASA (Tour and Safari Association of Namibia)
du Preez, Fanie	Kuiseb Delta Adventures
Friede, Marie	Profile tours
K Denker	Namibia Explorers
Hans-Dieter Göthje	KALLISTO TOURS & SERVICES
Almuth Styles	Namib i
Chris Nel	Living Desert Adventures
Peter Von Ginkel	Coastal Tourism Association Nambia/ Baron Tours
Activity Operator	Pelican Tours
George Erb	Swartkop Tour Company
R Becker	Namib Enviro Tours
Raini Becker	Namib Enviro Tours
Awala, Marta	Namibia Tourism Board
Van Rooyen G	Walvis Bay Angling Club
Sandra Level	Charly's Desert Tours
Andre Urey	Services Charters
K Denker	Sunrise Tours & Safaris
Burkhard E	TAN, Tour Guide Association
Taschner, R	Tours Adventures Safaris CC
Tommy Collard	Tommy's Tours and Safaris
Tristan Cowley	Tours and Safari Association (chairman)
K Denker	Turnstone Tours
Hull, W	Dune 7 Sandboarding CC
Mouton, Noleen	FENATA - Federation of Namibian Tourism Associations - administrator
Registered IAPs	
Fred Krenz	Farmer
John Pallett	Resilient Environmental Solutions cc
Sandra Muller	ORANO
Walter Erwin Garoeb	Walter Mining & Engineering Supplies cc

Appendix D: Advertisement & Site Notice

innosun
Sustainable power for Africa

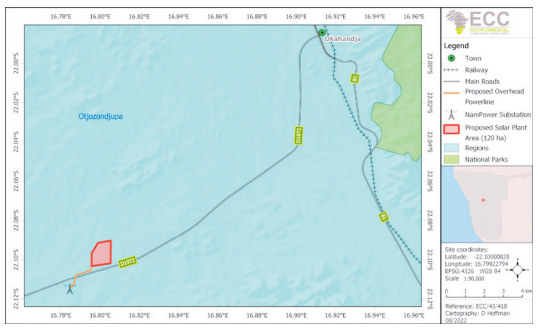
NOTICE OF AN ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF OSONA II – 36 MW SOLAR PHOTOVOLTAIC POWER PLANT NEAR OKAHANDJA, OTJOZONDJUPA REGION, NAMIBIA.

Environmental Compliance Consultancy CC (ECC) provides this notice to the public that an application for an environmental clearance certificate in terms of the Environmental Management Act, No. 7 of 2007 will be made for the proposed 36 MW solar PV power plant. Members of the public are invited to register as an Interested and Affected Party (IAP), are invited to provide input into the environmental clearance certificate application process.

Applicant: **InnoSun Energy Holding (Pty) Ltd**
Environmental Assessment Practitioner (EAP): **Environmental Compliance Consultancy**
Location: **Otjozondjupa Region, Namibia**

Project: Proposed construction and operation of Osona II – 36 MW solar photovoltaic power plant near Okahandja, Otjozondjupa Region, Namibia.

Proposed Activities: The Proponent, InnoSun Energy Holding (Pty) Ltd intends to construct and operate a 36 megawatts (MW) solar photovoltaic (PV) power plant on farm Osona Commonage No. 65 portion 82, which will be linked to a nearby NamPower substation. The solar plant and associated infrastructure will cover an area of approximately 120 ha.



Purpose of the review and registration period: The purpose of the review and registration period is to introduce the proposed Project and to allow registered Interested and Affected Parties (I&APs) to comment on the Background Information Document (BID) to ensure that all issues and concerns are brought forward, captured and considered further in the assessment.

The registration period is effective from **13 September to 27 September 2022.** I&APs and stakeholders are required to register for the Project at: https://eccenvironmental.com/download/the-proposed-osona-ii-36mw-solar-pv-power-plant-near-okahandja-otjozondjupa-region-namibia/

The team at ECC will then maintain contact with all registered I&APs to keep them informed and engaged as the ESIA process develops, ECC will also provide registered I&APs relevant documents to review during the assessment process.

Environmental Compliance Consultancy
Registration Number: CC/2013/11404
Members: Mr JS Bezuidenhout or Mrs J Mooney
PO Box 91193, Klein Windhoek
Tel: +264 81 669 7608 | E-mail: info@eccenvironmental.com
Website: www.eccenvironmental.com/projects | Project ID: ECC-43-418-ADT-05-D

ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY

BANNERMAN RESOURCES

ASEC

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT AND EIA & EMP) FOR THE ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE TEMPORARY WATER PIPELINE FROM THE RÖSSING PIPELINE VIA GOANIKONTES TO THE ETANGO MINE SITE DURING CONSTRUCTION

Bannerman Mining Resources (Namibia) (Pty) Ltd herewith gives notice in terms of the Environmental Management Act, 7 of 2007 and Regulation 21 of the Environmental Impact Assessment (EIA) Regulations (January 2012), of their proposed construction of a temporary water pipeline from the Rössing pipeline to the Etango Project site area during construction **(see map below)**

Prior to implementing the proposed Project, an EIA process will be conducted. An application for environmental clearance certificate (ECC) will be submitted to the relevant Component Authority (Ministry of Agriculture, Water and Land Reform) who will review and forward the application to the Ministry of Environment, Forestry and Tourism (Environmental Commissioner) in terms of the above-mentioned regulations. This advertisement forms part of the EIA public participation process.

Applicant:
Bannerman Mining Resources (Namibia) (Pty) Ltd

Nature and location of the proposed activity:
Permanent water supply for the Etango Project will come from NamWater in the form of desalinated water for the processing and domestic requirements. However, during the construction phase of the Etango Project, water will be sourced temporarily from the Rössing pipeline for approximately 2 years. The section from the Rössing pipeline to Farm Weizenberg will be buried and left to replace the existing aging current pipeline to the farms in the Swakop River. The remaining part will be above-ground and be removed after the permanent pipeline has been commissioned.

The adjacent figure shows the location of the temporary pipeline.

The pipeline will be made of high-density polyethylene (or HDPE) plastic and will have a 160mm outside diameter. The total length of the temporary water pipeline will be approximate 25km.

Independent Environmental Assessment Practitioner:
A. Speiser Environmental Consultants CC (ASEC) has been appointed by Bannerman as the independent Environmental Assessment Practitioner to undertake the EIA process for the proposed project.

Contact Person: Alexandra Speiser or Werner Ewald
Tel: 064 416 200
E-mail: amspeiser@yahoo.com or wewald@bannermanresources-na.com

Registration to receive notifications / information and opportunity to comment:
To register as an interested and affected party for the proposed Project, please submit your name and contact details to ASEC by e-mail, or by contacting Werner Ewald. A Background Information Document (BID) is available for a review and comment period from **06th September to 06th October 2022**. Electronic copies of the BID are available on request from ASEC as per above details. Focus group meetings with I&APs have already started, but further meetings will be scheduled on request.

If you would like your comments to be addressed in the EIA Report please submit them to ASEC by **no later than 06th October 2022**.

THE DUTCH REFORMED CHURCH OUTJO, NAMIBIA

VACANCY: MINISTER

N.G.Kerk Outjo is located in northwest Namibia. This is a rural town with many challenges but has the potential to grow steadily, with approximately 387 confirmed and 102 baptized members as well as visitors. The community makes their living mainly from agriculture, various businesses, hunting and tourism. The oldest private school in Namibia is also based here in Outjo. We as a community pray and trust in our Lord to send us a dedicated child of God who will lead our congregation.

The following are the most important to us as a community

Relationships - we have active cell groups, care groups, farm districts, outreach and youth ministries. Within our community we are fortunate enough to have various ministries who work fulltime within the impoverished and needy areas.

Worship & Outside Services - these are valued as extremely important functions within our community.

Compensation - we trust in the Lord that we will operate and negotiate within the guidelines of the heat office of the church.

Applications - we hereby invite any qualified minister from our church body who may feel drawn to join our team here in Outjo to send us a CV of a maximum of three (3) pages and three (3) contactable references to ngoutjo@iway.na before **20 September 2022.**

Only shortlisted candidates will be contacted.

For more information – Lukas Holtzhausen (Chariman) + 264 81 127 2571 or the church office phone/Faks nr + 264 67 313 152, Sell nr +264 81 876 8717

The church holds the right to not appoint an applicant

USAID | NAMIBIA
FROM THE AMERICAN PEOPLE

THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

Has the following vacancy as detailed below: -

Please note that applications must be submitted electronically via the **Electronic Recruitment Application (ERA)** system, by **midnight Monday September 19, 2022,** to be considered.

Interested applicants should visit the USAID Namibia Website at

http://na.usembassy.gov/embassy/jobs/
to apply for this vacancy

Project Management Specialist – Health N$ 752,325 – N$1,052,274 (FSN – 12)

Basic Functions of the Job

The USAID Project Management Specialist (Health) fills a key technical and management role. The position will act as a Deputy and support the USAID Health Office Director or acting Director in managing all aspects of the Health Office portfolio, provide coverage support for the Director as needed, assist in supporting the team in preparing HIV and health security deliverables, and serve as the point person for identifying, tracking and coordinating emerging risks to the health system (drought, COVID-19, food insecurity). In the absence of the Health Office Director, the Specialist will provide guidance and mentoring of the entire Health Office Staff.

Under the leadership of the USAID Project Management Specialist (Health), USAID/PEPFAR will ensure continued, meaningful engagement with the government of Namibia and other stakeholders throughout the development and implementation of risk responses to health security threats. The Specialist will help ensure that the USAID Namibia programs are effectively prepared to respond quickly to emerging risks and that program activities and resources are used to maximum benefit for the people of Namibia while ensuring that all other USAID programs are maintained.

Working collaboratively with the USAID/Namibia team and the PEPFAR interagency team, the USAID Project Management Specialist (Health) will also take the lead (for USAID) in developing funding proposals related to identified risks to sustaining HIV epidemic control such as drought, food insecurity, and other emerging health security threats like COVID-19. The USAID Project Management Specialist (Health) will play an important interagency role in ensuring communication and coordination in identifying, tracking, preventing, and evaluating health security risks that could jeopardize the gains made toward HIV/AIDS epidemic control.

FOR FURTHER INFORMATION: The complete position description listing all the duties and responsibilities and application requirements may be obtained on our website: https://na.usembassy.gov/embassy/jobs/)

EQUAL EMPLOYMENTOPPORTUNITY: USAID Namibia provides equal opportunity and fair and equitable treatment in employment to all people without regard to race, color, religion, sex, national origin, age, disability, political affiliation, marital status, or sexual orientation. The Department of State also strives to achieve equal employment opportunity in all personnel operations through continuing diversity enhancement programs.

The EEO complaint procedure is available to individuals who believe they have been denied equal opportunity based upon the listed EEO complaints. Individuals with such complaints should avail themselves of the appropriate grievance procedures, remedies for prohibited personnel practices, and/or courts for relief.

Appendix E: Correspondence from IAPs

- **Comments received during the BID Phase**

- **Comments received during the draft EIA review Phase**

Comments received during the BID Phase

John Pallett <jpallett@afol.com.na>
To:'Alexandra Speiser'
Tue, Sep 6 at 2:32 PM
Hi Alex, hope life's good in your hot part of the world.
I'm happy to be included in the IAPs for Etango, please keep me registered and informed. Maybe the uranium rush will finally happen?!
Cheers
John
John Pallett
Resilient Environmental Solutions cc
Windhoek, Namibia
Cell: +264 81 2402528

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Christopher Brown <ceo@n-c-e.org>
To: Alexandra Speiser,wewald@bannermanresources-na.com
Cc:NCE Admin
Tue, Sep 6 at 10:10 AM
Dear Alex and Werner,

Thank you for sharing your BID for the temporary pipeline to Etango Mine during construction. As this is a relatively small (16 cm diameter) and temporary pipeline, I see little environmental risk. The only thing I would ask you to think about is the impact of the pipe on the movement of small animals such as reptiles (e.g. tortoises, chameleons) and small mammals. You say that the pipe will be above ground from point 18 to 30. Not sure if this section is 25 km or if that refers to the whole pipe from point 1 to 30. Perhaps consideration could be given to having gaps under the pipe to allow small animals to get from one side to the other. This could be easily done during construction.

Kind regards,
Chris

Dr Chris Brown
20 Nachtigal Street, Ausspannplatz, Windhoek
PO Box 40723, Ausspannplatz, Windhoek, Namibia
Tel: +264 (0)61 240 140
NCE Mobile: +264 (0)81 162 5807
e-mail: ceo@n-c-e.org
www.n-c-e.org

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

WALTER ERWIN GAROEB <oryxminingeng@gmail.com>
To: Alexandra Speiser

Tue, Sep 6 at 11:25 AM
Hi Guys

Will you please forward me more iNformation about the Construction of the Temporary Water Pipeline

Regards
Mr.ERWIN WALTER GAROEB
WALTER MINING & ENGINEERING SUPPLIES cc
Reg No: CC/2020/04139
Vat No: 11218903-015
P O BOX 70737
KHOMASDAL
WINDHOEK
NAMIBIA
#+264814128352
#+264852038225(WhatsApp)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

MULLER Sandra (ORANO) <sandra.muller@orano.group>
To: Alexandra Speiser
Wed, Sep 7 at 8:08 AM
Dear Alex

Thanks for the BID. I've looked at it and am sure there won't be any significant impacts from the pipeline.

Best regards
Sandra

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Fred Krenz <fred@fkrenz.com>
To:amspeiser@yahoo.com
Tue, Sep 13 at 4:07 PM

Please forward me a background information document.

Thanks.

Fred Krenz

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

From: Bianca Blatt <biancablatt@googlemail.com>
Sent: Thursday, October 6, 2022 1:33 PM
To: Werner Ewald <wewald@bannermanresources.com.au>
Subject: Environmental Impact Assessment for Temporary Water Pipeline via Goanikontes

Dear Mr Ewald

WITHOUT PREJUDICE

It was a pleasure to meet you. Even though my late mother was very concerned about the environmental impact of planned activities by Bannerman / Etango Project, she always spoke very highly of you.

Further to our conversation that we had and the **Environmental Impact Assessment** regarding the Temporary Pipeline via "Goanikontes", which I have considered, I would like you to clarify in a written confirmation that the pipeline will not be crossing the boundaries of my property "*Brock"*. All my rights are strictly reserved in this regard.

I strongly believe that any mining activity should always endeavour to benefit the affected community at large, as well as restore nature in one or other way. This belief is the basis upon which the mining law of our country was compiled. Even the installation of a temporary water pipeline could be utilised to benefit the cultivation of crops / make water available for game / help reduce Prosopis Trees and plant indigenous trees/ create places to camp for the local community.

It is for this reason that I strictly reserve all my rights in regard to my property "Brock" and wish to keep my right to consult my lawyer for any proposals made by Bannerman / Etango Project

Wishing you a wonderful weekend ahead, I remain with

Kind regards

Bianca Blatt

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

From: Jonas David Masen <jdmasen@gmail.com>
Sent: Thursday, October 13, 2022 12:42 PM
To: Werner Ewald <wewald@bannermanresources.com.au>
Subject: Re:Construction water pipeline

Good afternoon Mr. Ewald

Your email received in good order. I really have nothing to add on, I know the topography of the said area. You have already briefed me sufficiently on this matter. If there are something you need to iron out, we can do it together.

Kind regards

David Masen

-------- Original message --------
From: Werner Ewald <wewald@bannermanresources.com.au>
Date: Thu, 13 Oct 2022, 10:44
To: jdmasen@gmail.com
Subject: Construction water pipeline

Dear Mr. Masen,

Hope you are doing well? I am sorry if I have sent you so many messages regarding this topic. We are about to submit our EIA to the Ministry of Environment, Forestry and Tourism now that we have received the Archeological Report from Dr. Kinahan. From our Environmental Consultant and other stakeholders, we have really had no issues highlighted. One of the Swakop River property owners just requested that we do not cross her property with the temporary pipeline (which we did not intend to do anyway), and Dr. Brown from the Nambian Chamber of Environment just reminded us that we do need to consider the non-vertebrates and small animals that may not be able to cross the pipeline and we will take this into consideration. The section of the pipeline in the Namib Naukluft Park will be removed once construction of the mine is complete.

If there is anything else you would like to mention, I would appreciate if you could let me know. (I am at the moment in Spain with a Namibian choir – I am carrying the bags! Today is the competition and we hope we can be successful. See attached pictures)

Kind regards

Werner Ewald

MANAGING DIRECTOR - NAMIBIA

Swakopmund Office

45 Mandume Ya Ndemufayo Street ■ Industrial Area ■ Swakopmund ■ Namibia

Post PO Box 2854 ■ Swakopmund

T +264 64 416 200 **F** +264 64 416 240 **M** +264 811 224 470

www.bannermanenergy.com

E wewald@bannermanresources-na.com

Comments received during the draft EIA review Phase

Appendix F: Archaeology Specialist Study

12 October 2022

Bannerman Mining Resources (Namibia) (Pty) Ltd
P.O. Box 2854
Swakopmund
Namibia

For attention: Mr Werner Ewald

ARCHAEOLOGICAL ASSESSMENT OF TEMPORARY WATER PIPELINE FOR THE CONSTRUCTION PHASE OF THE BANNERMAN ETANGO PROJECT, ERONGO REGION, NAMIBIA

DECLARATION

I hereby declare that I do:

(a) have knowledge of and experience in conducting archaeological assessments, including knowledge of Namibian legislation, specifically the National Heritage Act (27 of 2004), as well as regulations and guidelines that have relevance to the proposed activity;

(b) perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

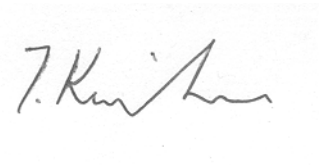
(c) comply with the aforementioned Act, relevant regulations, guidelines and other applicable laws.

I also declare that I have no interests or involvement in:

(i) the financial or other affairs of either the applicant or his consultant

(ii) the decision-making structures of the National Heritage Council of Namibia.

Note: The purpose of this report is to assist the client in gaining consent under the National Heritage Act (27 of 2004) to proceed with mineral exploration and related activities at specific locations as defined herein. The report must always be quoted in full, and not in part, summary or précis form. The report may not be distributed or used for any other purpose by the client, the National Heritage Council of Namibia or any other party and remains the copyright of the author.



John Kinahan, Archaeologist

EXECUTIVE SUMMARY

An archaeological field survey and assessment was carried out on the proposed route of a temporary water supply pipeline to the Etango mine from the Rössing pipeline. Six sites were documented in a survey area extending over 250m from the pipeline. None of the sites will be affected by the pipeline and it is therefore recommended that the development could proceed without mitigation.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

Bannerman Mining Resources (Namibia) (Pty) Ltd is initiating the construction phase for the Etango mine to be located on MDRL 3345 in the Erongo Region. Construction requires a temporary water pipeline from the Rössing pipeline to a storage reservoir on the mine site. The pipeline will be approximately 25km long and consist of 150mmØ PVC pipe laid on the ground surface adjacent to an existing track. There will be a pressure-reducing tank at the tee-off from the Rössing pipeline and thereafter the water will be gravity-fed to the storage reservoir.

Archaeological remains in Namibia are protected under the National Heritage Act (27 of 2004) and National Heritage Regulations (Government Notice 106 of 2005). Bannerman Mining Resources (Namibia) (Pty) Ltd appointed the undersigned, J. Kinahan, archaeologist, to carry out an assessment of the proposed pipeline. A field survey was carried out on 9th October 2022. The following report sets out the results of the survey and an assessment of the of the finds against the background of previous work in the same area.

1.2 Terms of Reference

The primary task of the archaeological assessment reported here was to identify sensitive archaeological sites that could be affected by mine development activities. The archaeological assessment forms the basis of recommended management actions to avoid or reduce negative impacts, as part of the environmental assessment. The study is intended to satisfy the requirements of the relevant legislation and regulations, in which the process of review and clearance may require further, or different mitigation measures to be adopted.

Specifically, the archaeological assessment addresses the following primary elements:

1. The identification and assessment of potential impacts on archaeological resources, including historical sites arising from the proposed construction activities.
2. The identification and demarcation of possibly sensitive archaeological sites that may require special mitigation measures to eliminate, avoid or compensate for likely destructive impacts.
3. Formulation and motivation of specific mitigation measures, if required, for the project to be considered by the authorities for the issuance of clearance certificates.
4. Identify permit requirements as related to the removal and/or destruction of archaeological resources.

1.3 Assumptions & Limitations

Archaeological assessment relies on the indicative value of surface finds recorded in the course of field survey. Field survey results are augmented wherever possible by inference from the results of surveys and excavations carried out in the course of previous work in the same general area as the proposed project, as well as other sources such as historical documentation. Based on these data, it is possible to predict the likely occurrence of further archaeological sites with some accuracy, and to present a general statement (see Archaeological setting,

below) of the local archaeological site distribution and its sensitivity. However, since the assessment is limited to surface observations and existing survey data, it is necessary to caution the proponent that hidden, or buried archaeological or palaeontological remains might be exposed as the project proceeds (see Appendix 1).

2. LEGAL REQUIREMENTS

The principal instrument of legal protection for archaeological resources in Namibia is the National Heritage Act (27 of 2004). Part V Section 46 of the Act prohibits removal, damage, alteration or excavation of heritage sites or remains. Section 48 *ff* sets out the procedure for application and granting of permits such as might be required in the event of damage to a protected site occurring as an inevitable result of development. Section 51 (3) sets out the requirements for impact assessment. Heritage sites or remains are defined in Part 1, Definitions 1, as "any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface". Also relevant are the National Heritage Regulations, Government Notice (GN) 3490 of 2005.

It is important to be aware that no specific regulations or operating guidelines have been formulated for the implementation of the National Heritage Act in respect of archaeological assessment. However, archaeological impact assessment of large projects has become accepted practice in Namibia during the last 25 years, especially where project proponents need also to consider international guidelines. In cases where such guidelines are applicable, those of the IFC, specifically Guidance Note 8: Cultural heritage, are most appropriate. Of these guidelines, those relating to project screening, baseline survey and mitigation are the most relevant.

Archaeological impact assessment in Namibia may also take place under the rubric of the Environmental Management Act (7 of 2007) which specifically includes anthropogenic elements in its definition of environment. The list of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007 (Govt Notice 29 of 2012), and the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Govt Notice 30 of 2012) also apply to the management of impacts on archaeological sites and remains whether these are considered in detail by the environmental assessment or not.

3. ARCHAEOLOGICAL SETTING

The western parts of Namibia are recognized as a globally important archaeological landscape, having abundant evidence of human settlement spanning the last one million years.[1] Within the central Namib Desert which includes MDRL 3345 and the proposed Etango mine, archaeological remains occur as a thinly scattered distribution of stone artefacts and related material with the last 100 000 years, especially the last Interglacial being particularly well represented. This was a period of elevated humidity in the Namib and was followed by primarily unstable climatic conditions. During the last few thousand years human occupation of the central

[1] Kinahan, J. 2020. *Namib: The Archaeology of an African Desert*. Windhoek, University of Namibia Press.

Namib was characterized by small basecamps at temporary water sources, more sustained residence being possible only at the coast and at a small number of sites. Colonial era occupation of the Namib was similarly limited by water supplies but small, relatively successful settlements such as Goanikontes were established along the ephemeral river courses.

4. OBSERVATIONS

A field survey was carried out over the proposed pipeline route to locate and document its archaeological features. The terrain is typical of the Namibian central and western area, with subdued outcrops gneisses and syn- to post-Tectonic granites and pegmatite features, on a landscape otherwise characterized by extensive gravel plains and aeolian sand sheets with broad alluvial deposits marking the courses of ephemeral streambeds. Rainfall averages less than 100mm/$y^{-1}$and vegetation is consequently limited to sparse scrub and succulent bushes such as *Zygophyllum stapfii* and *Adenolobus pechuelli*.

Figure 1 shows the route of the proposed pipeline with a 250m buffer indicating the area covered by the survey. The map indicates the sites that fall within the area surveyed. Table 1 lists the sites according to their field record numbers, geographical coordinates, their offset distance from the pipeline. In the field, archaeological sites were located by hand-held GPS, and recorded as to size, estimated age and affinity and then assessed as to their archaeological significance and vulnerability (S/V) using the standard parallel scales set out in Table 2. The sites

Table 1: Archaeological sites recorded on the Etango pipeline route

Site	Latitude	Longitude	Offset m	S/V
QRS 89/23	-22,66290	14,80633	>200m	3/1
QRS 89/37	-22,71758	14,80351	150m	3/1
QRS 238/1222	-22,63925	14,82834	40m	2/1
QRS 238/1223	-22,62971	14,82883	2m	0/2
QRS 238/1224	-22,62685	14,82703	5m	1/2
QRS 238/1225	-22,61648	14,82286	50m	3/0

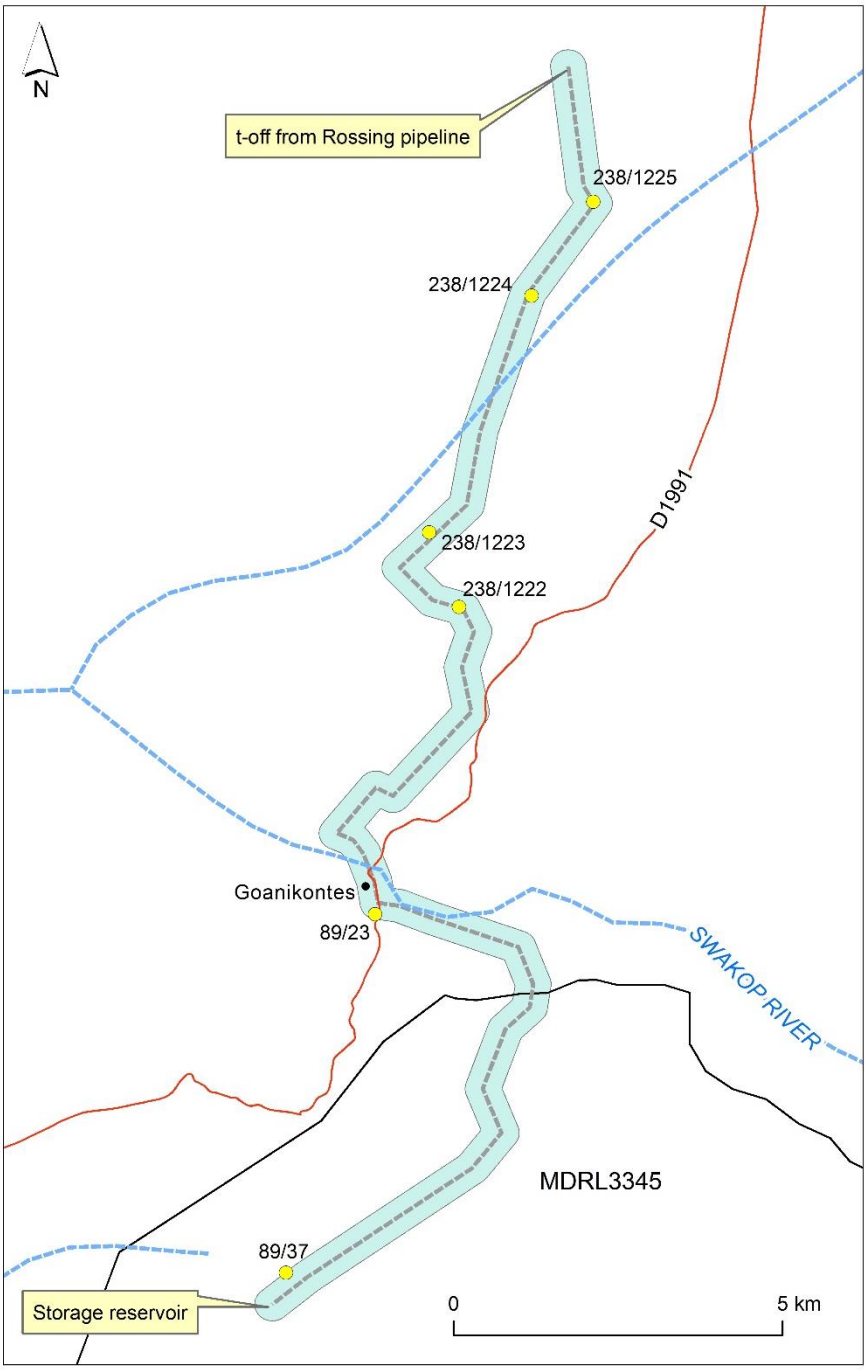


Figure 1: The distribution of archaeological sites (shown as numbered yellow dots) within a distance of 250m from the proposed pipeline from the Rössing pipeline to the Etango mine storage reservoir.

QRS 89/23 is a small colonial-era building erected in 1907. It has been extensively renovated and is currently in use by the owners of Goanikontes. The building is of historical significance. The pipeline construction poses no risk of damage to the site. QRS 89/37 is a minor scatter of stone artefact flaking debris (fine-grained chert). The site lies 150m to the north-west of the pipeline route and will not be damaged or disturbed by it. QRS 238/1222 is a minor granite core-stone outcrop with a small scatter of hydrothermal vein quartz artefact flaking debris. The site lies 40m east of the pipeline route and will not be damaged or disturbed by it.

QRS 238/1223 is an isolated seed-digging in thin pedogenic calcrete. Seed diggings are a common feature of the central Namib and evidence of a highly specialized subsistence strategy based on the collection of grass seed from the underground storage cells of harvester ants. These sites which all date to within the last 1 000 years are mostly concentrated about 100km inland from the coast and at the foot of the escarpment. QRS 238/1223 represents the western limits of seed-digging in the Namib. Seed-diggings are not treated as archaeological sites in themselves but merely as indicators of the likely presence of occupation sites in the same area.

QRS 328/1224 was an isolated surface find of a human tibia (left lower limb) lying 5m east of the pipeline route. The bone which is in a deeply weathered state measures 35.5cm in length, taking account of the missing proximal epiphysis. Following standard formulae[2] the tibia length yields a skeletal stature of 146.9cm with an estimated living stature of 147.05cm. The unfused proximal epiphysis suggests an individual of less than 16 years. The general appearance of the bone is shown in Figure 2, while Figure 3 shows evidence of animal tooth marks which indicate that the bone originates from a burial site that has been disturbed by burrowing animals. No evidence of the burial itself was found.

QRS 238/1225 is a dispersed scatter of hydrothermal vein quartz artefact flaking debris associated with an outcrop of augen gneiss presenting a vantage point which was probably used during a hunting expedition in this area. The site lies 50m north-west of the pipeline route and will not be damaged or disturbed by it.

Figure 2: QRS 328/1224 left human tibia, lateral view on left, frontal view on right. Note missing proximal epiphysis.

[2] Buikstra, J. & Uberlaker, D.H. 1994. *Standards for data collection from human skeletal remains.* Fayetteville: Arkansas Archaeological Survey Research Series: 4; Lundy, J.K. & Feldesman, M.R. 1987. Revised equations for estimating living stature from the long bones of the South African Negro. *South African Journal of Science* 83: 54–5.

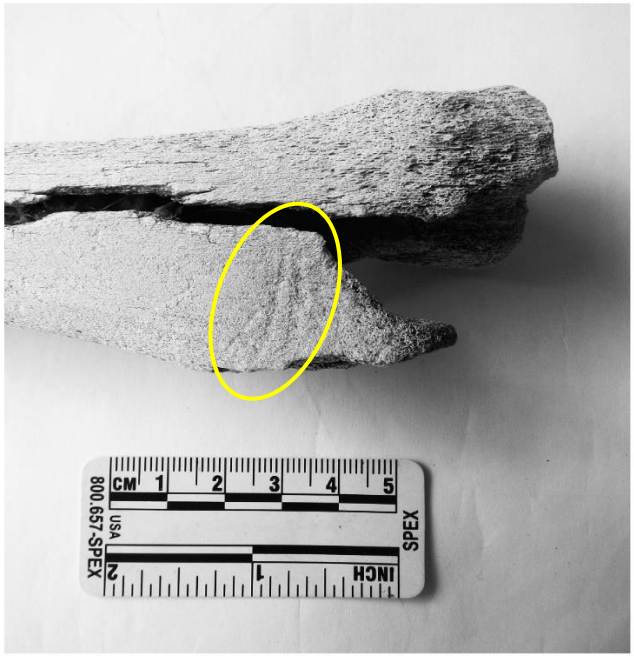


Figure 3: QRS 328/1224 lateral view of left human tibia with animal tooth marks indicated.

Table 2: Significance and Vulnerability Ranking of archaeological sites

Significance Ranking		**Vulnerability Ranking**	
0	no significance	0	not vulnerable
1	disturbed or secondary context	1	no threat posed
2	isolated minor find	2	low or indirect threat
3	archaeological site	3	probable threat
4	multi-component site	4	high likelihood of disturbance
5	major archaeological site	5	direct and certain threat

5. CONCLUSIONS & RECOMMENDATIONS

The field survey reported here documented evidence of mainly ephemeral human occupation in the area of the proposed temporary pipeline route from the Rössing pipeline to the Etango mine storage reservoir. The sites are of low significance and are not considered to be vulnerable to the construction of the pipeline. The sites do not merit further investigation.

It is recommended on the basis of this assessment that Bannerman Mining Resources (Namibia) (Pty) Ltd be granted consent to proceed with the proposed pipeline. However, in view of the fact that the assessment is based on surface finds which in this case include a single human bone, it is recommended that Bannerman

Mining Resources (Namibia) (Pty) Ltd should adopt the Archaeological Chance Finds Procedure set out in Appendix 1.

APPENDIX 1: ARCHAEOLOGICAL CHANCE FINDS PROCEDURE

Areas of proposed development are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work.

Personnel and contractor heritage induction is intended to sensitize people so that they may recognize heritage "chance finds" in the course of their work. The procedure set out here covers the reporting and management of such finds.

The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

The "chance finds" procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): " a person who discovers any archaeological …. object ……must as soon as practicable report the discovery to the Council".

The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field. Please note that the Chance Finds Procedure is NOT a substitute for archaeological assessment.

Both Namibian and international standards (e.g. IFC Guidance Note and IFC Performance Standard on Heritage, 2012) require professional archaeological assessment. The Chance Finds Procedure is intended to assist the developer in following the right course of action when archaeological remains are encountered such as during earthmoving operations.

RESPONSIBILITIES

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advise management, and recover remains

PROCEDURE

Action by person (operator) identifying archaeological or heritage material a) If operating machinery or equipment: stop work b) Identify the site with flag tape c) Determine GPS position if possible d) Report findings to foreman Action by foreman a) Report findings, site location and actions taken to superintendent b) Cease any works in immediate vicinity

Action by superintendent a) Visit site and determine whether work can proceed without damage to findings b) Determine and mark exclusion boundary c) Site location and details to be added to AH GIS for field confirmation by archaeologist

Action by archaeologist:

a) Inspect site and confirm addition to AH GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains:

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed

Appendix G: Environmental Management Plan

A. Speiser Environmental Consultant CC
Reg. No.: CC 2003/0606
Alexandra Speiser
MSc MPhil
P.O. Box 40386 Windhoek Namibia Tel:+264 61 244 782 Cell: 081 124 5655 e-mail:amspeiser@yahoo.com

ENVIRONMENTAL MANAGEMENT PLAN

FOR

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT AND EIA & EMP) FOR THE ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE TEMPORARY WATER PIPELINE FROM THE RÖSSING PIPELINE VIA FARM WEIZENBERG TO THE ETANGO MINE SITE DURING CONSTRUCTION

OCTOBER 2022

Compiled for:
Bannerman Mining Resources (Namibia) (Pty) Ltd
P.O. Box 52
Swakopmund

Compiled by:
A. Speiser Environmental Consultants cc
PO Box 40386
Windhoek

1 INTRODUCTION

Bannerman Mining Resources (Namibia) (Pty) Ltd (Bannerman) has an Environmental Clearance Certificate (ECC01608) for the proposed mining and associated activities at the Etango Project. As the permanent pipeline will not be in place to provide water for construction of the mine infrastructure at the Etango Project site a temporary water pipeline needs to be placed from the Rössing pipeline take-off to the Etango Project site (see **Figure 1**).

This EMP sets out a series of management plans which are designed to meet legal requirements and avoid or minimise the impacts associated with the construction and operation of the temporary.

The management plans have been compiled based on a review of the findings and recommendations of the EIA report for the proposed temporary water pipeline.

1.1 Keeping EMPs up to date

It is the intention that this EMP should be seen as a "living document" which will be amended during the operation, as the activities might change or new ones be introduced.

1.2 Details of the Persons Who Prepared This EMP

ASEC, the independent firm of consultants who undertook the EIA has also compiled this EMP. Details of the Environment Assessment Practitioners are provided in the main (EIA) report.

2 LEGAL REQUIREMENTS

A summary of the applicable legislation can be found in **Section 5** in the main (EIA) report.

2.1 Permits and Rules

As stipulated in the EIA Regulations, No.30 of 2012, the Environmental Clearance Certificate (ECC) needs to be obtained from MEFT:DEA before the commencement of the Project.

Additional permits, which need to be in place and be obtained by Bannerman are -

Labour Act 11 of 2007:

Regulations relating to the health and safety of employees at work are contained in GN 156/1997 (GG 1617). Must be complied with on this project.

Forestry Act No 12 of 2001, Forest Amendment Act, No. 13 of 2005:

Section 22 of the Act requires a permit for the cutting, destruction or removal of vegetation that are classified under rare and or protected species. The Act also stipulates that trees, shrubs and bushes within 100 m from a watercourse may not be cut, destroyed or removed without a permit.

National Heritage Act No 27 of 2004:

No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated. The Chance Find Procedure (see **Appendix H – Archaeology Specialist Study**) need to be applied should any additional remains be encountered.

Park Rules:

The Parks rules need to be adhered to (see **Appendix 1 of the EMP**).

Figure 1: Location of the temporary water pipeline.

3 OVERALL ENVIRONMENTAL OBJECTIVES FOR THE EMP

The following overall environmental objectives have been set for the implementation of the proposed water pipeline Project.:

- To comply with national legislation and standards for the protection of the environment;
- To limit potential impacts on biodiversity through the minimisation of the footprint and the conservation of residual habitat as far as possible;
- To limit contaminated effluent discharge into the environment through the containment and recycling of contaminated water;
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste;
- To support and encourage environmental awareness and responsibility amongst all contractors;
- To ensure all employees and contractors adhere to the park rules;
- To ensure that all the contractors adhere to the relevant management commitments; and
- Ensure compliance to the EMP.

4 GENERAL MANAGEMENT REQUIREMENTS

The following sections list the general management requirements that are relevant to the construction activities of the proposed temporary pipeline.

4.1 Parties responsible for the implementation of the EMP

This section describes the roles and responsibilities for implementing the various management plans (refer to section 5).

4.1.1 Bannerman - Managing Director/ Project proponent

The Managing Director shall ensure compliance to this EMP. The EMP will be part of the contract with all contractors working on the project.

4.1.2 Bannerman – Construction Supervisor

The Construction Supervisor has overall responsibility for environmental management on the construction site for ensuring this EMP is implemented. To assist the Construction Supervisor, it is recommended to appoint an Environmental Officer (or dedicated person responsible for environmental management activities on site) who will be dedicated to managing and monitoring the environmental issues associated with the construction and operation activities of the proposed pipeline.

The Construction Supervisor must ensure the EMP is included in all contracts and to ensure that contractors adhere to the conditions of the EMP, the ECC and other relevant permits.

Contract documents should consider the inclusion of penalties for non-conformance to the EMP, or to link the sign off of the Contract to a retainer clause. The client retains part of the contract fees until the Construction Supervisor has signed off the rehabilitated sites, indicating satisfaction with the rehabilitation of the Contractor's work and laydown area.

The Construction Supervisor shall be responsible for responding to any actual environmental emergencies / incidences that occur within their sections, or as specified in this procedure.

The Construction Supervisor shall also ensure that sufficient financial and human resources are available at short notice to implement emergency procedures, and to take corrective action pro-actively when environmental risks are evident in advance.

4.1.3 Environmental Officer

The Environmental Officer will be responsible for assisting the Construction Supervisor in all environmental issues, and specifically to ensure that the commitments as set out in this EMP are implemented during the construction phase.

In addition to the above, the Environmental Officer is responsible for ensuring that all persons involved during the construction comply with this EMP.

The Environmental Officer will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g. permits and authorisations.
- Conduct environmental awareness training during induction training and on an ad hoc basis thereafter.
- Conduct scheduled monitoring as outlined in various sections in the EMP as well as any additional monitoring required by permit and authorisations issued to the temporary water pipeline development by relevant authorities.
- Ensure compliance to this EMP and permits and authorisations issued to Bannerman by relevant authorities. Ensure responsibilities and target dates are developed for each one of the commitments in this EMP.
- Ensure compliance to the Park Rules by all employees and contractors through awareness training, engagement with MEFT: Directorate of Wildlife and National Parks (DWNP), where relevant.
- Submit required information to relevant authorities such as reporting related to monitoring and with regard to compliance with the EMP, permit and relevant authorisations.
- Liaise with the Construction Supervisor and Managing Director on environmental management (when and where required).

4.1.4 Contractors

All contractors and their sub-contractors and employees will be contractually required to comply with the relevant commitments in this EMP.

4.1.5 Auditing Compliance of the EMP

The commitments contained in this EMP will, once an ECC has been obtained, be Bannerman's contractual agreement with the Namibian authorities for sound environmental management. All employees, contractors and sub-contractors and any visitors to site will be expected to comply with the commitments contained herein.

4.1.5.1 Internal Audits and Inspections

The Environmental Officer will conduct internal management audits against the commitments in the EMP. These audits will be conducted every month. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

The Environmental Officer will furthermore conduct daily inspections during construction.

4.1.5.2 External Environmental Performance Assessment

It is suggested that external performance assessments be conducted bi-annually and at the end of the construction phase by an independent qualified Environmental Practitioner.

4.1.6 Reporting / Submission of Information

As a minimum, the following documents will be submitted to the relevant authorities on an ongoing basis:

- The bi-annual environmental report required by the MEFT:DEA will be submitted every six months.
- Report any incidences relating to animals in the Parks to the MEFT.

5 ENVIRONMENTAL MANAGEMENT PLANS

5.1 Safety and security Management Plan

It is essential that safety and security measures are defined and implemented to ensure that the construction site cannot be accessed by unauthorized people.

Issue 1: General (third party) safety and security

- No unauthorized access to construction sites is allowed.

5.2 Flora Management Plan - Construction

Overall Issues and mitigation measures:

- Protect biodiversity
  - ✓ Ensure that no plants are damaged or destroyed during construction Point 1 to 19 and Point 22 to 30, see **Figure 1**).
  - ✓ A permit is obtained to cut vegetation in the Swakop River.
  - ✓ Ensure that as few as possible roots are taken out to ensure regrowth after the pipeline has been removed.
- Limit footprint
  - ✓ Ensure machinery and vehicles only use the existing track along the existing pipeline.
  - ✓ Laydown areas should be kept at as small as possible.
  - ✓ Rehabilitate by closing excavated areas as soon as possible.

5.1.1 Management Measures

Issue 1: Loss of vegetation and associated biota

Mitigation measures:

- Construct the pipeline within the disturbed area of the existing pipeline (Point 1 to 19).
- Within the Swakop River section take a route which needs the smallest cutting of vegetation.
- From Point 22 to 30 place the pipeline on areas where no plants are growing.
- Minimise ground disturbance by stockpiling excavated material in disturbed area adjacent to the existing pipeline.
- Backfill excavated area (Point 1 to 19) immediately upon laying of pipeline and smoothen the surface.

5.3 Fauna Management Plan

Issue 1: Restricted movement of small animals, e.g. tortoises (Point 22 to 30)

Mitigation measures:

- Create crossing section in intervals over the pipeline.
- Monitor the pipeline once in use of trapped animals.
- Monitor if crossings are used. If needed create more crossings.

5.4 Archaeology Management Plan

Issue 1: Chance Find Procedure

Mitigation Measures

The Archaeological Chance Find Procedure (see **Appendix F – Archaeology Specialist Study** and **Appendix 2** of the EMP) covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Action by person identifying archaeological or heritage material:

- If operating machinery or equipment - stop work;
- Identify the site with flag tape;
- Determine GPS position if possible; and
- Report findings to foreman.

Action by foreman:

- Report findings, site location and actions taken to superintendent; and
- Cease any works in immediate vicinity.

Action by Construction Supervisor / Environmental Officer:

- Visit site and determine whether work can proceed without damage to findings;
- Determine and mark exclusion boundary; and
- Site location and details to be added to project GIS for field confirmation by archaeologist.

Action by archaeologist:

- Inspect site and confirm addition to project GIS;
- Advise NHC and request written permission to remove findings from work area; and
- Recovery, packaging and labelling of findings for transfer to National Museum.

5.5 Surface Water Management Plan

Issue 1: Pollution of surface water

Mitigation Measures

- Implement containment and clean-up measures relating to hazardous substance spillages (including hydrocarbons), of applicable.
- All materials, fuels and chemicals will be collected, safely stored in sealed drums on impermeable surfaces within bunded and secured areas. These areas will be designed

to contain 110% of the volume of one or the largest (in a multi drum setup) drum and will be equipped with traps and oil separators to contain spilled hydrocarbons. The used hydrocarbon liquid waste will be provided to third parties for recycling. Related records will be kept.

- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.
- Spill trays must be provided if refuelling of construction vehicles is done on site.
- Chemical sanitary facilities must be provided for construction workers. Construction workers should only be allowed to use temporary chemical / permanent toilets on the site. Chemical toilets shall not be within close proximity of any drainage system. Frequent maintenance should include removal without spillages.
- Maintain and implement spill management procedure, including the clean-up of hydro-carbon spills.
- Ad hoc spills will be cleaned up/remediated immediately in line with spillage management procedure.
- Place spill kits in all areas where hazardous substances are dispensed and stored and train staff to use it.

5.6 Soil Management Plan

Issue 1: Soil disturbance/ management (Point 1 to 19)

Mitigation Measures:

- Utilize as much as possible already disturbed areas.
- Limit the disturbance of soils to what is absolutely necessary both in terms of access tracks, laydown areas.
- Topsoil needs to be stored separately to put on the filed in area on top.

5.7 Solid & Liquid Waste (including sewage) Management Plan

General aspects:

- Designated waste containers will be established along the construction route. Receptacles must have lids to prevent wind borne litter, or scavenging by animals.
- Recyclable waste will be sent to a reputable recycling company. The remainder of the waste will be disposed at a licenced landfill site off site
- Non-recyclable waste will be collected and taken to an off-site waste facility.
- Keep record of safe disposal of waste.

Issue 2: Collection, storage and disposal of hazardous waste

Mitigation Measures:

- Hazardous waste will be collected in designated waste bin.
- Hazardous waste will be disposed of at a permitted hazardous waste disposal site (Walvis Bay).
- Keep record of safe disposal of waste.

APPENDIX 1 – PARKS RULES

It is against the law to:

a) Be in possession of an unsealed or loaded firearm;

b) Bring into the Park any pets, domestic or otherwise;

c) Leave a rest camp before sunrise or reach it after sunset, or cross the borders of the Park between sunset and sunrise;

d) Make fires at places other than the officially designated fire-places or make excessively large fires;

e) Stay overnight at any place other than a rest camp;

f) Throw away burning or smouldering objects or leave them at places where they may ignite something;

g) Drive at places other than roads marked by official road signs;

h) Kill, injure or needlessly disturb any wild animal;

i) Pick, collect, uproot or disturb any flower, shrub, herb or any other plant;

j) Damage or spoil any object in the park;

k) Leave the rest camp in any other way than in a vehicle, or leave or hang out from the vehicle in any other place than in a rest camp or an assigned camping site;

l) Throw away refuse or rubbish, except at places or in the receptacles provided for the purpose;

m) Make a noise which may disturb other people;

n) Drive or park in the Park in such a way that it may constitute a nuisance, disturbance or inconvenience to other people, or drive faster than the official speed limit;

o) Enter the Park in an open vehicle or on a deck of a motor truck not fitted with a grid cage or other effective protection;

p) Ignore the lawful instructions of MET Park officials;

q) To hitch-hike;

r) To use the tourists' facilities, i.e. swimming pool, etc. Park warden/ official need to be notified for any new drilling activities.

The visit/work to this Park is at your own risk and the Ministry of Environment and Tourism will not be held liable for any injuries, damage or losses you or your possessions may sustain.

All other park rules and regulations must be adhered too.

APPENDIX 2 – ARCHAEOLOGICAL CHANCE FINDS PROCEDURE

Areas of proposed development are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work.

Personnel and contractor heritage induction is intended to sensitize people so that they may recognize heritage "chance finds" in the course of their work. The procedure set out here covers the reporting and management of such finds.

The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

The "chance finds" procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): " a person who discovers any archaeological …. object ……must as soon as practicable report the discovery to the Council".

The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field. Please note that the Chance Finds Procedure is NOT a substitute for archaeological assessment.

Both Namibian and international standards (e.g. IFC Guidance Note and IFC Performance Standard on Heritage, 2012) require professional archaeological assessment. The Chance Finds Procedure is intended to assist the developer in following the right course of action when archaeological remains are encountered such as during earthmoving operations.

RESPONSIBILITIES

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advise management, and recover remains

PROCEDURE

Action by person (operator) identifying archaeological or heritage material a) If operating machinery or equipment: stop work b) Identify the site with flag tape c) Determine GPS position if possible d) Report findings to foreman Action by foreman a) Report findings, site location and actions taken to superintendent b) Cease any works in immediate vicinity

Action by superintendent a) Visit site and determine whether work can proceed without damage to findings b) Determine and mark exclusion boundary c) Site location and details to be added to AH GIS for field confirmation by archaeologist

Action by archaeologist:

a) Inspect site and confirm addition to AH GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains:

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed