APPENDIX A CV of EAP

BRAAF
ENVIRONMENTAL PRACTITIONERS

CURRICULUM VITAE

Name:	Olivia Jacqueline Braaf
Profession:	Environmental Scientist
Area of specialisation:	Environmental Impact Assessment
Nationality:	South African
Contact nr:	+27(0) 860 111 382 (Tel)
	+27 (0) 866 587 676 (Fax)
E-mail:	olivia@braafsa.com

1. EDUCATION:

2001 Bsc (Hons) (Marine Zoology), University of the Western Cape
2000 Bsc (Zoology and Botany), University of the Western Cape

Other: ISO 14001 Auditing Course with SABS

2. EMPLOYMENT:

November 2006 – Present: Braaf Environmental Practitioners – Director and Head of Environmental Department
April 2004 – October 2006 - DJ Environmental Consultants- Senior Environmental Scientist
January 2003 – April 2004 - Tshukudu Environmental Services (TES) – Environmental Scientist

3. EXPERIENCE

Olivia Braaf is currently the Environmental Management Services Departmental Manager at Braaf Environmental Practitioners. Olivia has 15 years of professional experience in Environmental Assessment and Planning and Management. Having worked for a multi-disciplinary engineering and environmental consultancies, Olivia has a competent understanding of the work effort and cross collaboration required for a successful multidisciplinary organization. She has been involved in a number of Environmental Impact Assessments and has a particular interest in water resource management, mining, energy (including renewables), oil and gas and stakeholder engagement. Olivia has considerable experience across a range of developmental and environmental sciences and has worked in South Africa, and Seychelles and is familiar with Regulatory Environmental Legislation in other parts of Africa. She is very well versed in the IFC Environmental and Social Performance Standards (including IFC PS 2012) and the associated Equator Principles, which have informed the approach and standard for a number of ESIA processes that she has managed and coordinated. Olivia has project managed numerous multi-disciplinary teams both local and international across a range of fields within the environmental sector.

4. PROFESSIONAL AFFILIATIONS

- Served on the Advisory board of the University of South Africa: Department of Environmental Sciences.
- Served on the (South African) Western Cape Provincial Committee of the International Association for Impact Assessment (IAIA) from 2008 to 2009.
- Registered member of the South African affiliate of International Association for Impact Assessment (IAIAsa) Western Cape Branch.

5. KEY QUALIFICATIONS:

Olivia has a BSc - Majoring in Zoology and Botany in 2000 and in 2001 completed her BSc Honours (Marine Zoology) at the University of the Western Cape. She also completed a course in Seaweed Mariculture for Community Development from the International Ocean Institute, South Africa in 1999 and an ISO 14001 Auditing Course with the SABS.

She has been active in the environmental field for over 15 years, mainly focusing on Environmental Impact Assessments. Prior to establishing her own environmental consultancy she was employed as a Senior Environmental Practitioner in Cape Town. Here she gained first hand knowledge and experience in Environmental Impact Assessments, Environmental Management Plans, Public Participation Programmes, Environmental Policy and Planning Research, Environmental Feasibility Studies, Environmental Management Systems (ISO 14001). Olivia has attended numerous workshops which include the CSIR 2007 Strategic Environmental Assessment Workshops amongst others. She served on the IAIAsa WC board and currently serves on the Advisory board of Unisa's Department of Environmental Sciences.

6. KEY PERFORMANCE AREAS

- Environmental Planning and Policy Development
- Plan, develop and implement Stakeholder Engagement Programmes and Social Accords
- Conduct and manage social research and surveys
- Project data management
- Liaise and communicate with interested and affected parties
- Public participation and information sharing
- Identify, assess and recommend mitigation measures for social impacts
- Lead and direct specific tasks to team members
- Coordinate and manage support staff
- Client liaison and team management
- Report writing
- Organize and facilitate workshops
- Conduct and undertake Environmental Impact Assessments
- Conduct and undertake Environmental Management Plans
- Environmental Site Management

7. TRACK RECORD:

- Environmental Control Officer for the Upgrading of the Lotus Canal, Construction of New Ponds and Culverts adjacent to the Edith Stevens Wetland Park.
- Environmental Assessment for the Farm 918/24, Broadlands adjacent to the Sir Lowry's River.
- Environmental planning component of the Agricultural Land Evaluation for the City of Cape as an informant to the New Spatial Development Framework for the City of Cape Town (2006)
- Environmental planning component of the Langerberg-Kraaifontein Spatial Development Framework for the City of Cape Town: Oostenberg Municipality
- The Rapid Review of Polo Fields and Golf Courses in the Western Cape for the Provincial Department of Environmental Affairs and Development Planning.
- Environmental Impact Assessment for Miska Fairyland Resort and Residential Villa Development, Seychelles.
- Environmental Impact Assessment for the proposed establishment of a Granite Quarry at Montagne Posèe, Seychelles.
- Environmental Impact Assessment for the proposed Residential-Marina and Commercial Development of Eden Island adjacent to the mainland Mahé, Seychelles.
- Environmental Components for the Berg Water Dam, Franschhoek
- Environmental Assessment for Elandsfontein Phosphate Mine, West Cape Coast.
- Redevelopment of Glencairn Station, Glencairn
- Commercial-retail and residential development in Palmyra Road, Claremont
- Environmental Impact Assessment for:
    - Mont Clair Residential Development for social housing, Mitchell's Plain incorportating numerous wetlands as part of the development.

- Proposed mixed residential development of Mooiplaas and Blindefontein, Piketberg
- Residential development of the Remainder of Portion 62 of the Farm Haasendal, No. 222, Kuils River
- Proposed mixed use integrated residential development in Piketberg.
- Proposed Development of Ruytershove Farm, Bottelary, Stellenbosch to accommodate residential, tourism, retail and commercial use.
- Koeël Bay Lodge Development for Halcyon Hotels, Hout Bay in collaboration with SANParks.
- Berg Water Housing Development, TCTA.
- The Change in dam wall and supplementary scheme and Access Roads for the Berg Water Project, Franschhoek.
- The Noordhoek Sewerage Upgrade, Noordhoek.
- SANKWA Private Nature Reserve Development in L'Agulhas which included a proposed desalination plant.
- Nomzamo Central Community Area, Somerset West.
- A Game Farm, Tourist and Conference Facilities at Knorhoek, Sir Lowry's Pass.
- Proposed rezoning and development of residential units and private nature reserve on Erven 569, 575 & 588, Napier.
- Vlakkeland Cemetery, Wellington.
- Proposed Helderberg Coastal Sewer from the Lourens River Pump Station to the Macassar Waste Water Treatment Works, Somerset West.

- Basic Assessments for:
    - Paarl 2010 Waterfront Development along the Berg River, Paarl
    - Proposed mixed use development on Erf 4880, which includes rainwater harvesting, wind energy technologies and solar heating components, Kleinmond
    - Proposed development of Farm 527/45, Paarl.
    - Proposed development of Erven 1649 and 1657, Grabouw.
    - Proposed apartments on Erven 215-219 & 617, Gansbaai.
    - A 12 storey residential apartment complex, Beach Road, Strand.
    - Erf 34 Cemetery, Wellington.
    - Lafarge Concrete Batching Plant, Melkbosstrand.
    - Shoprite-Checkers, Gordon's Bay.
    - Proposed winery on Hemel en Aarde Farm (Hamilton Russell Vineyards), Hermanus
    - Proposed agri-industrial development on Farm 750/2 Klapmuts
    - Proposed development of Farm 241/23, Kuils River
    - Proposed development of farm Groenland no 214/12, Brackenfell
    - Proposed development of Farm 311/27, Kraaifontein.
    - Proposed development of Farm 311 Portions 22 and 138, Kraaifontein.
    - Proposed development of Erf 30879, Kraaifontein.
    - Proposed establishment of two lattice masts and associated infrastructure at SENTECH's Constantiaberg telecommunications base station.
    - Proposed residential development of Farm 527 Portions 57 and 58, Paarl.
    - Proposed residential development of Erf 4805, Paarl.
    - Proposed residential development of Erf 389, Eerste River.
    - Proposed residential development of Farm 348, (watershed of the Breë and Breede River) Wolseley.
    - Proposed industrial park on Erf 14121, Bellville Industria.
    - Proposed residential development on Erf 2230, Wellington.
    - Proposed residential development of Erf 309, Brackenfell.
    - Proposed metal scrap yard for SA Metal, Blackheath.
    - Proposed resort development on Erf 15280, Paarl.
    - Proposed residential development of Erven 1278, 1446, 1457, Mitchells Plain.
    - Proposed residential development of Erf 22, Mandalay.
    - Proposed residential development of Erf 11679, Kraaifontein.
    - Proposed development of Erf 23322, Mitchells Plain.
    - Proposed development of Erf 26661 Mitchells Plain.
    - Proposed retirement-residential development in Porterville.

- Proposed University of the Western Cape Station Parking Precinct, UWC.
- Erf 8006, Wellington.
- Welcome Estate Land Reformation, Athlone.

- Scoping Studies for:
  - Environmental Assessment for Portions 51 and 52 of Farm 918 Gustrouw, Somerset West.
  - Environmental Assessment for Portion 53 of Farm 918 Gustrouw, Somerset West.
  - Environmental Assessment for Portion 29 of Farm 918 Gustrouw, Somerset West.
  - Environmental Assessment for various Telecommunications Base Stations in the Western Cape.
  - The co-location of a Metropolitan Radio Trunk System, a Radio System for SAPS, Transtel and the City Of Cape Town (CoCT).
  - Cemeteries in Swellendam.
  - Klip-North Cemetery, Grassy Park – City of Cape Town.
  - Approximately 25 MTN celluar base stations within the Western Cape.
  - The rezoning of Portions 51, 52, 53 and 29 of Farm 918 Gustrouw, Somerset West.
  - Approximately 24 Regularisation MTN cellular masts sites where application under the Environment Conservation Act was not submitted to DEA&DP.

- Public Participation Process for:
  - The Bontebok National Park and Agulhas National Park, SANParks.
  - The Proposed Majestic and New Kings Hotel Site Redevelopment Project**:** Heritage Impact Assessment: Stage 2
- Public Engagement Strategy for the proposed development of Kurland, The Crags (Plettenberg Bay area).
- Public Participation Processes as required NEMA for Environmental Applications and Mining Applications, etc.

- Environmental Management Plan for:
  - Proposed Residential-Marina and Commercial Development of Eden Island adjacent to the mainland Mahé, Seychelles
  - Miska Fairyland Resort and Residential Villa Development, Seychelles.
  - Proposed Scrap Yard and Warehousing in Blackheath Industria
  - Proposed Conference facilities and a boutique hotel, Paarl
  - Rosedon Place, Landsdowne
  - Erf 389 residential development, Eerste River
  - Mixed Use development which includes rainwater harvesting and wind energy technologies and solar heating components, Kleinmond
  - A residential development, Riverton Mews & Norwood Gardens, Ruyterswacht.
  - Vaalfontein Cemetery, Somerset West.
  - Metro-South East Cemetery, Eerste River.
  - Khayelitsha Cemetery, Khayelitsha.
  - A 12 storey apartment complex, Beach Road, Strand.
  - Proposed development of Farm 527/45, Paarl.
  - Erf 34 Cemetery, Wellington.
  - Proposed development of Farm 241/23, Kuils River
  - Proposed development of Farm 311/27, Kraaifontein.
  - Proposed development of Erf 30879, Kraaifontein.
  - Proposed establishment of two lattice masts and associated infrastructure at SENTECH's Constantiaberg telecommunications base station.
  - Proposed development of farm Groenland no 214/12, Brackenfell

- Environmental Control Officer
  - Residential Development for Parklands Phase 14C and 14 D, City of Cpae Town
  - Residential Development for Libertas Mews, Parklands
  - Residential Development for Augusta Mews, Parklands
  - Residential Development for Churchill Square, Parklands
  - Residential Development for Goya Properties, Parklands

- Residential Development for Lotus River Wetland Redevelopment, City of Cape Town
- Gekofert Phosphate Mine, Western Cape Coast
- Elandsfontein Phosphate Mine, Hopefield, Western Cape Coast
- Residential Development for Libertas Mews, Parklands
- Residential Development for Sierra Views, Burgundy Estate
- Industrial Development Erf 11, Rivergate
- Industrial Development Erf 20 & 31, Rivergate
- Industrial Development Erf 110, Rivergate

- Environmental Amendment Applications
  - Farm 241/23, Kuils River – Communicare
  - Erf 15280, Paarl – Valley Ministries

- Feasibility Studies
  - Erf 309, Brackenfell, Mamhold Properties
  - Erf 169, Raithby – Ken Forrester Vineyards
  - Farm 72/108, Waterval, Theewaterskloof Dam

- Environmental exemptions for:
  - A pesticide warehouse in Caledon.
  - A number of cemeteries for Drakenstein Municipality.
  - Extension of accommodation units on a game farm, The Vale, Beaufort West.

- Environmental Protection Plan: For the wreck removal of the Safmarine Agulhas that ran aground in the Port of East London, which included the extension and reinforcement of the breakwater and construction of a slipway.
- Project management and co-ordination of environmental processes for a number of cemeteries within Cape Town and Swellendam.
- Environmental Scan for the proposed relocation and establishment of Betafence at an existing industrial warehouse within the old Berg River textile industrial park, Paarl.

SHORT COURSES:

- 2007 Environmental Management Systems (Auditing Course): ISO 14001 with the South African Bureau of Standards
- 1999 Certificate in Seaweed Mariculture for Community Development, International Ocean Institute, South Africa
- Diving: Class IV Scientific Diver (course completed with UCT diving unit under Mr P Hanekom)
- Surveys Conducted: Foraminifera shore based surveys (2000; 2001 and 2002)
- Marine and Coastal Management
  - St Helena Bay Monitoring Line (SHBML) and SARP Line (2002) Euphausiid collection
  - Sponge Survey (2002)
  - Bryozoan Survey (2002)
  - Robben Island Effluent Pipe Survey (2002)
- University of Cape Town
  - Leopard and Pyjama Shark
- Conferences: Zoological Society of South Africa – Port Elizabeth 2000 - (Poster presentation)
- South African Marine Science Symposium – Namibia 2002 (Oral presentation)
- SANCOR seminar series - 2002 (Oral presentation)

APPENDIX B Public Participation Information

APPENDIX B.1 I&Ap Database

Neighbouring Farms	Land Owner	Contact Person
Farm 174/173	De Beers Consolidated Mines Pty Ltd	Environmental Management: Anton Meyer
Farm 157	Richtersveld Municipality	Municipal Manager: Mr Maposa
Municipal Commonage	Richtersveld Municipality	
Farm 156	Kannikwa Diamond & Estate Corp Ltd	S Kotze
Farm 597	Kannikwa Diamond & Estate Corp Ltd	
Farm 154	SANPARKS	Park Manager: Brent Whittington
Farm 2/1	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 2/2	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 2/4	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 2/6	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 2/8	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 2/17	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 625	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 5 Rem	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS

Application Area	Land Owner	Contact Person
Farm 155	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 1	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 1/8	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS
Farm 1/9	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS

Application Area Mine	Mine Operator	Contact Person
Farm 155	Richterveld Mining Company & Alexkor Ltd	Richtersveld Mining Company: Members
Farm 1	Richterveld Mining Company & Alexkor Ltd	
Farm 1/8	Richterveld Mining Company & Alexkor Ltd	Alexkor Ltd: Directors/Mine Manager
Farm 1/9	Richterveld Mining Company & Alexkor Ltd	Leilani Swartbooi Environmental Manager

Organisations & Organs of State	Role	Contact Person
Richtersveld Municipality	Local Municipality	Municipal Manager Mr Maposa
Ward Councillor: Ward 3 Port Nolloth	Councillor	Gloria Beukes
Ward Councillor: Ward 2 Alexanderbaai	Councillor	Anna Bock
Namakwa District Municipality	District Municipality	Manager Mr Christiaan Fortuin & Mr J Loubsher
Richtersveld Self-Development Company	Community representatives	
Richtersveld Community Trust	Community representatives	
Richtersveld Sida !Hub Communal Property Association	Community representatives	
Department of Mineral Resources	Competent Authority	Jasper Nieuwoudt & Deidre Karsten
Department of Agriculture, Land Reform and Rural Developmen	Commenting	Mrs M Cloete
Department of Agriculture	Commenting	Mr Meisenheimer
Department of Environment and Nature Conservation	Commenting	Mr Fortuin
Department of Water Affairs and Sanitation	Commenting	Mr Sean Cloete
Northern Cape Provincial Heritage Resource Agency	Commenting	R Timothy & N Niggens (SAHRA)

	STRUCTURE OF THE RICHTERSVELD COMMUNITY TRUST
No	**CPA COMMITTEE MEMBERS**
1	Lydia Obies (Chairperson)
2	Edwin Farmer
3	Jacobus Johannes Farmer
4	Josiesa Benjamin Joseph
5	Wilhelmina Kristina Vries
6	Floors Petrus Strauss (Vice chairperson)
7	Andries Johannes Cloete
8	Willem Job Joseph
9	Anna Gewers
10	Selma Klim
11	Cynthia Cloete

No	RICHTERSVELD COMMUNITY TRUST MEMBERS
1	Catherine Slander (Chairperson)
2	Maria Samson
3	Martha Farmer
4	Willem Cloete

No	RICHTERSVELD SELF-DEVELOPMENT COMPANY MEMBERS
1	Petrus Elias de Wet (Chairperson)
2	Niklaas Phillips
3	Koos Stoffel
4	Liezl Fortuin

No	RICHTERSVELD MINING COMPANY MEMBERS
1	Dennis Alphonzo Farmer
2	Brain Koopman
3	Willem Vries
4	Ryno Denver Thomas
5	Craig Matthews
6	Gus Maarman (Court Appointed Director)
7	Patience Mokhale (Court Appointed Director)
8	Gideon Oliphant (Court Appointed Director)

	Additional Names added
1	Jacob Fredericks
2	Brian Koopman
3	Carina Kriel
4	Keith Newnham
5	Charles Westley
6	Gerrith Cloete
7	Arno Cloete
8	Joseph
9	J Cloete
10	S Afrikaner
11	G Jantjies
12	J Truter
13	M Pienaar
14	J Hattingh
15	M Rebly
16	Abraham Cloete
17	Emilie Smith
18	Gerrith Cloete (Kiewiet)
19	Willem De Klerk
20	Hansie Strauss

APPENDIX B.2 Newspaper Advert

THANK YOU MAMA BARRACK FOR THE WONDERS 0810 754 971

My name is Nombulelo form Tyger Valley. My number is 071 973 2622. Life is good when you meet some one who keeps her word and changes life for better. Money is not my problem any more since mama Barrack blessed me with a lot of money in my account, because I have been robbed many times by fake doctors who demanded money with no help when I first saw the testimony about mama Barrack I never believed until I tried to call her. She explained about her services and how people get rich through shortboys, magic wallet, magic ring, money in the house, money in the account and more. I was interested in getting money in my account since I was far from her. She asked me to provide her with my account and names and R1000.00. Within 45 minutes R450,000 notified in my account. Then I went to the bank even though I was scared but there were no questions. My mother also tried money in the house and she was also shocked to see the bag full of money.

Thank you mama Barrack for saving my life. Call mama Barrack on 081 0754 971 and your life will be changed for better.

KENNISGEWING

In die boedel van wyle AMBROCIOUS RODERICK ANDRIES, Identiteitsnommer 820208 5198 08 7 woonagtig was te Akwamangstraat Erf 4703, Springbok, Noord-Kaap wat oorlede is op 8 Julie 2015.

Boedel no 2369/2015

Geliewe kennis te neem dat die Eerste en Finale Likwidasie en Distribusierekening in bogenoemde boedel ter insae lê aan die Kantoor van die Meester van die Noord Kaap Hoë Hof te Kimberley en 'n afskrif daarvan aan die kantoor van die Landdros te Springbok vir 'n tydperk van 21 dae gereken vanaf datum van publikasie hiervan.

BECKER BERGH & MORE ING
Prokureurs vir Boedel
KOOPERASIESTRAAT 13
Posbus 9
UPINGTON
8800

AFVALBESTUUR LISENSIE VIR VAST MINERAL SANDS (EDMS) BPK
BEOOGDE HERPROSESSERING VAN BESTAANDE TAILINGS DUMPS EN SLIMES DAMME OP RESTANT VAN PLAAS 1, ALEXANDERBAAI (ALEXKOR MYN AREA) NAMAQUALAND STRAAT
NCS 30/5/1/3/2/ (10646) MEM

UITNODIGIING OM KOMMENTAAR TE LEWER OP DIE BASIESE OMVANGBEPALINGSVERSLAG(BOV) EN OMGEWINGSBESTUURSPROGRAM (OBP)

Vast Mineral Sands (Edms) Bpk beoog om 'n diamante en swaar mineraal herwinningsoperasie by the bestaande Alexkormyn in Alexanderbaai te begin. Dit behels die herprosessering van die ou tailings dumps and slimes damme bekend as Noordsif Area, Riettontein Noord en Suid Area, Kaap Voltas Area en Giftkop Area.

Aansoek area: Restant van Plaas 1, Alexanderbaai (Alexkor Myn area) binne die Richtersveld Plaaslike Munisipaliteit.

Voordat Vast Mineral Sands met die beoogde projek mag voortgaan moet die volgende omgewingsgoekeuringsaansoek gedoen word: Afval Lisensie in terme van die Wet op Omgewingsbestuur: Afval (Wet 59 van 2008, NEMWA) vir voorlegging aan die Department van Mineraal Hulpbronne (DMR).

Braaf Environmental Practitioners is as die onafhanklike praktisyn deur Vast Minerals aangestel, om die prosess vir omgewingsmagtiging te onderneem.

Be anghebbende en geaffekteerde partye (BGPé) word uitgenooi om te registreer en kommentaar te lewer op die Basiese Omvangsbepalingsverslag (BOP) / Omgewingsbestuursprogram (OBP) wat beskikbaar is vir publieke kommentaar vir 'n periode van 30 dae vanaf 26 Januarie tot 27 February 2018 by die Port Nolloth Biblioteek en die eerste publieke sekuriteitsingangskantoor in Alexanderbaai. Die Basiese Omvangsbepalingsverslag / Omgewingsbestuursprogram en Kommentaar blad is ook beskikbaar op die Braaf webtuiste: www.braafsa.com (Documents for Comment – Vast Mineral Sands), vanaf 25 Januarie 2018. Om te registreer of kommentaar te lewer, moet u die DMR se verwysingsnommer soos bo vermeld, u naam, address en kontak besonderhede (dui aan u verkose metode van kontak) en 'n indikasie van enige direkte besigheids, finansieel, persoonlik of enige ander belange wat u mag he in die aansoek. Indien u nie kan skryf of lees nie en benodig spesiale hulp om u kommentaar te lewer kan u Olivia Braaf skakel om u kommentaar of opinie te registreer.

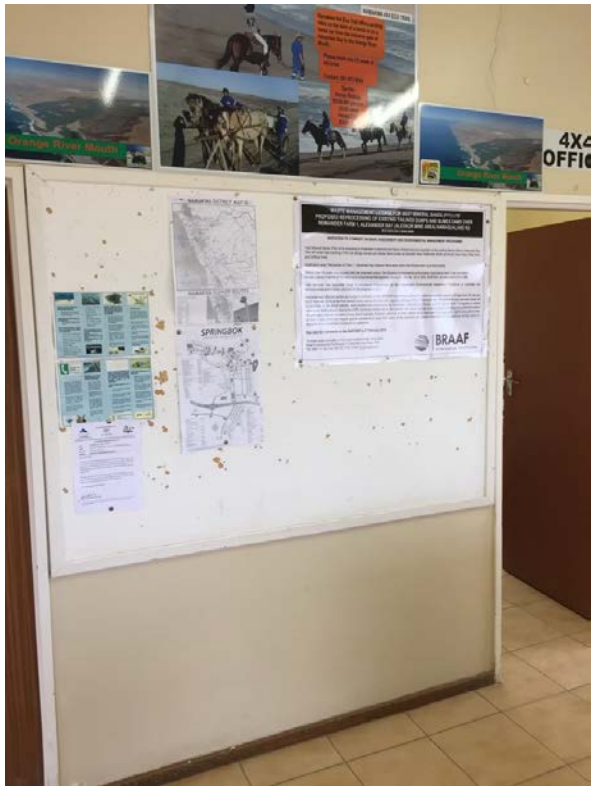
Sperdatum vir registrasie as 'n BGP en kommentaar op die BOV/OBP is 27 Februarie 2018

Vir verdere inligting rakende die projek skakel:
Olivia Braaf
Braaf Omgewingskonsultante
Posbus 692, Kuilsrivier, 7579
Tel: 0860 111 382, Faks: 086 658 7676, epos: info@braafsa.com

BRAAF
ENVIRONMENTAL PRACTITIONERS

APPENDIX B.3 Site Notice


STOP


Orange River Mouth
SPRINGBOK
BRAAF


South Africa
BRAAF

APPENDIX B.4 Notification Letter and Background Information Document

BRAAF
ENVIRONMENTAL PRACTITIONERS

P O Box 692
Kuils River
7579
Tel: 0860 111 382
Fax: 086 658 7676
Email: info@braafsa.com

24 January 2018

Dear Sir/Madam

RE: NOTIFICATION OF RELEASE: DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) - PROPOSED REPROCESSING OF TAILINGS DUMPS AND SLIMES DAMS ON REMAINDER OF FARM NO.1, ALEXANDER BAY (ALEXKOR MINE AREA) – DMR REF NO. NCS 30/5/1/3/2/ (10646) MEM

This letter provides information on the proposal to re-mine and reclaim Tailing Storage Facilities (TSF's) on the Remainder of Farm 1, Namaqualand RD near Alexander Bay. The application area lies within the existing Alexkor Mining Right area (Alexkor Mine).

Vast Mineral Sands (Pty) Ltd (VMS) is proposing to re-mine the existing TSF's on the Alexkor Mine known as:

- Noordsif TSF;
- Kaap Voltas TSF;
- Rietfontein North TSF;
- Rietfontein South TSF; and
- Gifkop TSF.

Tailings will be reprocessed to extract Heavy Minerals.

Before commencing with the proposed activity, VMS requires a waste management license in terms of the National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA).

Before commencing with the project, the proponent (VMS) is required to appoint an independent Environmental Assessment Practitioner (EAP) to undertake a BA process and to obtain authorisation in terms of NEM:WA from the competent authority (DMR). Braaf Environmental was appointed by VMS Ltd to undertake the applicable authorisation processes.

The Basic Assessment Report has been released for a 30-day comment period from 26 January to 27 February 2018 at the Port Nolloth library and at the first public security entrance office in Alexander Bay. The BAR/EMPr and comment sheet will be available on the Braaf website: www.braafsa.com (Documents for Comment – Vast Mineral Sands), as of 25 January 2018. We invite you, to submit comments on the BAR to the undersigned at the contact particulars below by no later than 27 February 2018.

Further information on the proposed project and the legislative processes is provided in the attached Background Information Document (BID).

Should you have any queries on the above, or require any further information, please do not hesitate to contact the undersigned.

Olivia Braaf of **Braaf Environmental Practitioners**
P O Box 692, Kuils River, 7579

T: 0860 111 382 ●F: 086 658 7676●Email: info@braafsa.com ●www.braafsa.com

Yours sincerely

Olivia Braaf

BRAAF
ENVIRONMENTAL PRACTITIONERS
P O Box 692
Kuils River
7579
Tel: 0860 111 382
Fax: 086 658 7676
Email: info@braafsa.com

24 Januarie 2018

Geagte Belanghebbende Party

KENNISGEWING: UITREIKING VAN BASIESE OMVANGSBEPALINGSVERSLAG EN OMGEWINGSBESTUURSPROGRAM-VOORGESTELDE HERPROSESEERING VAN BESTAANDE UITSKOP OPBERGINGS FASILITEITE (UOF) OP RESTANT VAN PLAAS NR. 1, ALEXANDERBAAI (ALEXKOR MYN AREA) – DMR VERVYS NR. NCS 30/5/1/3/2/ (10646) MEM

AGTERGROND EN INLEIDING

Vast Mineral Sands (Edms) Bpk (Vast Minerals) is van voornemens om die bestaande Uitskop Opbergings Fasiliteite (UOF) (Tailings Storage Facilities) op Restant van Plaas 1 (Alexkormyn), naby Alexanderbaai te myn. Die beoogde herprosesseering van die UOF's by Vast Minerals sal die ontginning van swaarminerale deur middel van oppervlak mynboumetodes behels. Toegan tot die UOF's sal deur die bestaande publieke pad, R382 en Alexkormyn paaie wees.

Voordat die beoogde projek ontwikkel kan word, benodig Vast Minerals 'n Afvalbestuurslisensie wat deur die Departement van Minerale Hulpbronne (DMH) toegestaan moet word. Vast Minerals het Braaf Environmental Practitioners as die onafhanklike Omgewingsbepalingspraktisyn (OBP) aangestel om die omgewingsmagtigingsproses te bestuur en te fasiliteer.

Vast Minerals se beoogde UOF-projek is naby die dorp Alexanderbaai in die Noord-Kaap geleë en val onder die Richtersveld Plaaslike Munisipaliteit en Namakwa Distriksmunisipaliteit. Die UOF's is binne die bestaande Alexkormyn geleë. Verwys na Figuur 1 vir die liggingskaart.

Die volgende UOF's vorm deel van die beoogde area wat hermyn gaan word:

- Noordsif UOF;
- Kaap Voltas UOF;
- Rietfontein North UOF;
- Rietfontein South UOF; en
- Gifkop UOF.

BESKRYWING VAN DIE PROJEK

Die verwerkingsaanleg sal op 'n getransformeerde area by die UOF geleë wees. Die swaarminerale sal uit die UOF deur strook mynboumetodes ontgin word. Die beoogde UOF myngebied is ongeveer 352,21 ha. Die beplande lewensduur van die myn sal ongeveerd 18 jaar wees.

Vast Minerals is voornemens om 'n verwerkingsaanleg te ontwikkel wat uit 'n -

- Minerale skeidingsaanleg (MSA) bestaan, wat langsaan die UOF geplaas sal word. Dit sal die hoë graad ilmeniet-, granaat-, zirkoon- en rutielprodukte produseer vir uitvoer;
- 'n Natkonsentratorplant (NKP) langs die MSA; en
- Vergaarbakke op die UOF wat die droeë onbehandelde erts (ROM), wat 'n klein volume water gebruik, om die ROM materiaal te slyk voor dit na die siftingseenheid plant gepomp word.

Figuur: Liggingskaart

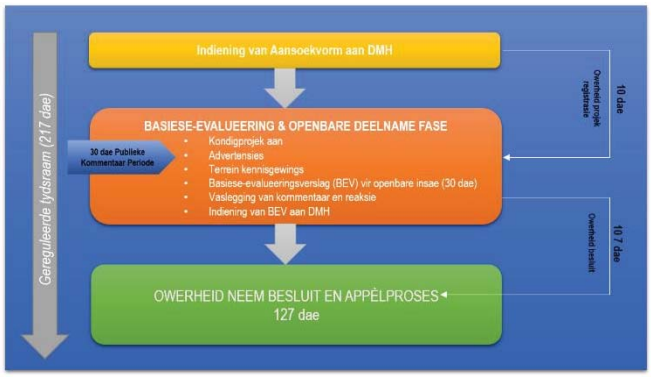
Verwerkings water vir opsloping sal deur 'n groot reservoir verskaf word, wat op hoë grond oos van die plant geleë is. Die Natkonsentratorplant (NKP) sal deur 'n proseswaterdam naby die NKP voorsien word. Seewater sal oor 'n afstand van 2km van 'n

bestaande put op die nabygeleë strand gepyp word om prosessewater te verskaf. 'n Bolaag opgegaarde voorraad, draagbare ablusiegeriewe en ander oppervlak-infrastruktuur sal met elke UOF gepaard gaan. Die swaarmineralkonsentraat sal in 1ton geweefde polipropileen sakke gepak word en na onderskeie markte vervoer word.

WETLIKE VEREISTES

Vast Minerals sal vir die beoogde UOF-projek aansoek vir 'n afvalbestuurslisensie by die Departement van Minerale Hulpbronne (DMH) indien, soos bepaal deur die Wet op Nasionale Omgewingsbestuur: Afval (Wet 59 van 2008) (NEM:WA). Die beoogde UOF area wat hermyn sal word is in Figuur 1 aangedui. Voordat die afvalbestuurlisensie toegestaan word, moet Vast Minerals 'n omgewingsmagtigingsproses onderneem kragtens die Wet op Nasionale Omgewingsbestuur (Wet 107 van 1998) (NEMA) en (NEM:WA).

Hierdie omgewingsmagtigingsproses bestaan uit 'n Basiese-evalueeeringsproses. Die doel van die Basiese-evalueering is om die projek aan belanghebbendes bekend te stel en hulle 'n geleentheid te gee om oor die proses kommentaar[1] te lewer. Hierdie inligting word saamgevat in 'n Basiese-evalueeringsverslag wat vir openbare kommentaar beskikbaar gestel sal word. Sodra die kommentaar van die belanghebbende-deelnameproses ontvang word, sal die Basiese-evalueeringsverslag afgehandel word en by die bevoegde owerheid (DMH) ingedien word vir besluitneming.



Figuur 2: Basiese-evalueeringsproses

Die algehele tydraamwerk vir die Basiese-evalueeringsproses, vanaf die indiening van die aansoek om afvalbestuurlisensie tot die ontvangs van die Besluit van die DMH, is ongeveer 197 dae.

BELANGHEBBENDE-DEELNAME

Die belanghebbende-deelnameproses wat as deel van die basiese-evalueeringsproses onderneem word, vind plaas ingevolge NEMA (soos gewysig), wat duidelike riglyne stel vir die deelname van belanghebbendes tydens 'n omgewingsmagtigingsproses. Hoofstuk 1 van die NEMA omskryf die beginsels van omgewingsbestuur, waarvan heelwat met belanghebbende-deelname verband hou. Hoofstuk 6 (artikel 39 - 44) van die NEMA Regulasie GN R326 (gepromulgeer in April 2017) bepaal die minimumvereistes vir belanghebbende-deelname in 'n omgewingsmagtigingsproses.

Hierdie proses bied aan belanghebbendes die geleentheid om ingelig te word oor die projek, kommentaar te lewer of vrae te vra en om voorstelle te maak om die voordele van die projek te versterk. Die tegniese deskundiges en projekspan sal tydens die basiese-evalueeringsproses die relevante kwessies en voorstelle evalueer. Figuur 2 bied 'n oorsig van die aktiwiteite rondom belanghebbende-deelname wat met hierdie omgewingsmagtigingsproses verband hou.

HOE KAN U BETROKKE RAAK?

U ontvang hierdie dokument aangesien ons u as 'n belangstellende en geaffekteerde party (B&GP) vir hierdie projek geïdentifiseer het. Indien u 'n B&GP vir hierdie magtigingsproses wil bly, word u genooi om kommentaar te lewer of enige kommerwekkende kwessie aan te roer. Tree asseblief met ons in verbinding as u verdere inligting oor die beoogede Vast Minerals UOF-projek of die gepaardgaande basiese-evalueeringsproses verlang. Vul die aangehegde vorm in indien u wil registreer of kommentaar will lewer en stuur aan onderstaande adres.

Die Basiese-evalueeringsverslag is tans vir openbare kommentaar vir 'n tydperk van 30 dae beskikbaar, vanaf 26 Januarie tot 27 Februarie 2018. Afskrifte van die verslag is by die Port Nolloth Biblioteek en die eerste publieke sekuriteitsingangskantoor (by Alexkor) in Alexanderbaai beskikbaar. Die verslag is ook op die Braaf webwerf beskikbaar, op www.braafsa.com (Documents for Comment – Vast Mineral Sands). Aangesien daar 'n vertraging in die beskikbaarheid van die verslag was, het ons die kommentaardatum tot 9 Maart 2018 verleng. Ons nooi u uit om **kommentaar op die Basiese-evalueeringsverslag te lewer by nie later as 9 Maart 2018 nie.**

VIR MEER INFORMASIE
Registreer of stuur geskrewe kommentaar aan: Olivia Braaf
Braaf Environmental Practitioners
Posbus 692, Kuils River, 7579
Epos: info@braafsa.com
Tel: 0860 111 382
Faks: 086 658 7676
www.braafsa.com
Verwys asseblief na bogenoemde DMH verwysingsnommers in u voorleggings. As u as 'n belanghebbende wil registreer, verskaf asseblief u naam, kontakbesonderhede (voorkeurmetode van kennisgewing, bv. E-pos), en aanduiding van enige direkte besigheid, finansiële, persoonlike of ander belang in die aansoek.

[1] Die kommentare wat van belanghebbendes ontvang word, sal die ontwerp van die projek inlig en beïnvloed en sal die basiesevalueeeringsproses inlig. Kwessies wat gedurende die Basieseevalueeringsfase ondersoek is, word tydens die kommentaarperiode en deur middel van skakeling met belanghebbendes geïdentifiseer.

AANSOEK BY VAST MINERAL SANDS (EDMS) BPK VIR 'N AFVALBESTUURSLISENSIE: VOORGESTELDE HERPROSESEERING VAN BESTAANDE UITSKOP OPBERGINGS FASILITEITE (UOF) OP RESTANT VAN PLAAS NR. 1, ALEXANDERBAAI (ALEXKOR MYN AREA) – DMR VERVYS NR. NCS 30/5/1/3/2/ (10646) MEM

Registrasie en Kommentaarblad

26 Januarie 2018 to 9 Maart 2018

PERSOONLIKE BESONDERHEDE			
Naam	Van	Titel	Organisasie/Departement *(Indien toepaslik)*

KONTAK INFORMASIE				
Sel Nommer	Landlyn Nommer		Faks Nommer	Verkose taal
		Kantoor		
		Huis		
Epos	Posadres			Poskode

GRONDEIENAARS	
As u eiendom binne die grense van die aansoekarea val, stuur asseblief u plaasnaam en erf- / nommer aan ons	

WIL JY AS 'N BELANGSTELLENDE EN GEAFFEKTEERDE PARTY REGISTREER		
Registreer my as 'n belanghebbende en geaffekteerde party (B&GP) vir hierdie projek sodat ek verdere inligting en kennisgewings kan ontvang soos wat die projek ontwikkel	JA	NEE

Voorkeurmetode van kommunikasie *(Merk met 'n X)*	Pos	Epos	Faks/Sel

In terme van Regulasie GN 326 (Omgewingsimpakregulasies, 2017), bevestig ek hieronder enige direkte besigheid, finansiële, persoonlike of ander belang wat ek mag hê in die goedkeuring of weiering van die aansoek:	Datum	
	Handtekening	

KOMMENTAAR

Ek het die volgende kommentaar oor hierdie projek en / of die openbare konsultasieproses:

Vra asseblief die volgende van my bure, ander grondeienaars, kollegas om as Belanghebbende en Geaffekteerde Persone vir hierdie Omgewingsproses te registreer:

NAAM	KONTAK BESONDERHEDE

STUUR ASSEBLIEF DIE REGISTRASIE- EN KOMMENTAARBLAD TERUG NA (VOEG MEER BLAE AAN AS U MEER SPASIE BENODIG):

Braaf Environmental Practitioners
Posbus 692, Kuils River, 7579
Tel: 0860 111 382, Faks: 086 658 7676, epos: info@braafsa.com

DANKIE

BACKGROUND INFORMATION DOCUMENT:
Basic Assessment for Proposed Reprocessing of Tailings Dumps and Slimes Dams on Remainder of Farm No.1, Alexander Bay (Alexkor Mine area)

NCS 30/5/1/3/2/ (10646) MEM

1 INTRODUCTION

Vast Mineral Sands (Pty) Ltd (VMS) is proposing to reclaim and re-mine the Tailings Storage Facilities (TSF) on the Remainder of Farm 1 in Alexander Bay on the West Coast of South Africa (see Figure 1). The application area lies within the existing Alexkor Mining Right area (Alexkor Mine).

Mining has taken place on the area by Alexkor since 1928 by means of dry strip mining, where overburden is removed and placed on overburden dumps next to the boxcut. Diamond-bearing gravels were excavated and transported to the closest of any of the eight processing plants where diamonds were extracted. The waste material was discarded on large coarse tailings dumps and slimes dams. During the Life of Mine (LOM) some 180Mt (million tonnes) of tailings and slimes have been accumulated at the processing plants in the Alexkor concession area. It is VMS's intention to reprocess the tailings and slimes and extract the heavy minerals to aid in the rehabilitation of these areas.

The project will trigger activities listed in terms of the National Environmental Management: Waste Act, 2008 (NEM:WA); as such, a Waste Management License (WML) will be required and an Basic Assessment (BA) process must be conducted before VMS can commence with mining. VMS appointed Braaf Environmental Practitioners (Braaf) to undertake the BA process required in terms of NEM:WA. The competent authority for the environmental authorisation process is the Northern Cape Department of Mineral Resources (DMR).

This Background Information Document (BID) aims to:

- Provide a brief motivation and description of the project;
- Briefly describe the environmental baseline;
- Describe what the EIA process entails; and
- Provide information on how you can participate.

2 PROJECT DESCRIPTION AND MOTIVATION

VMS is proposing to re-mine the existing TSF's on the Alexkor Mine (see Figure 2) known as:

- Noordsif TSF;
- Kaap Voltas TSF;
- Rietfontein North TSF;
- Rietfonteiin South TSF; and
- Gifkop TSF.

Tailings will be reprocessed to extract the following minerals:

- Heavy Minerals (General)
- Rutile (Heavy Mineral)
- Ilmenite (Heavy Mineral)
- Zircon (Heavy Mineral)
- Monazite (Heavy Mineral)
- Leucoxene (Heavy Mineral)

The heavy mineral industry of South Africa is characterised by two major products:

- Ilmenite and rutile as feedstocks for the TiO2 pigment, titanium metal and welding electrode industries and;
- Zircon as feedstock for the ceramic, foundry, refractory and chemical industries.

Mining method

Mining will be undertaken using bench strip mining, typically used in dry mining operations in the minerals sand industry. Mining commences with the excavation of an initial pit to expose the ore and create a mine face creating benches along the slimes dam. This method will include other ancillary equipment to position and load the ore into dump trucks. The trucks will haul the ore to the Run-of-Mine (ROM) stockpile at the processing plant.

At the ROM, large excavators will deliver the ore to a screening unit plant ("SUP") via skid-mounted feeding-bin/sump units. The feeding-bin/sump units receive the dry ROM material and a volume of water to slurry the ROM material in the bin before gravitating into the sump from where it is pumped to the SUP acting as a primary screening plant.

The slurried ore from the SUP is then screened at the WCP into three fractions, with the -0,3mm to +50µm fraction being sent to the heavy mineral separation gravity and magnetic separation circuits.

Tailings from the WCP, XMS and cyclone overflow will report to a deep cone thickener for recovery of process

water. Thickened underflow (mainly slimes) will be pumped initially into an off-path tails dam, and later co-disposed with sand and gravel tails into the areas to be rehabilitated.

Processing water for slurrying will be supplied by a large reservoir on the high ground east of the plant. The WCP will be supplied by a process water dam near the WCP. Sea water will be piped over a distance of 2km from an existing well field on the nearby beach to provide process water.

The heavy minerals, contained in a concentrate will be slurried and pumped to the Mineral Separation Plant (MSP) to separate the magnetic opaque minerals (ilmenite, magnetite and haematite) from the non-magnetic VHM's, zircon, rutile and monazite. The zircon, rutile and monazite concentrate will be bagged in 1ton woven polypropylene bulk bags before shipping to the respective markets.

- Construct a Mineral Separation Plant (MSP) adjacent to the TSF to produce high grade and/or finished ilmenite, garnet, zircon and rutile products for export;
- Construct a Wet Concentrator Plant (WCP) adjacent to the MSP.
- Feeding bins/sumps located on the TSF will receive the dry ROM material and a volume of water to slurry the ROM material in the bin before gravitating into the sump from where it is pumped to the SUP acting as a primary screening plant.

3 THE ENVIRONMENTAL BASELINE

Alexkor Mine is located on Remainder of Farm 1 on the southern bank of the Orange River at the mouth stretching some 12 km eastward along the southern bank of the Orange River along the southern border of Namibia. The mine (Alexkor Mine Area) is located close to the town of Alexander Bay.

Access to the Mine is from the R382 public road, which is tarred all the way to Alexander Bay. The Mine maintains existing gravel roads which provides access to the Mine.

The surface of the land rises from the shoreline in the west to the coastal plains consisting of tailings and mine dumps which is divided by a gravel spine road and mine service road network. The mining right area fall within the cold temperate Namaqua Bioregion. The coastline from Orange River mouth to Kleinzee is dominated by rocky shores, interspersed by isolated short stretches of sandy shores. Sandy beaches are one of the most dynamic coastal environments. Rocky shore and sandy beach habitats are generally not particularly sensitive to disturbance with natural recovery occurring within 2 to 5 years.

Areas along the West Coast have been disturbed by historical and current shore-based diamond mining operations and/or prospecting activities. These cumulative impacts and the lack of biodiversity protection have resulted in some of the coastal habitat types in Namaqualand being assigned a threat status.

The predominant vegetation type of the region is Richtersveld Coastal Duneveld. Other vegetation found in the area include Namaqualand Salt Pans, Alexander Bay Coastal Duneveld and Namib Seashore Vegetation. These vegetation types persist but have their extent is greatly reduced within the project area due to the historical and current open-cast mining activities.

The extent of Critical Biodiversity Areas and Ecological Support Areas along the coast, as identified by the South African National Biodiversity Institute, indicates that pockets within REM Farm 1 may have high biological value, although the TSF's are indicative of altered environments.

The West Coast sustains large populations of breeding and foraging seabird and shorebird species. Most of the seabird species along the West Coast feed relatively close inshore (10-30 km). The beaches are used by shoreline birds for foraging, rest or breeding. The Orange River mouth wetlands are located in Alexander Bay on the border of South Africa and Namibia (northwest of the site). This area is designated as an internationally important wetland site under the Ramsar convention and is also listed as a non-statutory Important Bird Area (IBA) by Birdlife International (IBA ZA023).

The study area lies in the Lower Orange River Water Management Area. Except for the Orange River, ~3 km north of REM Farm 1 and beyond the study area, all of the rivers and wetlands in the area are minor ephemeral systems. Wetlands in the area comprise mainly pans or "depressions".

The bulk of archaeological sites (mainly Later Stone Age middens) lie within 500 m of the coast. Inland of the coast, archaeological sites are quite scarce. Evidence of historic occupation is prolific in areas of rocky outcrops with shelters or overhangs or any place with potential for providing a water source. Archaeological impacts assessment undertaken in the rich diamond-mining regions on the Cape West coast of South Africa has shown that shore-based mining operations impacts severely negatively on archaeological heritage sites and that mining operations over the last few decades by Alexkor Limited, has unquestionably destroyed many sites in the Alexkor mining area.

4 THE BASIC ASSESSMENT PROCESS

NEMA Section 24(5) stipulates that "listed activities" require environmental authorisation via a Basic Assessment (BA) process, issued by the competent authority, in this case, the Department of Mineral Resources (DMR). The Environmental Impact Assessment (EIA) Regulations, 2017 [Government Notice (GN) R326, which came into effect on 7 April 2017], promulgated in terms of NEMA, govern the process, methodologies and requirements for the undertaking of EIAs in support of EA applications. The EIA Regulations are accompanied by Listing Notices (LN) 1-3 that list activities that require Environmental Authorisation (EA).

The EIA Regulations, 2017, lays out two alternative authorisation processes. Depending on the type of activity that is proposed, either a Basic Assessment (BA) process or a Scoping and Environmental Impact Reporting (S&EIR - also referred to as an EIA) process is required to obtain EA. LN 1 and LN3 list activities that require a BA process, while LN 2 lists activities that require S&EIR.

The NEM: Waste Act, 2008 (NEM:WA) lists two categories of activities, Category A, requiring a Basic Assessment and Category B requiring a S&EIR process. This project triggers a listed activity under Category A and as such a BA Process must be followed. Braaf has determined that the proposed project triggers activities listed in terms of Category A of the NEMA:WA, 2008 Activity 15, requiring a BA.

Before commencing with the project, the proponent (VMS) is thus required to appoint an independent Environmental Assessment Practitioner (EAP) to undertake a BA process and to obtain authorisation in terms of NEM:WA from the competent authority (DMR).

The EIA Regulations, 2017, define the detailed approach to the BA process (see Figure 3). The aims of the BA process are to:

- Notify stakeholders of the proposed development (and BA process);
- Provide stakeholders with the opportunity to participate effectively in the process and identify relevant issues and concerns;
- Ensure that stakeholders' issues and concerns are addressed in the assessment and are accurately recorded and reflected in the BA Report;
- Assess the potential positive and negative environmental impacts associated with the proposed activity; and
- Make recommendations as to how the potential negative impacts can be effectively mitigated and the benefits enhanced.

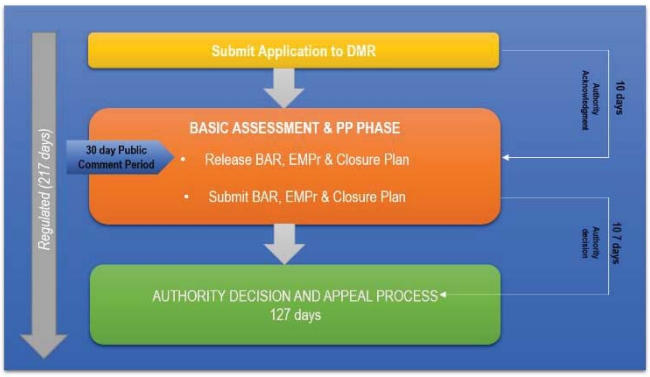


Figure 3: Simplified BA Process diagram

5 HOW YOU CAN PARTICIPATE IN THE EIA PROCESS

We value your input into the BA process. If you or your organisation would like to be involved in the BA process, please submit your contact details for registration as a stakeholder on our database. Only registered stakeholders will continue to be informed about the BA process and receive the relevant documents and notifications of opportunities to comment.

The Basic Assessment Report has been released for a 30-day comment period from 26 January to 27 February 2018 at the Port Nolloth library and at the first public security entrance office in Alexander Bay. The BAR/EMP and comment sheet will be available on the Braaf website: www.braafsa.com (Documents for Comment – Vast Mineral Sands), as of 25 January 2018. However, as there has been a delay in the report availability we have extended the comment deadline to 9 March 2018. We invite you, to submit comments on the BAR to the undersigned at the contact particulars below by no later than 9 March 2018.

REGISTER OR PROVIDE YOUR COMMENT

Register or send written comment to:
Olivia Braaf
Braaf Environmental Practitioners
P O Box 692, Kuils River, 7579
Email: info@braafsa.com
Tel: 0860 111 382
Fax: 086 658 7676
www.braafsa.com

Please refer to the above reference numbers in your submissions. If registering as a stakeholder, please provide your name, contact details (preferred method of notification, e.g. email), and indication of any direct business, financial, personal or other interest in the application

BRAAF
ENVIRONMENTAL PRACTITIONERS

RE-MINING OF EXISTING TAILINGS STORAGE FACILITIES
REMAINDER OF FARM 1, NAMAQUALAND RD (ALEXANDER BAY)

Locality Map

GCS_WGS_1984			
Scale:	1:321 177		
Date	24.01.2018	Compiled By:	OB
Project No:	180111	Fig No.	1

APPLICATION BY VAST MINERAL SANDS (PTY) LTD FOR A WASTE MANGEMENT LICENSE FOR THE REPROCESSING OF TAILINGS DUMPS AND SLIMES DAMS ON REMAINDER OF FARM NO.1, ALEXANDER BAY (ALEXKOR MINE AREA)
NCS 30/5/1/3/2/ (10646) MEM
Registration and Comment Sheet

26 January 2018 to 9 March 2018

PERSONAL DETAILS			
Name	Surname	Title	Organisation / Department *(If applicable)*

CONTACT INFORMATION				
Cell Number	Land Line Contact Number		Fax Number	Preferred Language
		Office		
		Home		
Email	Postal Address			Postal code

LANDOWNERS	
If your property falls within the boundary of the prospecting right application area, please tell us your farm name and erf/portion number	

WOULD YOU LIKE TO REGISTER AS AN INTERESTED AND AFFECTED PARTY?		
Please register me as an interested and affected party (I&AP) for this project so that I may receive further information and notifications as the project develops	YES	NO

Preferred Method of Communication *(Mark with an X)*	Post	Email	Fax/Cell

In terms of GNR 326 (EIA Regulations, 2017) I disclose below any direct business, financial, personal or other interest that I may have in the approval or refusal of the application:	Date	
	Signature	

COMMENT(S)

I have the following comments to make regarding this project and/or the public consultation process:

Please ask the following of my neighbours, other landowners, colleagues to register as Interested and Affected Persons for this Environmental process:

NAME	CONTACT DETAILS

PLEASE RETURN THE REGISTRATION AND COMMENT SHEET TO (Please add more pages if needed):

Braaf Environmental Practitioners
P O Box 692, Kuils River, 7579
Tel: 0860 111 382, Fax: 086 658 7676, e-mail: info@braafsa.com

THANK YOU

BRAAF
ENVIRONMENTAL PRACTITIONERS

P O Box 692
Kuils River
7579
Tel: 0860 111 382
Fax: 086 658 7676
Email: info@braafsa.com

1 April 2018

Richtersveld Municipality

The Municipal Manager : Mr Maposa

Private Bag X113, Port Nolloth, 8280

Dear Sir/Madam

RE: NOTIFICATION OF RELEASE: DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) - PROPOSED REPROCESSING OF SLIMES DAMS ON REMAINDER OF FARM NO.1, ALEXANDER BAY (ALEXKOR MINE AREA) – DMR REF NO. NCS 30/5/1/3/2/ (10646) MEM

This letter provides information on the proposal to re-mine and reclaim Tailing Storage Facilities (TSF's, i.e. slimes dams) on the Remainder of Farm 1, Namaqualand RD near Alexander Bay. The application area lies within the existing Alexkor Mining Right area (Alexkor Mine).

Vast Mineral Sands (Pty) Ltd (VMS) is proposing to re-mine the existing Slimes Dams on the Alexkor Mine known as:

- Noordsif;
- Kaap Voltas;
- Giftkop;
- Rietfontein South;
- Rietfontein -North; and
- Perdevlei.

Before commencing with the proposed activity, VMS requires a waste management license in terms of the National Environmental Management: Waste Act (No. 59 of 2008) (NEM:WA).

Before commencing with the project, the proponent (VMS) is required to appoint an independent Environmental Assessment Practitioner (EAP) to undertake a BA process and to obtain authorisation in terms of NEM:WA from the competent authority (DMR).

Braaf Environmental was appointed by VMS Ltd to undertake the applicable authorisation processes.

The Basic Assessment Report has been released for a 30-day comment period from 1 April to 11 May 2018 at the AJ Bekeur library, Port Nolloth and Sanddrift library in Alexander Bay. The BAR/EMPr and comment sheet will be available on the Braaf website: www.braafsa.com (Documents for Comment – Vast Mineral Sands), as of 1 April 2018.

In terms of Chapter 2 Regulations 3(4) and Regulation 40(2)(b) (GN R. 326) of the Environmental Impact Assessment (EIA) Regulations 2017, amended promulgated in terms of the National Environmental Management Act, 1998 (No. 107 of 1998), as amended, we invite you, as representative of the competent authority, to submit comments on the BAR. Your comments should be submitted to the undersigned at the contact particulars below by no later than 11 May 2018.

Should you have any queries on the above, or require any further information, please do not hesitate to contact the undersigned.

Olivia Braaf of **Braaf Environmental Practitioners**
P O Box 692, Kuils River, 7579

T: 0860 111 382 ●F: 086 658 7676●Email: info@braafsa.com ●www.braafsa.com

Yours sincerely

Olivia Braaf

BRAAF
ENVIRONMENTAL PRACTITIONERS
P O Box 692
Kuils River
7579
Tel: 0860 111 382
Fax: 086 658 7676
Email: info@braafsa.com

1 April 2018

Geagte Belanghebbende Party

KENNISGEWING: UITREIKING VAN BASIESE OMVANGSBEPALINGSVERSLAG EN OMGEWINGSBESTUURSPROGRAM-VOORGESTELDE HERPROSESEERING VAN BESTAANDE SLYK DAMME OP RESTANT VAN PLAAS NR. 1, ALEXANDERBAAI (ALEXKOR MYN AREA) – DMR VERVYS NR. NCS 30/5/1/3/2/ (10646) MEM

AGTERGROND EN INLEIDING

Vast Mineral Sands (Edms) Bpk (Vast Minerals) is van voornemens om die bestaande slyk damme op Restant van Plaas 1 (Alexkormyn), naby Alexanderbaai te myn. Die beoogde herprosesseering van die slyk damme by Vast Minerals sal die ontginning van swaarminerale deur middel van oppervlak mynboumetodes behels. Toegan tot die slyk damme sal deur die bestaande publieke pad, R382 en Alexkormyn paaie wees.

Voordat die beoogde projek ontwikkel kan word, benodig Vast Minerals 'n Afvalbestuurslisensie wat deur die Departement van Minerale Hulpbronne (DMH) toegestaan moet word. Vast Minerals het Braaf Environmental Practitioners as die onafhanklike Omgewingsbepalingspraktisyn (OBP) aangestel om die omgewingsmagtigingsproses te bestuur en te fasiliteer.

Vast Minerals se beoogde slyk dam-projek is naby die dorp Alexanderbaai in die Noord-Kaap geleë en val onder die Richtersveld Plaaslike Munisipaliteit en Namakwa Distriksmunisipaliteit. Die slyk damme is binne die bestaande Alexkormyn geleë. Verwys na Figuur 1 vir die liggingskaart.

Die volgende slyk damme vorm deel van die beoogde area wat hermyn gaan word:

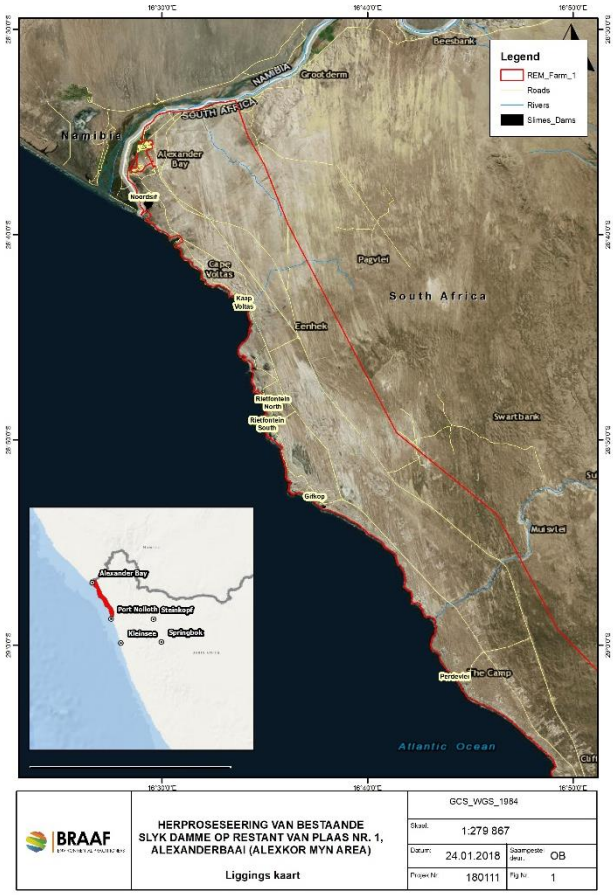
- Noordsif;
- Kaap Voltas;
- Giftkop;
- Rietfontein Suid;
- Rietfontein -Noord;
- Perdevlei.

BESKRYWING VAN DIE PROJEK

Vast Minerals beoog om die bestaande myn infrastruktuur by Noordsif en Rietfontein Suid te gebruik om hulle verwerkingsaanleg te vestig. Die swaarminerale sal uit die slyk damme deur strook mynboumetodes ontgin word. Die beoogde myngebied is ongeveer 201 ha.

Vast Minerals is voornemens om 'n verwerkingsaanleg te ontwikkel wat uit 'n -

- Minerale skeidingsaanleg (MSA) bestaan, wat langsaan die slyk damme geplaas sal word. Dit sal die hoë graad ilmeniet-, granaat-, zirkoon- en rutielprodukte produseer vir uitvoer;
- 'n Natkonsentratorplant (NKP) langs die MSA; en
- Vergaarbakke op die slyk damme wat die droeë onbehandelde erts (ROM), wat 'n klein volume water gebruik, om die ROM materiaal te slyk voor dit na die siftingseenheid plant gepomp word.



Figuur: Liggingskaart

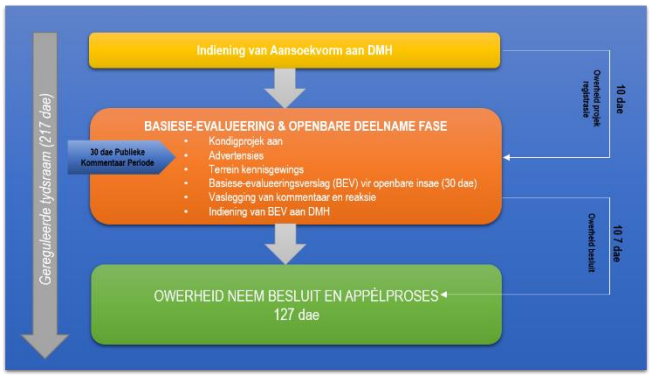
Verwerkings water vir opsloping sal deur 'n groot reservoir verskaf word, wat op hoë grond oos van die verwerkingsaanleg geleë is. Die Natkonsentratorplant (NKP) sal deur 'n proseswaterdam naby die NKP voorsien word. Seewater sal oor 'n afstand van 2km van 'n bestaande put op die nabygeleë strand gepyp word om prosessewater te verskaf. Geen seewater sal terug na die see gepomp word nie. 'n Bolaag opgegaarde voorraad, draagbare ablusiegeriewe en ander oppervlak-infrastruktuur sal met elke UOF

gepaard gaan. Die swaarmineralkonsentraat sal in 1ton geweefde polipropileen sakke gepak word en na onderskeie markte vervoer word.

WETLIKE VEREISTES

Vast Minerals sal vir die beoogde UOF-projek aansoek vir 'n afvalbestuurslisensie by die Departement van Minerale Hulpbronne (DMH) indien, soos bepaal deur die Wet op Nasionale Omgewingsbestuur: Afval (Wet 59 van 2008) (NEM:WA). Die beoogde UOF area wat hermyn sal word is in Figuur 1 aangedui. Voordat die afvalbestuurlisensie toegestaan word, moet Vast Minerals 'n omgewingsmagtigingsproses onderneem kragtens die Wet op Nasionale Omgewingsbestuur (Wet 107 van 1998) (NEMA) en (NEM:WA).

Hierdie omgewingsmagtigingsproses bestaan uit 'n Basiese-evalueeeringsproses. Die doel van die Basiese-evalueering is om die projek aan belanghebbendes bekend te stel en hulle 'n geleentheid te gee om oor die proses kommentaar[1] te lewer. Hierdie inligting word saamgevat in 'n Basiese-evalueeringsverslag wat vir openbare kommentaar beskikbaar gestel sal word. Sodra die kommentaar van die belanghebbende-deelnameproses ontvang word, sal die Basiese-evalueeringsverslag afgehandel word en by die bevoegde owerheid (DMH) ingedien word vir besluitneming.



Figuur 2: Basiese-evalueeringsproses

Die algehele tydraamwerk vir die Basiese-evalueeringsproses, vanaf die indiening van die aansoek om afvalbestuurlisensie tot die ontvangs van die Besluit van die DMH, is ongeveer 197 dae.

BELANGHEBBENDE-DEELNAME

Die belanghebbende-deelnameproses wat as deel van die basiese-evalueeringsproses onderneem word, vind plaas ingevolge NEMA (soos gewysig), wat duidelike riglyne stel vir die deelname van belanghebbendes tydens 'n omgewingsmagtigingsproses. Hoofstuk 1 van die NEMA omskryf die beginsels van omgewingsbestuur, waarvan heelwat met belanghebbende-deelname verband hou. Hoofstuk 6 (artikel 39 - 44) van die NEMA Regulasie GK R326 (gepromulgeer in April 2017) bepaal die minimumvereistes vir belanghebbende-deelname in 'n omgewingsmagtigingsproses.
Hierdie proses bied aan belanghebbendes die geleentheid om ingelig te word oor die projek, kommentaar te lewer of vrae te vra en om voorstelle te maak om die voordele van die projek te versterk. Die tegniese deskundiges en projekspan sal tydens die basiese-evalueeringsproses die relevante kwessies en voorstelle evalueer. Figuur 2 bied 'n oorsig van die aktiwiteite rondom belanghebbende-deelname wat met hierdie omgewingsmagtigingsproses verband hou.

HOE KAN U BETROKKE RAAK?

U ontvang hierdie dokument aangesien ons u as 'n belangstellende en geaffekteerde party (B&GP) vir hierdie projek geïdentifiseer het. Indien u 'n B&GP vir hierdie magtigingsproses wil bly, word u genooi om kommentaar te lewer of enige kommerwekkende kwessie aan te roer. Tree asseblief met ons in verbinding as u verdere inligting oor die beoogede Vast Minerals UOF-projek of die gepaardgaande basiese-evalueeringsproses verlang. Vul die aangehegde vorm in indien u wil registreer of kommentaar will lewer en stuur aan onderstaande adres.

Die Basiese-evalueeringsverslag is tans vir openbare kommentaar vir 'n tydperk van 30 dae beskikbaar, vanaf 1 April tot 11 Mei 2018. Afskrifte van die verslag is by die AJ Bekeur Biblioteek, Port Nolloth en Sanddrift Biblioteek in Alexanderbaai beskikbaar. Die verslag is ook op die Braaf webwerf beskikbaar, op www.braafsa.com (Documents for Comment – Vast Mineral Sands). Ons nooi u uit om **kommentaar op die Basiese-evalueeringsverslag te lewer by nie later as 11 Mei 2018 nie.**

VIR MEER INFORMASIE
Registreer of stuur geskrewe kommentaar aan: Olivia Braaf
Braaf Environmental Practitioners
Posbus 692, Kuils River, 7579
Epos: info@braafsa.com
Tel: 0860 111 382
Faks: 086 658 7676
www.braafsa.com

Verwys asseblief na bogenoemde DMH verwysingsnommers in u voorleggings. As u as 'n belanghebbende wil registreer, verskaf asseblief u naam, kontakbesonderhede (voorkeurmetode van kennisgewing, bv. E-pos), en aanduiding van enige direkte besigheid, finansiële, persoonlike of ander belang in die aansoek.

[1] Die kommentare wat van belanghebbendes ontvang word, sal die ontwerp van die projek inlig en beïnvloed en sal die basiesevalueeeringsproses inlig. Kwessies wat gedurende die Basieseevalueeringsfase ondersoek is, word tydens die kommentaarperiode en deur middel van skakeling met belanghebbendes geïdentifiseer.

AANSOEK BY VAST MINERAL SANDS (EDMS) **BPK VIR 'N AFVALBESTUURSLISENSIE:** VOORGESTELDE HERPROSESEERING VAN BESTAANDE SLYK DAMME OP RESTANT VAN PLAAS NR. 1, ALEXANDERBAAI (ALEXKOR MYN AREA) **–** DMR VERVYS NR. NCS 30/5/1/3/2/ (10646) MEM

Registrasie en Kommentaarblad

1 April 2018 tot 11 Mei 2018

PERSOONLIKE BESONDERHEDE			
Naam	Van	Titel	Organisasie/Departement *(Indien toepaslik)*

KONTAK INFORMASIE				
Sel Nommer	Landlyn Nommer		Faks Nommer	Verkose taal
		Kantoor		
		Huis		
Epos	Posadres			Poskode

GRONDEIENAARS	
As u eiendom binne die grense van die aansoekarea val, stuur asseblief u plaasnaam en erf- / nommer aan ons	

WIL JY **AS 'N** BELANGSTELLENDE EN GEAFFEKTEERDE PARTY REGISTREER		
Registreer my as 'n belanghebbende en geaffekteerde party (B&GP) vir hierdie projek sodat ek verdere inligting en kennisgewings kan ontvang soos wat die projek ontwikkel	JA	NEE

Voorkeurmetode van kommunikasie *(Merk **met 'n** X)*	Pos	Epos	Faks/Sel

In terme van Regulasie GN 326 (Omgewingsimpakregulasies, 2017), bevestig ek hieronder enige direkte besigheid, finansiële, persoonlike of ander belang wat ek mag hê in die goedkeuring of weiering van die aansoek:	Datum	
	Handtekening	

KOMMENTAAR

Ek het die volgende kommentaar oor hierdie projek en / of die openbare konsultasieproses:

Vra asseblief die volgende van my bure, ander grondeienaars, kollegas om as Belanghebbende en Geaffekteerde Persone vir hierdie Omgewingsproses te registreer:

NAAM	KONTAK BESONDERHEDE

STUUR ASSEBLIEF DIE REGISTRASIE- EN KOMMENTAARBLAD TERUG NA:

Braaf Environmental Practitioners

Posbus 692, Kuils River, 7579

Tel: 0860 111 382, Faks: 086 658 7676, epos: info@braafsa.com

DANKIE

BACKGROUND INFORMATION DOCUMENT:

Basic Assessment for Proposed Reprocessing of Slimes Dams on Remainder of Farm No.1, Alexander Bay (Alexkor Mine area)

NCS 30/5/1/3/2/ (10646) MEM

1 INTRODUCTION

Vast Mineral Sands (Pty) Ltd (VMS) is proposing to reclaim and re-mine the Slimes Dams on the Remainder of Farm 1 in Alexander Bay on the West Coast of South Africa (see Figure 1). The application area lies within the existing Alexkor Mining Right area (Alexkor Mine).

Mining has taken place on the area by Alexkor since 1928 by means of dry strip mining, where overburden is removed and placed on overburden dumps next to the boxcut. Diamond-bearing gravels were excavated and transported to the closest of any of the eight processing plants where diamonds were extracted. The waste material was discarded on large coarse tailings dumps and slimes dams. It is VMS 's intention to reprocess the slimes and extract the heavy minerals to aid in the rehabilitation of these areas.

The project will trigger activities listed in terms of the National Environmental Management: Waste Act, 2008 (NEM:WA); as such, a Waste Management License (WML) will be required and an Basic Assessment (BA) process must be conducted before VMS can commence with mining. VMS appointed Braaf Environmental Practitioners (Braaf) to undertake the BA process required in terms of NEM:WA. The competent authority for the environmental authorisation process is the Northern Cape Department of Mineral Resources (DMR).

This Background Information Document (BID) aims to:

- Provide a brief motivation and description of the project;
- Briefly describe the environmental baseline;
- Describe what the EIA process entails; and
- Provide information on how you can participate.

2 PROJECT DESCRIPTION AND MOTIVATION

VMS is proposing to re-mine the existing slimes dams on the Alexkor Mine (see Figure 1) known as:

- Noordsif;
- Kaap Voltas;
- Giftkop;
- Rietfontein South;
- Rietfontein -North; and
- Perdevlei.

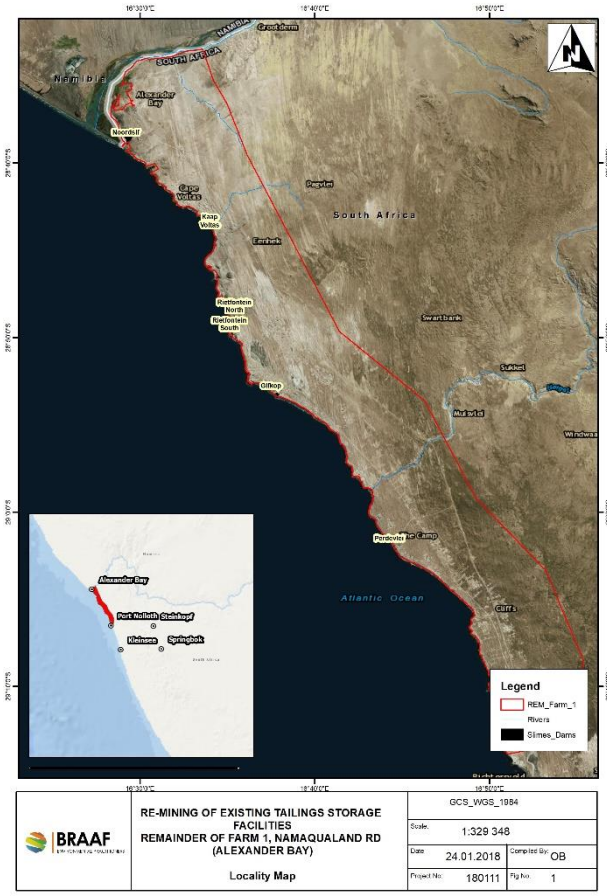


Figure 1: Slimes Dams Locality Map

Slimes will be reprocessed to extract the following minerals:

- Heavy Minerals (General)
- Rutile (Heavy Mineral)
- Ilmenite (Heavy Mineral)
- Zircon (Heavy Mineral)
- Monazite (Heavy Mineral)
- Leucoxene (Heavy Mineral)

The heavy mineral industry of South Africa is characterised by two major products:

- Ilmenite and rutile as feedstocks for the TiO2 pigment, titanium metal and welding electrode industries and;
- Zircon as feedstock for the ceramic, foundry, refractory and chemical industries.

Mining method

Mining will be undertaken using bench strip mining, typically used in dry mining operations in the minerals sand industry. Mining commences with the excavation of an initial pit to expose the ore and create a mine face creating benches along the slimes dam. This method will include other ancillary equipment to position and load the ore into dump trucks. The trucks will haul the ore to the Run-of-Mine (ROM) stockpile at the processing plant.

At the ROM, large excavators will deliver the ore to a screening unit plant ("SUP") via skid-mounted feeding-bin/sump units. The feeding-bin/sump units receive the dry ROM material and a volume of water to slurry the ROM material in the bin before gravitating into the sump from where it is pumped to the SUP acting as a primary screening plant.

The slurried ore from the SUP is then screened at the Wet Concentrator Plant (WCP) into three fractions, with the -0,3mm to +50µm fraction being sent to the heavy mineral separation gravity and magnetic separation circuits.

Tailings from the WCP, XMS and cyclone overflow will report to a deep cone thickener for recovery of process water. Thickened underflow (mainly slimes) will be pumped initially into an off-path tails dam, and later co-disposed with sand and gravel tails into the areas to be rehabilitated.

Processing water for slurrying will be supplied by a large reservoir on the high ground east of the plant. The WCP will be supplied by a process water dam near the WCP. Sea water will be piped over a distance of 2km from an existing well field on the nearby beach to provide process water. There will be no coastal discharge from the activities proposed.

The heavy minerals, contained in a concentrate will be slurried and pumped to the Mineral Separation Plant (MSP) to separate the magnetic opaque minerals (ilmenite, magnetite and haematite) from the non-magnetic VHM's, zircon, rutile and monazite. The zircon, rutile and monazite concentrate will be bagged in 1ton woven polypropylene bulk bags before shipping to the respective markets.

- Construct a Mineral Separation Plant (MSP) adjacent to the TSF to produce high grade and/or finished ilmenite, garnet, zircon and rutile products for export;
- Construct a Wet Concentrator Plant (WCP) adjacent to the MSP.
- Feeding bins/sumps located on the TSF will receive the dry ROM material and a volume of water to slurry the ROM material in the bin before gravitating into the sump from where it is pumped to the SUP acting as a primary screening plant.
- The existing Noordsif and Rietfontein South Plants will be used to house the needed processing infrastructure.

3 THE ENVIRONMENTAL BASELINE

Alexkor Mine is located on Remainder of Farm 1 on the southern bank of the Orange River at the mouth stretching some 12 km eastward along the southern bank of the Orange River along the southern border of Namibia. The mine (Alexkor Mine Area) is located close to the town of Alexander Bay.

Access to the Mine is from the R382 public road, which is tarred all the way to Alexander Bay. The Mine maintains existing gravel roads which provides access to the Mine.

The surface of the land rises from the shoreline in the west to the coastal plains consisting of tailings and mine dumps which is divided by a gravel spine road and mine service road network. The mining right area fall within the cold temperate Namaqua Bioregion. The coastline from Orange River mouth to Kleinzee is dominated by rocky shores, interspersed by isolated short stretches of sandy shores. Sandy beaches are one of the most dynamic coastal environments. Rocky shore and sandy beach habitats are generally not particularly sensitive to disturbance with natural recovery occurring within 2 to 5 years.

Areas along the West Coast have been disturbed by historical and current shore-based diamond mining operations and/or prospecting activities. These cumulative impacts and the lack of biodiversity protection have resulted in some of the coastal habitat types in Namaqualand being assigned a threat status.

The predominant vegetation type of the region is Richtersveld Coastal Duneveld. Other vegetation found in the area include Namaqualand Salt Pans, Alexander Bay Coastal Duneveld and Namib Seashore Vegetation. These vegetation types persist but have their extent is greatly reduced within the project area due to the historical and current open-cast mining activities.

The extent of Critical Biodiversity Areas and Ecological Support Areas along the coast, as identified by the South African National Biodiversity Institute, indicates that pockets within REM Farm 1 may have high biological value, although the TSF's are indicative of altered environments.

The West Coast sustains large populations of breeding and foraging seabird and shorebird species. Most of the seabird species along the West Coast feed relatively close inshore (10-30 km). The beaches are used by shoreline birds for foraging, rest or breeding. The Orange River mouth wetlands are located in Alexander Bay on the border of South Africa and Namibia (northwest of the site). This area is designated as an internationally important wetland site under the Ramsar convention and is also listed as a non-statutory Important Bird Area (IBA) by Birdlife International (IBA ZA023).

The study area lies in the Lower Orange River Water Management Area. Except for the Orange River, ~3 km north of REM Farm 1 and beyond the study area, all of the rivers and wetlands in the area are minor ephemeral systems. Wetlands in the area comprise mainly pans or "depressions".

The bulk of archaeological sites (mainly Later Stone Age middens) lie within 500 m of the coast. Inland of the coast, archaeological sites are quite scarce. Evidence of historic occupation is prolific in areas of rocky outcrops with shelters or overhangs or any place with potential for providing a water source. Archaeological impacts assessment undertaken in the rich diamond-mining regions on the Cape West coast of South Africa has shown that shore-based mining operations impacts severely negatively on archaeological heritage sites and that mining operations over the last few decades by Alexkor Limited, has unquestionably destroyed many sites in the Alexkor mining area.

4 THE BASIC ASSESSMENT PROCESS

NEMA Section 24(5) stipulates that "listed activities" require environmental authorisation via a Basic Assessment (BA) process, issued by the competent authority, in this case, the Department of Mineral Resources (DMR). The Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) [Government Notice (GN) R326, which came into effect on 7 April 2017], promulgated in terms of NEMA, govern the process, methodologies and requirements for the undertaking of EIAs in support of EA applications. The EIA Regulations are accompanied by Listing Notices (LN) 1-3 that list activities that require Environmental Authorisation (EA).

The EIA Regulations, 2014 (as amended), lays out two alternative authorisation processes. Depending on the type of activity that is proposed, either a Basic Assessment (BA) process or a Scoping and Environmental Impact Reporting (S&EIR - also referred to as an EIA) process is required to obtain EA. LN 1 and LN3 list activities that require a BA process, while LN 2 lists activities that require S&EIR.

The NEM: Waste Act, 2008 (NEM:WA) lists two categories of activities, Category A, requiring a Basic Assessment and Category B requiring a S&EIR process. This project triggers a listed activity under Category A and as such a BA Process must be followed. Braaf has determined that the proposed project triggers activities listed in terms of Category A of the NEMA:WA, 2008 Activity 15, requiring a BA.

Before commencing with the project, the proponent (VMS) is thus required to appoint an independent Environmental Assessment Practitioner (EAP) to undertake a BA process and to obtain authorisation in terms of NEM:WA from the competent authority (DMR).

The EIA Regulations define the detailed approach to the BA process (see Figure 2). The aims of the BA process are to:

- Notify stakeholders of the proposed development (and BA process);
- Provide stakeholders with the opportunity to participate effectively in the process and identify relevant issues and concerns;
- Ensure that stakeholders' issues and concerns are addressed in the assessment and are accurately recorded and reflected in the BA Report;
- Assess the potential positive and negative environmental impacts associated with the proposed activity; and
- Make recommendations as to how the potential negative impacts can be effectively mitigated and the benefits enhanced.

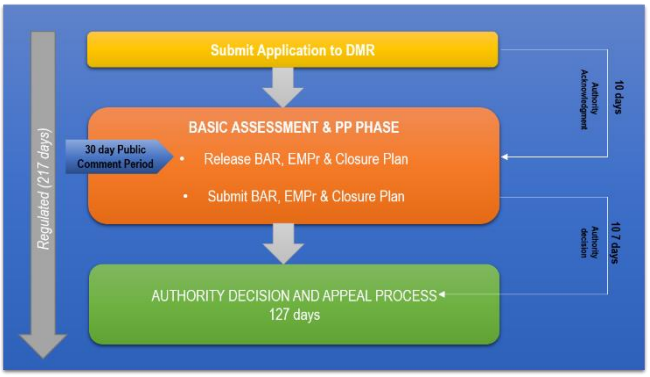


Figure 2: Simplified BA Process diagram

5 HOW YOU CAN PARTICIPATE IN THE EIA PROCESS

We value your input into the BA process. If you or your organisation would like to be involved in the BA process, please submit your contact details for registration as a stakeholder on our database. Only registered stakeholders will continue to be informed about the BA process and receive the relevant documents and notifications of opportunities to comment.

The Basic Assessment Report has been released for a 30-day comment period from 1 April 2018 to 11 May 2018 at the AJ

Bekeur, Port Nolloth and Sanddrift library in Alexander Bay. The BAR/EMP and comment sheet is available on the Braaf website: www.braafsa.com (Documents for Comment – Vast Mineral Sands). We invite you, to submit comments on the BAR to the undersigned at the contact particulars below by no later than 11 May 2018.

REGISTER OR PROVIDE YOUR COMMENT

Register or send written comment to:
Olivia Braaf
Braaf Environmental Practitioners
P O Box 692, Kuils River, 7579
Email: info@braafsa.com
Tel: 0860 111 382
Fax: 086 658 7676
www.braafsa.com

Please refer to the above reference numbers in your submissions. If registering as a stakeholder, please provide your name, contact details (preferred method of notification, e.g. email), and indication of any direct business, financial, personal or other interest in the application

Proof of Postage: Vast Minerals TSF Project, Alexander Bay

Neighbouring Farms	Land Owner	Contact Person	Postal	Suburb	Code
Farm 174/173	De Beers Consolidated Mines Pty Ltd	Environmental Management: Anton Meyer	Private Bag X01	Southdale	2193
Farm 157	Richtersveld Municipality	Municipal Manager: Mr Maposa	Private Bag X113	Port Nolloth	8280
Farm 156	Kannikwa Diamond & Estate Corp Ltd	S Kotze	PO Box 505	Port Nolloth	8280
Farm 154	SANPARKS	Park Manager: Brent Whittington	P O Box 787	Pretoria	0001
Farm 2/1	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS	7 Frikkie Snyman Avenue	Alexander Bay	8290
Farm 155	Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS	7 Frikkie Snyman Avenue	Alexander Bay	8290
Farm 155	Richterveld Mining Company & Alexkor Ltd	Richtersveld Mining Company: Members	Private Bag X5	Alexander Bay	8290
Farm 1/8	Richterveld Mining Company & Alexkor Ltd	Alexkor Ltd: Directors/Mine Manager	Private Bag X5	Alexander Bay	8290
Richtersveld Municipality	Local Municipality	Municipal Manager Mr Maposa	Private Bag X113	Port Nolloth	8280
Ward Councillor: Ward 3 Port Nolloth	Councillor	Gloria Beukes	Private Bag X113	Port Nolloth	8280
Ward Councillor: Ward 2 Alexanderbaai	Councillor	Anna Bock	Private Bag X113	Port Nolloth	8280
Namakwa District Municipality	District Municipality	Manager Mr Christiaan Fortuin & Mr J Loubsl	Private Bag X20	Springbok	8240
Department of Mineral Resources	Competent Authority	Jasper Nieuwoudt & Deidre Karsten	Private Bag x14	Springbok	8240
Department of Agriculture	Commenting	Mr Meisenheimer	Posbus 18	Springbok	8240
Department of Environment and Nature Conservatior	Commenting	Mr Fortuin	Private Bag x16	Springbok	8240
Department of Water Affairs and Sanitation	Commenting	Mr Sean Cloete	Private Bag x5912	Upington	8800
	Charles Westley		P O Box 314	Port Nolloth	8280

BFN (051) 001-3600 PLZ (041) 581-8520
CPT (021) 555-6777 PRY (012) 548-5056
DUR (031) 569-3767 PTG (015) 285-0060
ELS (043) 731-1480 WIT (013) 697-6100
JNB (011) 928-8300 LON (+44) 1753-682-498
H/O (021) 001-7188

SENDERS COPY

CO. REG. NO. 1998/010351/07
VAT NO. 4120195526

19184471

COURIER IT *Excellence in motion*
www.courierit.co.za

ACCOUNT NO. TO BE BILLED	23035	NOTE: THE SENDER SHALL REMAIN LIABLE FOR PAYMENT	SHIPPER'S REFERENCE		NOTE: P.O. BOX ADDRESSES NOT ACCEPTED

From: (Sender)	To: (Receiver)
3@1 Cape Gate	ALEXANDER MAYE (HEAD OF SCARY)
Street Address: SHOP L48 CAPE GATE CENTRE	Street Address: 1ST PUBLIC SECURITY ENTRANCE OFFICE
Suburb: BRACKENFELL	Suburb:
City/Town: CAPE TOWN Code	City/Town: ALEXANDER BAY Code
Contact: OLIVIA BRAAF Tel. 021 981 2970 (079 499 4763)	Contact: NGILAVI SWARTBOOI Tel. 072 460 0495
E-mail: olivia@braafso.com	E-mail:

SHOULD NO SERVICE BE SELECTED, COURIERIT RESERVES THE RIGHT TO MARK THE SERVICE OVERNIGHT COURIER OR INTERNATIONAL COURIER

SERVICE REQUIRED — DOMESTIC:
- [ ] SAMEDAY COURIER
- [ ] DAWN COURIER 09H00
- [ ] OVERNIGHT COURIER 10H30
- [ ] NON EXPRESS DELIVERY (24 - 48 HRS)
- [x] ECONOMY (48 HRS PLUS)
- [ ] OTHER SPECIFY
- [ ] SATURDAY
- [ ] PUBLIC HOLIDAY/ AFTER HOURS

SPECIAL INSTRUCTIONS

INTERNATIONAL:
- [ ] INTERNATIONAL COURIER (DOCS.)
- [ ] CROSS BORDER ECONOMY
- [ ] INTERNATIONAL AIRFREIGHT
- [ ] INTERNATIONAL COURIER (NON DOCS.)
- [ ] INTERNATIONAL REMAIL
- [ ] INTERNATIONAL DEFERRED COURIER

VALUE FOR CUSTOMS

CONTENTS	TOTAL PIECES	TOTAL MASS (kgs)
Book	1	0,7

INSURANCE: (PLEASE ✓)
REQUIRED [ ] DECLARED VALUE R [ ] DECLINED [ ]

OWNERS RISK WILL APPLY IF THIS INSURANCE SECTION IS PARTIALLY OR NOT COMPLETED

COMPLETED BY
NAME: G. ADAMS DATE: 3/●/18
SIGNATURE: [signature] TIME: 13:30

COURIER SERVICES APPLY TO MAJOR CENTRES ONLY

DIMENSIONS (CM)

NO.	L	W	H
1	35	25	1

DIMENSIONS GENERATED BY SWAD MACHINE SUPERSEDE MANUAL DIMENSIONS

EXPRESS PACK SECURITY NUMBER ON LIP OF FLYER

COLLECTED BY COURIERIT
SIGNATURE DATE TIME

COURIER SERVICES APPLY TO MAJOR CENTRES ONLY

PLEASE NOTE: TERMS ARE STRICTLY 30 DAYS. I AGREE TO BE BOUND BY THE STANDARD CONDITIONS OF CARRIAGE WHICH APPEAR ON THE REVERSE SIDE OF THIS DOCUMENT

BFN (051) 001-3600 PLZ (041) 581-8520
CPT (021) 555-6777 PRY (012) 548-5056
DUR (031) 569-3767 PTG (015) 285-0060
ELS (043) 731-1480 WIT (013) 697-6100
JNB (011) 928-8300 LON (+44) 1753-682-498
H/O (021) 001-7188

SENDERS COPY

CO. REG. NO. 1998/010351/07
VAT NO. 4120195526

19184472

COURIER IT *Excellence in motion*
www.courierit.co.za

ACCOUNT NO. TO BE BILLED	23035	NOTE: THE SENDER SHALL REMAIN LIABLE FOR PAYMENT	SHIPPER'S REFERENCE		NOTE: P.O. BOX ADDRESSES NOT ACCEPTED

From: (Sender)	To: (Receiver)
3@1 Cape Gate	HEAD LIBRARIAN
Street Address: SHOP L48 CAPE GATE CENTRE	Street Address: PORT NOLLOTH LIBRARY, JOSEPH AMBELSIN STREET
Suburb: BRACKENFELL	Suburb:
City/Town: CAPE TOWN Code	City/Town: PORT NOLLOTH. Code
Contact: OLIVIA BRAAF Tel. 021 981 2970 (079 499 4763)	Contact: HEAD LIBRARIAN Tel. 027 8511106
E-mail: olivia@braafso.com	E-mail:

SHOULD NO SERVICE BE SELECTED, COURIERIT RESERVES THE RIGHT TO MARK THE SERVICE OVERNIGHT COURIER OR INTERNATIONAL COURIER

SERVICE REQUIRED — DOMESTIC:
- [ ] SAMEDAY COURIER
- [ ] DAWN COURIER 09H00
- [ ] OVERNIGHT COURIER 10H30
- [ ] NON EXPRESS DELIVERY (24 - 48 HRS)
- [x] ECONOMY (48 HRS PLUS)
- [ ] OTHER SPECIFY
- [ ] SATURDAY
- [ ] PUBLIC HOLIDAY/ AFTER HOURS

SPECIAL INSTRUCTIONS

INTERNATIONAL:
- [ ] INTERNATIONAL COURIER (DOCS.)
- [ ] CROSS BORDER ECONOMY
- [ ] INTERNATIONAL AIRFREIGHT
- [ ] INTERNATIONAL COURIER (NON DOCS.)
- [ ] INTERNATIONAL REMAIL
- [ ] INTERNATIONAL DEFERRED COURIER

VALUE FOR CUSTOMS

CONTENTS	TOTAL PIECES	TOTAL MASS (kgs)
Book	1	0,7

INSURANCE: (PLEASE ✓)
REQUIRED [ ] DECLARED VALUE R [ ] DECLINED [ ]

OWNERS RISK WILL APPLY IF THIS INSURANCE SECTION IS PARTIALLY OR NOT COMPLETED

COMPLETED BY
NAME: G. ADAMS DATE: 3/●/18
SIGNATURE: [signature] TIME: 13:30

COURIER SERVI CESAPPLY TO MAJOR CENTRES ONLY

DIMENSIONS (CM)

NO.	L	W	H
1	35	25	1

DIMENSIONS GENERATED BY SWAD MACHINE SUPERSEDE MANUAL DIMENSIONS

EXPRESS PACK SECURITY NUMBER ON LIP OF FLYER

COLLECTED BY COURIERIT
SIGNATURE DATE TIME

COURIER SERVICES APPLY TO MAJOR CENTRES ONLY

Proof of Notification

Designation	Name	Address	Suburb	Code
SAHRA	R Timothy & N Niggens (SAHRA)	Private Bag x5004	Kimberley	8300
Department of Water and Sanitation	Mr Sean Cloete	Private Bag x5912	Upington	8800
Brakkies Familie Trust		P O BOX 72	KAMIESKROON	8241
De Beers Consolidated Mines (Pty) Ltd	Environmental Management: Mr. Anton Meyer	Private Bag X01	Southdale	2193
Kamiesberg Municipality	Ward 2 Councillor	Private Bag X200	Garies	8220
Department of Environment, Nature and Conservation	Integrated Development	Private Bag X6120	Kimberley	8301
Namaqua District Municipality	The Manager : Mr Christiaan Fortuin & Mr J Loubsher	Private Bag X20	Springbok	8240
SANPARKS	Park Manager: Mr. Brent Whittington	P O Box 787	Pretoria	0001
Kamiesberg Municipality	Mr Joseph Cloete	Private Bag X200	Garies	8220
DEA: Oceans and Coasts	Mulalo Tshikotshi	P.O. Box 52126	V & A Waterfront	8002

Proof of Postage

Designation	Name	Address	Suburb	Code
De Beers Consolidated Mines Pty Ltd	Environmental Management: Mr. Anton Meyer	Private Bag X01	Southdale	2193
SANPARKS	Park Manager: Mr. Brent Whittington	P O Box 787	Pretoria	0001
Alexkor RMC JV	CEO: Mr. Mervyn Carstens	Private Bag X5	Alexander Bay	8290
Richtersveld Sida Hub Communal Prop Assoc	CPA COMMITTEE MEMBERS	7 Frikkie Snyman Avenue	Alexander Bay	8290
Richtersveld Mining Company: Members		Private Bag X5	Alexander Bay	8291
	Charles Westley	PO BOX 314	Port Nolloth	8280
	Ward Councillor: Ward 3 Port Nolloth	Private Bag X113	Port Nolloth	8280
	Ward Councillor: Ward 2 Alexanderbaai	Private Bag X113	Port Nolloth	8280
Department of Mineral Resources	Deidre Karsten	Private Bag x14	Springbok	8240
Department of Agriculture	Mr Meisenheimer	Posbus 18	Springbok	8240
Department of Environment and Nature Conservation	Mr Fortuin	Private Bag x16	Springbok	8240
Department of Water Affairs and Sanitation	Mr Sean Cloete	Private Bag x5912	Upington	8800
Northern Cape Provincial Heritage Resource Agency	R Timothy & N Niggens (SAHRA)	Private Bag x5004	Kimberley	8300
Namakwa District Municipality	The Manager : Mr Christiaan Fortuin & Mr J Loubsher	Private Bag X20	Springbok	8240
Richtersveld Municipality	The Municipal Manager : Mr Maposa	Private Bag X113	Port Nolloth	8280

CONTRACT FOR CARRIAGE / DISPATCH NOTE

DSV Road (Pty) Ltd
t/a DSV Distribution
PO Box 63, The Reeds 0061
Tel (012) 673-2000
Reg. No. 2000/016342/07
VAT. No. 4880189685

SUBBD28009146

7 7 7 C C C 7 7 7

OLIVIA BRAAF
*0794994743

ACCOUNTS COPY

Sender's Details	Consignee's Details. Full Street Address Please
Company Name: POSTNET CAPE GATE	Company Name: AJ Bekeur Biblioteek
Street Address: SHOP 8 CAPE GATE LIFESTYLE CENTRE OKAVANGO ROAD BRACKENFELL	Street Address: Robsonstraat
Suburb:	Suburb: Port-Nolloth
City / Town: CAPE TOWN	Postal Code: 7560
City / Town:	Postal Code: 8280
Contact:	Contact:
Phone:	Phone: 027 851 1106

Mark Service Required

- Same Day
- Express
- With Sunrise Option
- With Saturday Service
- Public Holiday Service
- Economy
- After Hours
- BLNS Customs Tariff

Destination Country	South Africa	Botswana	Lesotho	Namibia	Swaziland	Other (Please Specify)

Sender's Reference: | Analysis Code:

SPECIAL INSTRUCTIONS

Bill Charges To Account No.: 027522 | Bill To Sender: | Consignee: | Other (Name Please):

If Consignee Or Other (Third Party) Is Billed, Sender Remains Liable For Unpaid Charges.

IF THIS SHIPMENT CONTAINS ANY DANGEROUS GOODS ALL REGULATIONS MUST BE COMPLIED WITH. THIS IS YOUR RESPONSIBILITY AS SHIPPER (SEE CLAUSE 14.14 OVERLEAF). GOODS ARE SHIPPED AT OWNERS RISK SUBJECT TO CONTRACT FOR CARRIAGE OVERLEAF. DSV DISTRIBUTION LIMITS ITS LIABILITY TO R 250,00 PER SHIPMENT. (SEE CLAUSE 14.5 OVERLEAF). IF YOU WISH DSV DISTRIBUTION TO ACCEPT A HIGHER LIABILITY, THE VALUE OF THIS SHIPMENT MUST BE DECLARED IN THE SPACE PROVIDED. (SEE CLAUSE 14.5,14.6 AND 14.7 OVERLEAF).

SENDER'S AUTHORISED SIGNATURE

DATE: 8/04/18

1. ONLINE

3. EFT

Total Mass (Kg)

e-mail / Fax / Proof of Delivery | e-mail Address / Fax Number

Total Parcels	NO. OF PARCELS PER DIMENSIONS	LENGTH (CM)	WIDTH (CM)	HEIGHT(CM)

Goods received in full without damage (unless endorsed)
Name Of Receiver (PLEASE PRINT CLEARLY)
Date Received: | Time Received:
Signature:

Received By DSV
Name Of Courier (PLEASE PRINT CLEARLY)
Date Received: | Time Received:
Signature:

Depot Hand In

Liability: Value For Loss or Damage R

Liability: (Costs Incidental) To Loss, Damage Or Delay) R

Version Control (09/2017)

CONTRACT FOR CARRIAGE / DISPATCH NOTE

DSV Road (Pty) Ltd
t/a DSV Distribution
PO Box 63, The Reeds 0061
Tel (012) 673-2000
Reg. No. 2000/016342/07
VAT. No. 4880189685

SUBBD28009145

7 7 7 C C C 7 7 7

OLIVIA BEARF
X 0794994743

ACCOUNTS COPY

Sender's Details	Consignee's Details. Full Street Address Please
Company Name: POSTNET CAPE GATE	Company Name: Sanddrift Bibloteek
Street Address: SHOP 8 CAPE GATE LIFESTYLE CENTRE OKAVANGO ROAD	Street Address: Reierlaan 184/188
Suburb: BRACKENFELL	Suburb: Sanddrift Alexanderbaai
City / Town: CAPE TOWN Postal Code: 7560	City / Town: Postal Code: 8290
Contact:	Contact: 073 077 5000
Phone:	Phone:

Mark Service Required: Same Day | Express | With Sunrise Option | With Saturday Service | Public Holiday Service | Economy | After Hours

BLNS Customs Tariff

Destination Country	South Africa	Botswana	Lesotho	Namibia	Swaziland	Other (Please Specify)

Sender's Reference: | Analysis Code:

SPECIAL INSTRUCTIONS

Bill Charges To Account No.: 027522 | Bill To Sender | Consignee | Other (Name Please)

If Consignee Or Other (Third Party) Is Billed, Sender Remains Liable For Unpaid Charges.

IF THIS SHIPMENT CONTAINS ANY DANGEROUS GOODS ALL REGULATIONS MUST BE COMPLIED WITH. THIS IS YOUR RESPONSIBILITY AS SHIPPER (SEE CLAUSE 14.14 OVERLEAF). GOODS ARE SHIPPED AT OWNERS RISK SUBJECT TO CONTRACT FOR CARRIAGE OVERLEAF. DSV DISTRIBUTION LIMITS ITS LIABILITY TO R 250.00 PER SHIPMENT. (SEE CLAUSE 14.5 OVERLEAF). IF YOU WISH DSV DISTRIBUTION TO ACCEPT A HIGHER LIABILITY, THE VALUE OF THIS SHIPMENT MUST BE DECLARED IN THE SPACE PROVIDED. (SEE CLAUSE 14.5,14.6 AND 14.7 OVERLEAF).

X ..... SENDER'S AUTHORISED SIGNATURE

X 18/04/2018 DATE

1. ONLINE

3. EFT

Total Mass (Kg)

e-mail / Fax / Proof of Delivery | e-mail Address / Fax Number

Total Parcels	NO. OF PARCELS PER DIMENSIONS	LENGTH (CM)	WIDTH (CM)	HEIGHT(CM)
1	1	30	20	16

Goods received in full without damage (unless endorsed)	Received By DSV	Depot Hand In
Name Of Receiver (PLEASE PRINT CLEARLY)	Name Of Courier (PLEASE PRINT CLEARLY)	Liability: Value For Loss or Damage R .....
Date Received: Time Received:	Date Received: Time Received:	Liability: (Costs Incidental) To Loss, Damage Or Delay) R .....
Signature:	Signature:	

Version Control (08/2017)

CONTRACT FOR CARRIAGE / DISPATCH NOTE

DSV Road (Pty) Ltd
t/a DSV Distribution
PO Box 63, The Reeds 0061
Tel (012) 673-2000
Reg. No. 2000/016342/07
VAT. No. 4880189685

SUBBD28009142

7 7 7 C C C 7 7 7

OLIVIA BRAAF
+ 0794994743

ACCOUNTS COPY

Sender's Details	Consignee's Details. Full Street Address Please
Company Name: POSTNET CAPE GATE	Company Name: Department of Environmental Affairs & Developement Planning
Street Address: SHOP 8 CAPE GATE LIFESTYLE CENTRE OKAVANGO ROAD	Street Address: [redacted] 1 Dorp Street.
Suburb: BRACKENFELL	Suburb: Cape Town
City / Town: CAPE TOWN Postal Code: 7560	City / Town: Postal Code: 8000
Contact:	Contact: Registry
Phone:	Phone: 021 483 5829

Mark Service Required: Same Day; Express; With Sunrise Option; With Saturday Service; Public Holiday Service; Economy; After Hours

BLNS Customs Tariff

Destination Country	South Africa	Botswana	Lesotho	Namibia	Swaziland	Other (Please Specify)

Sender's Reference: | Analysis Code:

SPECIAL INSTRUCTIONS

Bill Charges To Account No.: 027522 | Bill To Sender: | Consignee: | Other (Name Please):

If Consignee Or Other (Third Party) Is Billed, Sender Remains Liable For Unpaid Charges.

IF THIS SHIPMENT CONTAINS ANY DANGEROUS GOODS ALL REGULATIONS MUST BE COMPLIED WITH. THIS IS YOUR RESPONSIBILITY AS SHIPPER (SEE CLAUSE 14.14 OVERLEAF). GOODS ARE SHIPPED AT OWNERS RISK SUBJECT TO CONTRACT FOR CARRIAGE OVERLEAF. DSV DISTRIBUTION LIMITS ITS LIABILITY TO R 250.00 PER SHIPMENT. (SEE CLAUSE 14.5 OVERLEAF). IF YOU WISH DSV DISTRIBUTION TO ACCEPT A HIGHER LIABILITY, THE VALUE OF THIS SHIPMENT MUST BE DECLARED IN THE SPACE PROVIDED. (SEE CLAUSE 14.5,14.6 AND 14.7 OVERLEAF).

SENDER'S AUTHORISED SIGNATURE | DATE: 15/04/2018

1. ONLINE

3. EFT

Total Mass (Kg)

e-mail / Fax / Proof of Delivery: e-mail Address / Fax Number

Total Parcels	NO. OF PARCELS PER DIMENSIONS	LENGTH (CM)	WIDTH (CM)	HEIGHT(CM)

Goods received in full without damage (unless endorsed)
Name Of Receiver (PLEASE PRINT CLEARLY):
Date Received: Time Received:
Signature:

Received By DSV
Name Of Courier (PLEASE PRINT CLEARLY):
Date Received: Time Received:
Signature:

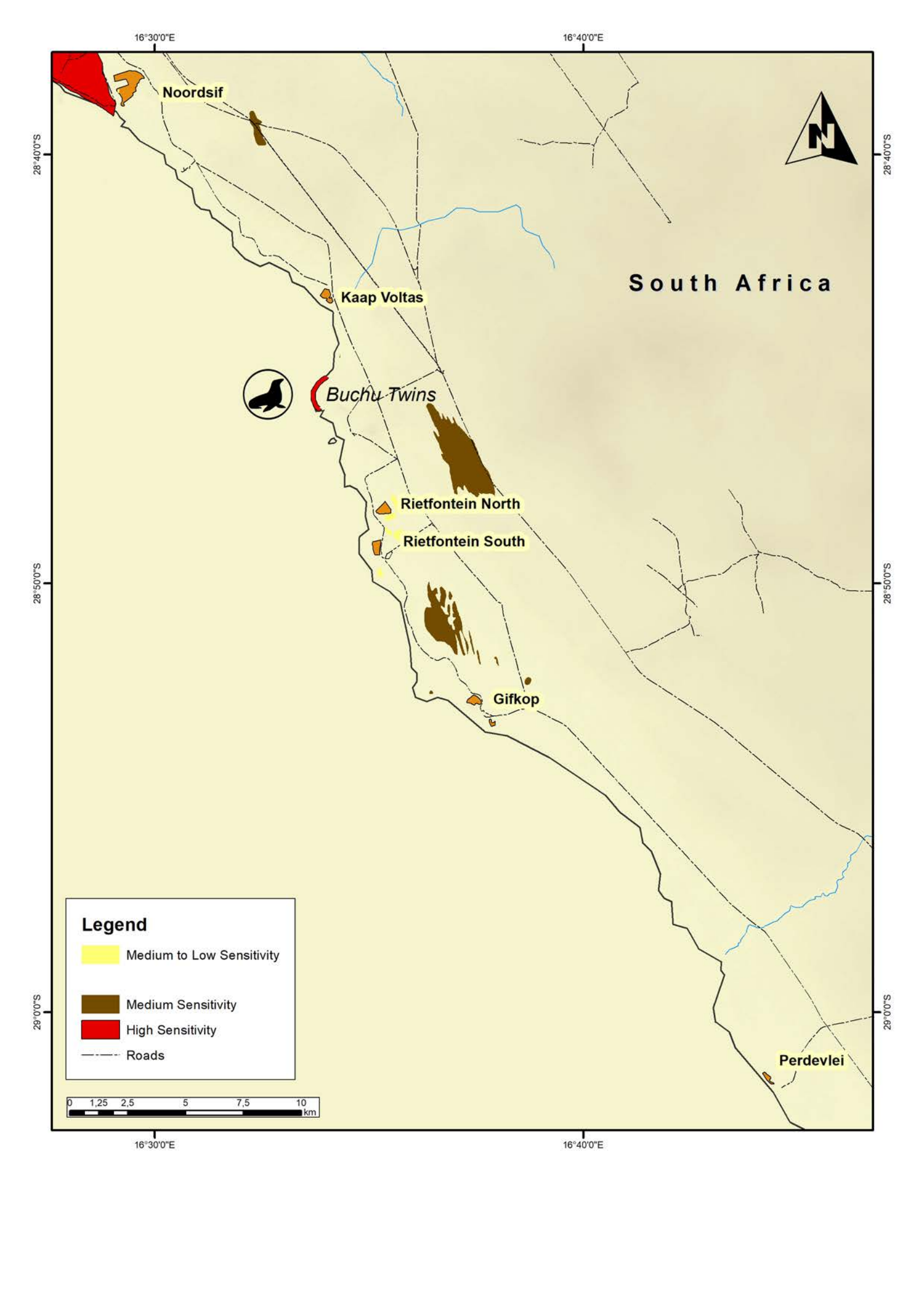
Depot Hand In
Liability: Value For Loss or Damage R
Liability: (Costs Incidental) To Loss, Damage Or Delay) R

Version Control (08/2017)

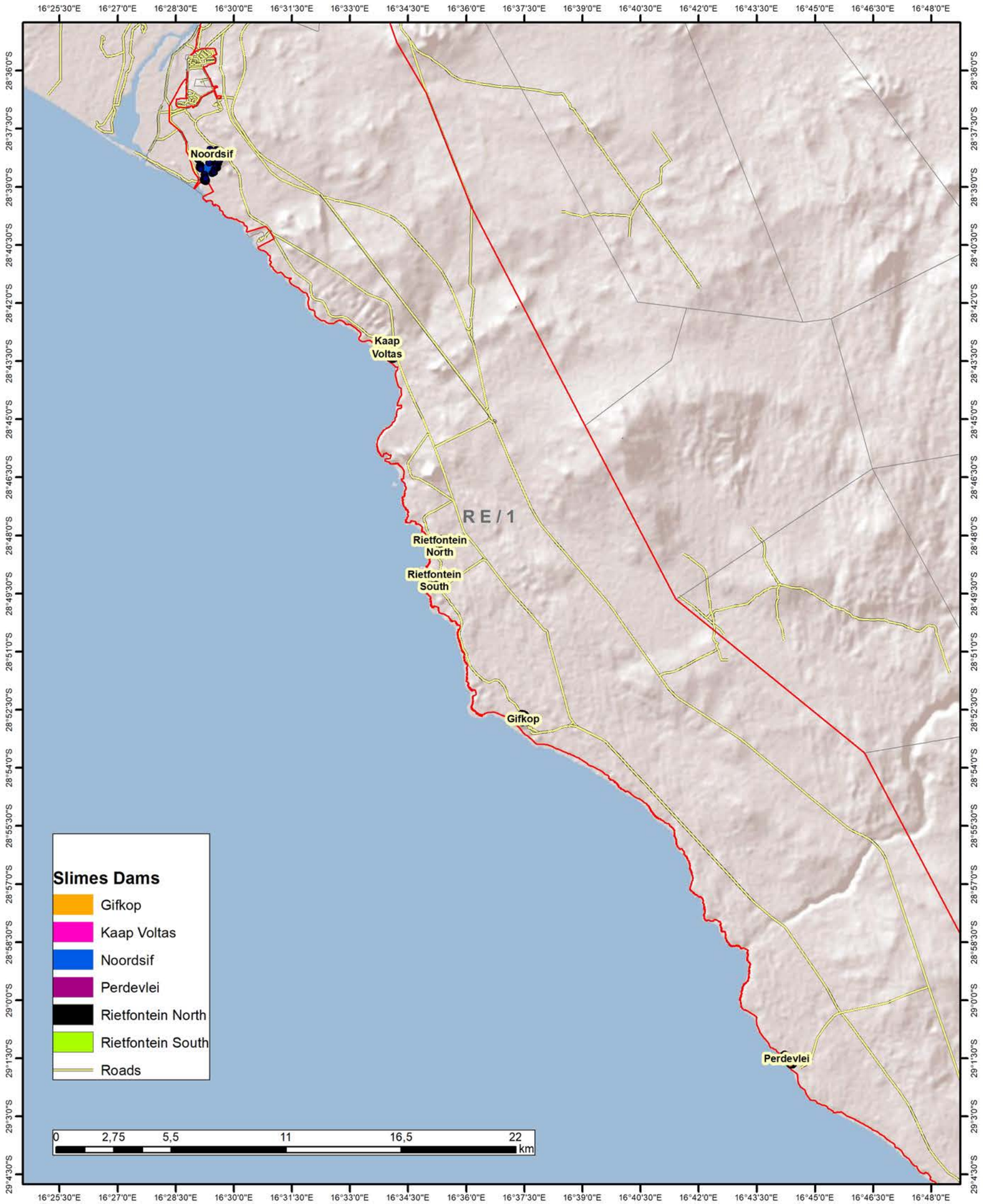
Bulk SMS confirmation - sent via Zoom Connect

Delivery St	Date	Name	Number	Message
DELIVERED	Wed Apr 18 17:33:02 SAS	Liezl Fortuin	+27849653243	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Brian Koopman	+27728483395	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Niklaas Phillips	+27739725968	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Josiesa Benjamin Joseph	+27828872705	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Gerrith Cloete (Kiewiet)	+27788556912	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Anna Gewers	+27848891364	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Joseph	+27711156326	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Cynthia Cloete	+27847664906	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Craig Matthews	+27795216315	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Andries Johannes Cloete	+27727669147	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Emilie Smith	+27835988426	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Maria Samson	+27794181623	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Petrus Elias de Wet (Chairperson)	+27761412530	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Koos Stoffel	+27790749675	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Abraham Cloete	+27780553127	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Dennis Alphonzo Farmer	+27843796220	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Jacobus Johannes Farmer	+27605749591	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Hansie Strauss	+27763938408	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Willem Vries	+27761886750	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Wilhelmina Kristina Vries	+27767023603	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Willem Job Joseph	+27784138673	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Selma Klim	+27714347035	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	J Cloete	+27834343753	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Floors Petrus Strauss (Vice chairperson)	+27793332326	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Jacob Fredericks	+27794565029	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Catherine Slander (Chairperson)	+27734132852	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	G Jantjies	+27844517029	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Emilie Smith	+27842562521	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
DELIVERED	Wed Apr 18 17:33:02 SAS	Martha Farmer	+27794154070	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED	Wed Apr 18 17:33:02 SAS	M Rebly	+27832983444	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED	Wed Apr 18 17:33:02 SAS	Edwin Farmer	+27766304060	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED	Wed Apr 18 17:33:02 SAS	Willem De Klerk	+27782502251	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED	Wed Apr 18 17:33:02 SAS	Lydia Obies (Chairperson)	+27836721045	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED	Wed Apr 18 17:33:02 SAS	Ryno Denver Thomas	+27737843665	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering
FAILED_RE	Wed Apr 18 17:33:02 SAS	S Afrikaner	+2784522015	Vast Mineral Sand Afvalbestuurslisensie vir Herproseseering Van Bestaande Slyk Damme Op Restant Van Plaas Nr. 1, Alexanderbaai (Alexkormyn area) - Basiese evalueering

APPENDIX C Sensitivity Map


16°30'0"E
16°40'0"E
28°40'0"S
28°50'0"S
29°0'0"S
Noordsif
Kaap Voltas
Buchu Twins
Rietfontein North
Rietfontein South
Gifkop
Perdevlei
South Africa
N
Legend
Medium to Low Sensitivity
Medium Sensitivity
High Sensitivity
Roads
0 1,25 2,5 5 7,5 10
km

APPENDIX D Final Site Map



Noordsif P	X Coord	Y Coord
A	16,4841	-28,6358
B	16,4846	-28,6382
C	16,4889	-28,6371
D	16,4898	-28,6393
E	16,4894	-28,6397
F	16,4859	-28,6407
G	16,4852	-28,6411
H	16,4853	-28,6418
I	16,4858	-28,6423
J	16,4874	-28,6447
K	16,4873	-28,6459
L	16,4869	-28,6469
M	16,487	-28,6474
N	16,4875	-28,6477
O	16,488	-28,6478
P	16,4884	-28,6474
Q	16,4881	-28,6471
R	16,4879	-28,6464
S	16,4908	-28,6443
T	16,4915	-28,6437
U	16,4916	-28,6425
V	16,4928	-28,6419
W	16,4926	-28,6413
X	16,4924	-28,6405
Y	16,4932	-28,6399
Z	16,4932	-28,639
AA	16,4939	-28,6385
BB	16,4942	-28,6374
CC	16,4951	-28,637
DD	16,496	-28,637
EE	16,4959	-28,6364
FF	16,4946	-28,6351
GG	16,4926	-28,6341
HH	16,4899	-28,634

Perdevlei	X_Coord	Y_Coord
A	16,7363	-29,0238
B	16,7371	-29,0233
C	16,7374	-29,0235
D	16,7386	-29,0245
E	16,7388	-29,0247
F	16,7394	-29,025
G	16,7394	-29,0254
H	16,7393	-29,0258
I	16,739	-29,0263
J	16,7391	-29,0266
K	16,7393	-29,0269
L	16,7398	-29,0272
M	16,7404	-29,0274
N	16,7405	-29,0274
O	16,7407	-29,0276
P	16,7406	-29,0279
Q	16,7403	-29,028
R	16,7398	-29,0279
S	16,7394	-29,0277
T	16,7383	-29,0266
U	16,7371	-29,025

Gifkop Points	X_Coord	Y_Coord
A	16,624	-28,8767
B	16,6228	-28,8776
C	16,6222	-28,878
D	16,6217	-28,8784
E	16,6212	-28,8794
F	16,6214	-28,8798
G	16,6222	-28,8798
H	16,6227	-28,8799
I	16,623	-28,8799
J	16,6243	-28,8806
K	16,6247	-28,88
L	16,6249	-28,8799
M	16,6253	-28,8799
N	16,6258	-28,8801
O	16,6261	-28,8803
P	16,6264	-28,8804
Q	16,6268	-28,8799
R	16,627	-28,8792
S	16,6261	-28,8779
T	16,6252	-28,8772
U	16,6246	-28,8768

APPLICATION FOR A WASTE MANAGEMENT LICENSE

PLAN COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MINERAL & PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 OF 2002)

SITUATED IN THE MAGISTERIAL DISTRICT OF NAMAQUALAND RD FOR WHICH

VAST MINERAL SANDS (PTY) LTD

REGISTRATION NO. 2017/381069/07 HAS APPLIED FOR A PROSPECTING RIGHT IN TERMS OF SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, ACT 28 OF 20021

COORDINATES OFAPPLICATION AREA
WGS 84 (GEOGRAPHICAL)

Rietfontein S	X_Coord	Y_Coord
A	16,5847	-28,8171
B	16,588	-28,8164
C	16,5875	-28,8196
D	16,5874	-28,8211
E	16,5873	-28,8221
F	16,587	-28,8222
G	16,5857	-28,8222
H	16,5854	-28,8219
I	16,5847	-28,8189
J	16,5845	-28,818

Rietfontein N	X_Coord	Y_Coord
A	16,5895	-28,8015
B	16,5918	-28,8046
C	16,5917	-28,8058
D	16,5901	-28,8063
E	16,5896	-28,8061
F	16,5887	-28,8063
G	16,5878	-28,8063
H	16,5871	-28,8061
I	16,5862	-28,8058
J	16,586	-28,8052

Kaap Voltas Pts	X_Coord	Y_Coord
A	16,5643	-28,7213
B	16,5652	-28,7222
C	16,566	-28,7225
D	16,5669	-28,7225
E	16,5671	-28,7227
F	16,5666	-28,7231
G	16,5669	-28,7235
H	16,5674	-28,7239
I	16,5682	-28,7243
J	16,5687	-28,7243
K	16,5693	-28,7237
L	16,569	-28,723
M	16,5687	-28,7221
N	16,5682	-28,7225
O	16,5677	-28,7222
P	16,5681	-28,7218
Q	16,5684	-28,721
R	16,5678	-28,7192

For and behalf of
Vast Mineral Sands (Pty) Ltd

Regional Manager
Northern Cape

Date

Date

Scale: 1:200 000

APPENDIX E Chance Finds Procedure

HWC PROCEDURE: CHANCE FINDS OF PALAEONTOLOGICAL MATERIAL
June 2016

Introduction

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO

It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.

Procedure to follow if it is likely that the material identified is a fossil:

i. The ECO or site agent must ensure that all **work ceases** immediately in the vicinity of the area where the fossil or fossils have been found;

ii. The ECO or site agent must **inform HWC of the find immediately.** This information must include photographs of the findings and GPS co-ordinates;

iii. The ECO or site agent must compile a **Preliminary Report and fill in the *Fossil Discoveries: HWC Preliminary Record Form*** within 24 hours without removing the fossil from its original position. The **Preliminary Report** records basic information about the find including:

- The date
- A description of the discovery
- A description of the fossil and its context (e.g. position and depth of find)
- Where and how the find has been stored
- Photographs to accompany the preliminary report (the more the better):
  - ➔ A scale must be used
  - ➔ Photos of location from several angles
  - ➔ Photos of vertical section should be provided
  - ➔ Digital images of hole showing vertical section (side);
  - ➔ Digital images of fossil or fossils.

Upon receipt of this **Preliminary Report**, HWC will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.

v. **Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags.** This protection should allow for the later excavation of the finds with due scientific care and diligence. HWC can advise on the most appropriate method for stabilisation.

vi. If the find cannot be stabilised, **the fossil may be collect with extreme care** by the ECO or the site agent and put aside and protected until HWC advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

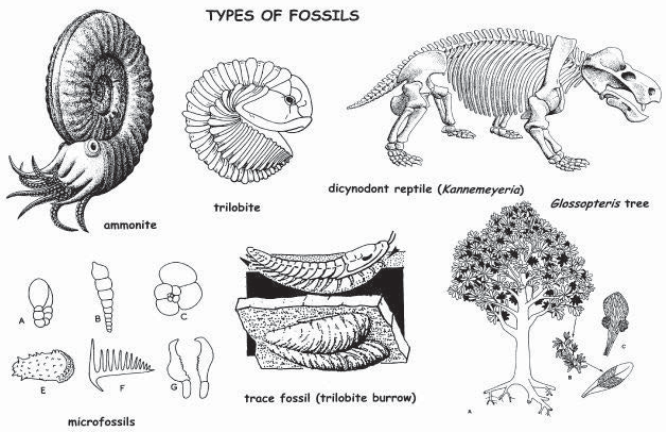
No work may continue in the vicinity of the find until HWC has indicated, in writing, that it is appropriate to proceed.

FOSSIL DISCOVERIES: HWC PRELIMINARY RECORDING FORM		
Name of project:		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	Lat:	Long:
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate number of the photograph)	Digital image of vertical section (side)	
	Fossil from different angles	
	Wider context of the find	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil	Name: Contact:	
Recorder	Name: Contact:	
Photographer	Name: Contact:	

Palaeontology: what is a fossil?

Fossils are the traces of ancient life (animal, plant or microbial) preserved within rocks and come in two forms:

- Body fossils preserve parts, casts or impressions of the original tissues of an organism (e.g. bones, teeth, wood, pollen grains); and
- Trace fossils such as trackways and burrows record ancient animal behaviour.



How to report chance fossil finds: What should I do if I find a fossil during construction/mining?

If you think you have identified a fossil:

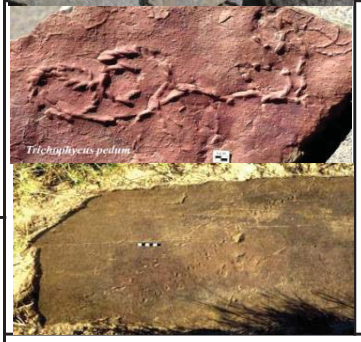
Immediately inform the ECO or Site Agent. He/she will then contact HWC and write a report and if necessary operations will stop in that specific area until the fossil is recovered

Heritage Western Cape
ceoheritage@westerncape.gov.za
021 483 5959
www.hwc.org.za

Types of palaeontological finding - What does a fossil look like?

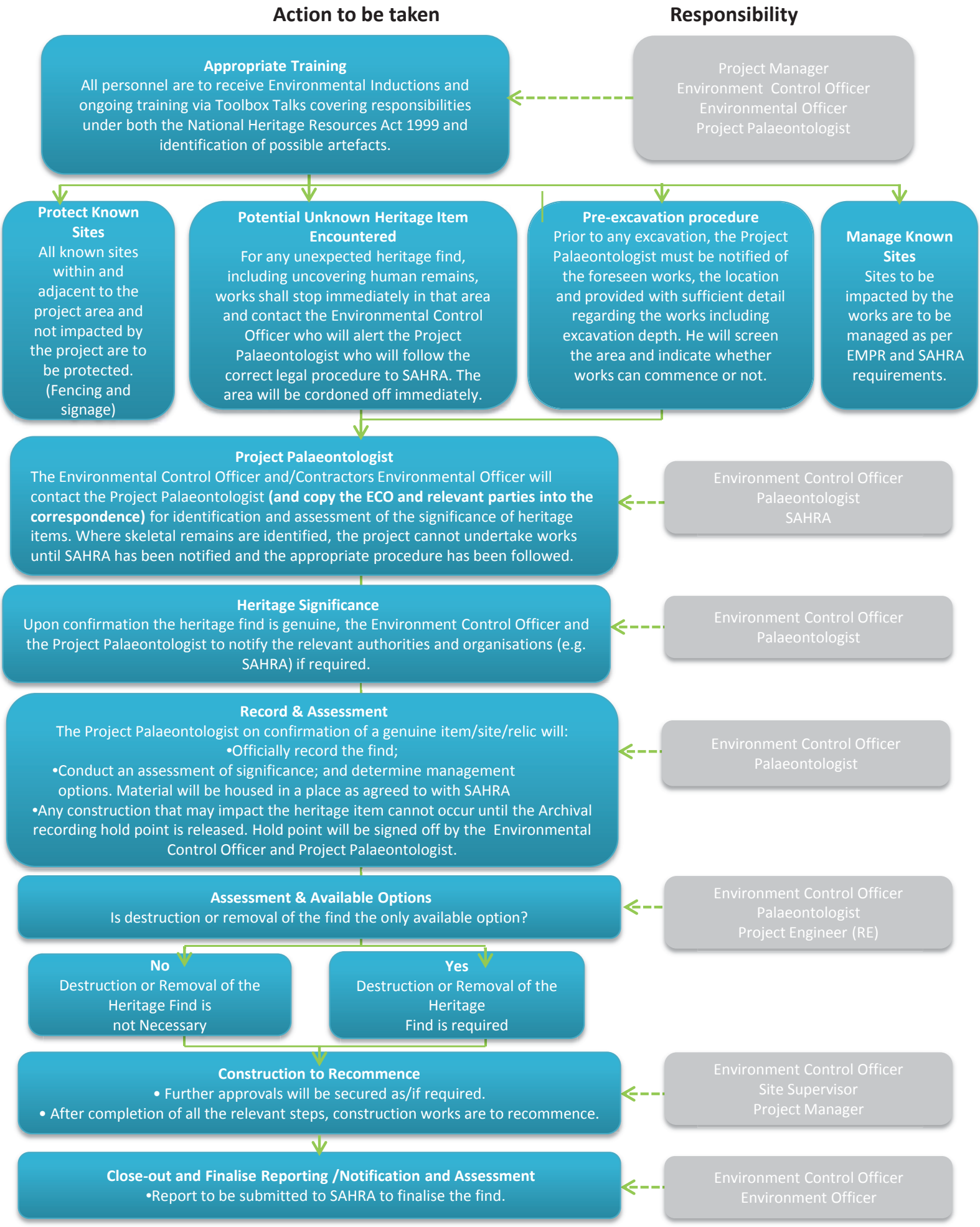
Fossils vary in size, from fossilised tree trunks and dinosaur bones down to very small animals or plants. Finds can be **individual fossils** (one isolated wood log or bone) or **clusters and beds** (several bones, teeth, animal or plant remains, trace fossils in close proximity or bones resembling part of a skeleton). A bed of fossils is a layer with many fossil remains.

Below there is a list of few examples of fossils which may be identified during excavations in the Western Cape.

Image	Description	Image	Description
	Leaves		Snail shells and other shells
	Fossil wood		Bones of larger animals
	The remains of fish and marine life (e.g. teeth, scales, starfish)		Large burrows made by moles and other animals
	Stromatolites		Traces made by burrowing insects (ants, wasps, dung-beetles etc.).
	Animal footprints		

Images provided by Dr John Almond

Text by HWC's Archaeology, Palaeontology & Meteorites Committee June 2016


Action to be taken
Responsibility
Appropriate Training
All personnel are to receive Environmental Inductions and ongoing training via Toolbox Talks covering responsibilities under both the National Heritage Resources Act 1999 and identification of possible artefacts.
Project Manager
Environment Control Officer
Environmental Officer
Project Palaeontologist
Protect Known Sites
All known sites within and adjacent to the project area and not impacted by the project are to be protected. (Fencing and signage)
Potential Unknown Heritage Item Encountered
For any unexpected heritage find, including uncovering human remains, works shall stop immediately in that area and contact the Environmental Control Officer who will alert the Project Palaeontologist who will follow the correct legal procedure to SAHRA. The area will be cordoned off immediately.
Pre-excavation procedure
Prior to any excavation, the Project Palaeontologist must be notified of the foreseen works, the location and provided with sufficient detail regarding the works including excavation depth. He will screen the area and indicate whether works can commence or not.
Manage Known Sites
Sites to be impacted by the works are to be managed as per EMPR and SAHRA requirements.
Project Palaeontologist
The Environmental Control Officer and/Contractors Environmental Officer will contact the Project Palaeontologist (and copy the ECO and relevant parties into the correspondence) for identification and assessment of the significance of heritage items. Where skeletal remains are identified, the project cannot undertake works until SAHRA has been notified and the appropriate procedure has been followed.
Environment Control Officer
Palaeontologist
SAHRA
Heritage Significance
Upon confirmation the heritage find is genuine, the Environment Control Officer and the Project Palaeontologist to notify the relevant authorities and organisations (e.g. SAHRA) if required.
Environment Control Officer
Palaeontologist
Record & Assessment
The Project Palaeontologist on confirmation of a genuine item/site/relic will:
•Officially record the find;
•Conduct an assessment of significance; and determine management options. Material will be housed in a place as agreed to with SAHRA
•Any construction that may impact the heritage item cannot occur until the Archival recording hold point is released. Hold point will be signed off by the Environmental Control Officer and Project Palaeontologist.
Environment Control Officer
Palaeontologist
Assessment & Available Options
Is destruction or removal of the find the only available option?
Environment Control Officer
Palaeontologist
Project Engineer (RE)
No
Destruction or Removal of the Heritage Find is not Necessary
Yes
Destruction or Removal of the Heritage Find is required
Construction to Recommence
• Further approvals will be secured as/if required.
• After completion of all the relevant steps, construction works are to recommence.
Environment Control Officer
Site Supervisor
Project Manager
Close-out and Finalise Reporting /Notification and Assessment
•Report to be submitted to SAHRA to finalise the find.
Environment Control Officer
Environment Officer

BRAAF
ENVIRONMENTAL PRACTITIONERS

Heritage/Archaeological Item Recording Form

Contractor					
Project Name					
Date		**Finding No**		**Recorded by**	
Description of works being undertaken (e.g. digging of foundations for electricity pylons)					
Description of exact location of item (e.g. bone formation of approximately 10cm found 1.5m below the ground surface)					

Sketch/Description
(e.g. provide a sketch of the item's general location in relation to other road features so that its location can be mapped – excavation at electricity pylon No.5)

Action taken (Tick A or B)

Finding will be affected by continued work	**A**	Finding will not be affected by continued work	**B**

Describe how works were amended to avoid impact to the finding and the action that was taken to protect and recover the finding.

Attached Photographs as Annexure to this form
(Take a number of close-up and general photographs so anyone off site can understand the location of the finding, the excavation area, material it's made from, size and any distinguishing features. See Annexure B as guide)

Environmental Officer Signature	
Action	Refer issue to Site Manager, ECO and Paleontologist if work stoppage is required

Appendix A

Photographing heritage/archaeological items

Removal of the item from its context (e.g. excavating from the ground) for photographic purposes is not permitted.

Photographs of items in their current context (*in situ*) may assist heritage staff and archaeologists to better identify the heritage values of the item. Emailing good quality photographs to specialists can allow for better quality and faster heritage advice. The key elements that must be captured in photographs of the item include its position, the item itself and any distinguishing features. All photographs must have a scale (ruler, scale bar, mobile phone, coin) and a note describing the direction of the photograph.

Context and detailed photographs

It is important to take a general photograph (Figure 1) to convey the location and setting of the item. This will add much value to the subsequent detailed photographs also required (Figure 2).

Figure 2: Close up detail of the sandstone surface showing material type, formation and construction detail. This is essential for establishing date of the feature.

Figure 1: Showing the finding in context to its surrounding environment.

Figure 3: Detailed photograph

Photographing distinguishing features

Where unexpected items have a distinguishing feature, close up detailed photographs must be taken of this, where practicable. In the case of a building or bridge, this may include diagnostic details architectural or technical features. See Figures 3 and 4 for examples.

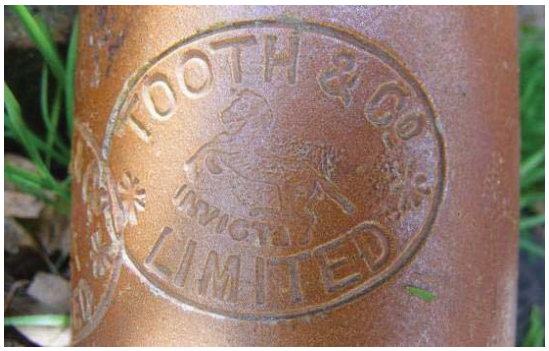


Figure 4: Close up photograph clearly depicting details of artefact

Photographing bones

If bones are human, the SAHRA and police should be contacted immediately. Taking quality photographs of the bones can often resolve this issue quickly. The Site Paleontologist together with the SAHRA staff can confirm if bones are human or non-human if provided with appropriate photographs. Ensure that photographs of bones are not concealed by foliage (Figure 5) as this makes it difficult to identify. Minor hand removal of foliage can be undertaken as long as disturbance of the bone does not occur. Excavation of the ground to remove bone(s) should not occur, nor should they be pulled out of the ground if partially exposed.

Where sediment (adhering to a bone found on the ground surface) conceals portions of a bone (Figure 6) ensure the photograph is taken of the bone (if any) that is not concealed by sediment.

Figure 5: Bone concealed by foliage.

Figure 6: Bone covered in sediment

Ensure that all close up photographs include the whole bone and then specific details of the bone (especially the ends of long bones, the *epiphysis*, which is critical for species identification). Figures 7 and 8 are examples of good photographs of bones that can easily be identified from the photograph alone. They show sufficient detail of the complete bone and the epiphysis.

Figure 7: Photograph showing complete bone.

Figure 8: Close up of a long bone's epiphysis.

APPENDIX F Groundwater Study

VAST MINERAL SANDS (Pty) Ltd

HEAVY MINERAL SANDS PROJECT, ALEXANDER BAY, NORTHERN CAPE

SURFACE AND GROUNDWATER ASSESSMENT

J. Hattingh
Creo Design Pty (Ltd)
PO Box 932
Stellenbosch, 7599

1. Surface and Groundwater Resources

1.1 Introduction

The VAST Heavy Mineral Sand prospecting project is situated in the coastal zone between Alexander Bay and the coastal area just south of Port Nolloth. The west coast of South Africa in this extreme north-west corner of the country is an arid area. Rainfall here is generally low and highly variable. Alexander Bay normally receives about 41mm of rain per year. It receives most of its rainfall during winter and thus falls within the Mediterranean climate zone of Southern Africa. It receives the lowest rainfall (0mm) in January and the highest (6mm) in June. Port Nolloth has recorded an average rainfall of 63mm during the past few decades. The average annual evaporation rate for this area is measured at 2,524mm and the combined effect of low rainfall and high evaporation rates result in extremely dry conditions. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Alexander Bay range from 20.6°C in July to 27.5°C in January. The region is the coldest during July when the mercury drops to 8.3°C on average during night time.

From September to early April, late morning to afternoon south-westerly winds can reach gale force velocities in excess of 70km/h. North-westerly winds are the dominant wind in winter when cold fronts reach the coast from the southern Atlantic Ocean. In winter, between cold fronts, fog in the late afternoon till late morning is a common occurrence. Occasional hot, dry easterly katabatic winds, locally known as “berg winds”, in winter can result in drastic temperature increases during these events reaching 40°C and resulting in extreme temperature variations of up to 30°C.

This prospecting area falls within Water Management Area (WMA) 6 – Lower Orange, and straddles the catchment divide between quaternary catchments F50G and F40H (DWAF 2004). The natural mean annual runoff of all the coastal catchments in the WMA, which stretch some 285km from Strandfontein in the south to Alexander Bay at the mouth of the Orange River in the north, is estimated to be 24 million cubic metres (Mm^3). All rivers in the area except the Orange River are ephemeral / episodic, and flow only sporadically in response to high rainfall events, mostly in their upper catchments, remote from the coast, where annual rainfall can exceed 100mm. As a result, available reliable yield from surface water sources in all the coastal catchments is estimated to be zero, while reliable yield from groundwater from the catchments is estimated to be a total of 3 Mm^3/a. Approximately 6 Mm^3/a of water is transferred into the southern part of the area from the Orange River to meet the urban / domestic requirements in the Alexander Bay, Port Nolloth and Kleinzee area (DWAF 2004).

1.2 Surface water

The perennial Orange River border the prospecting area to the north (Figure 1) without transecting it. Two episodic rivers, the Holgat River and Kamma River flow from east to west through the central and southern part of the prospecting area respectively (Figure 1).

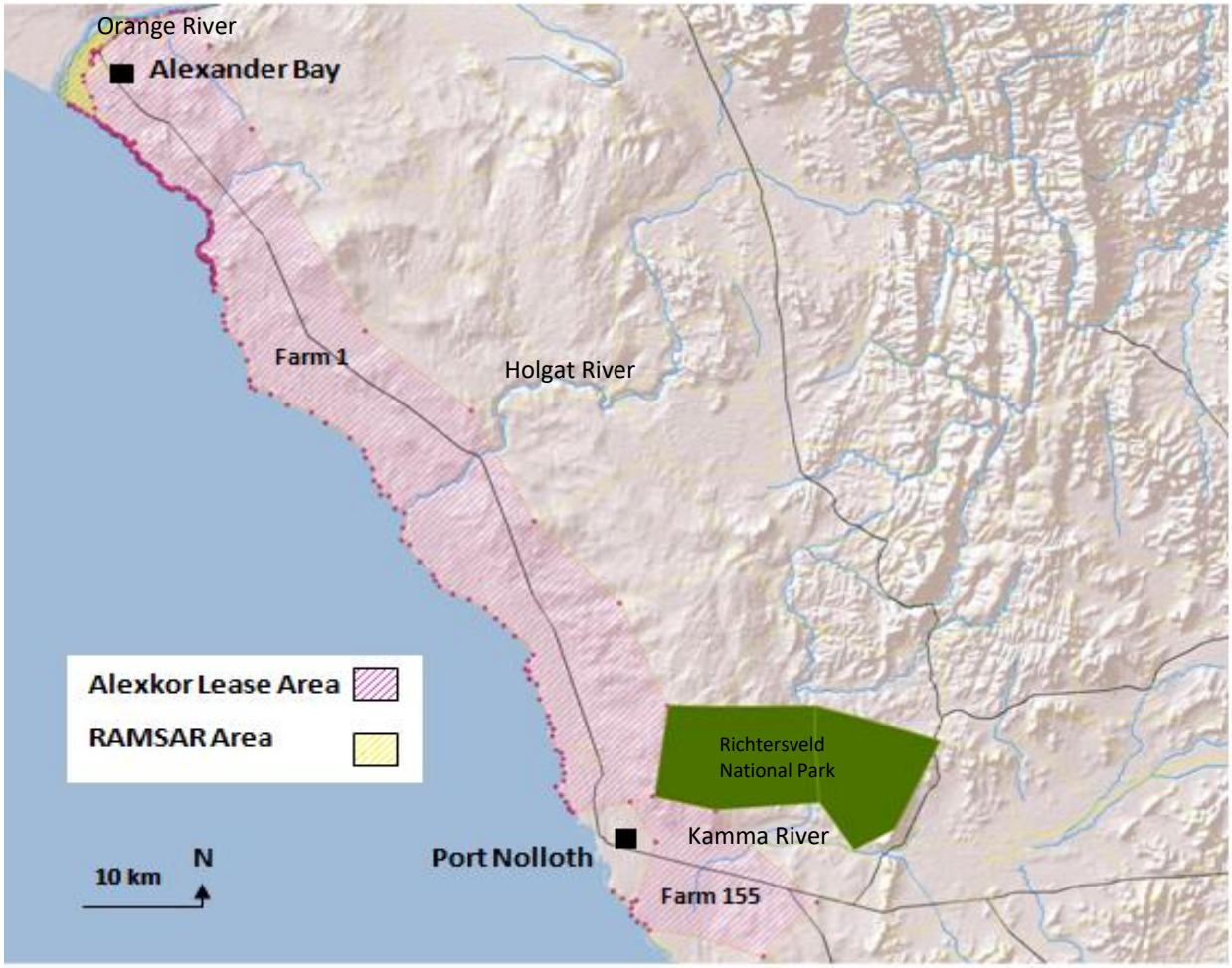


Figure 1: Rivers in the project area

1.2.1 Orange River

The Orange River Mouth forms part of the Orange River Basin (or catchment), the largest river basin in Africa south of the Zambezi, covering an area of approximately 0.9 million km^2 (Maré 2007). The basin stretches over four countries - South Africa, Lesotho, Botswana and Namibia, with the Orange River itself forming part of the border between South Africa and Namibia. The two main tributaries are the Senqu and the Vaal Rivers. The headwaters of the Senqu rise in the Maluti mountain range in the Lesotho Highlands, while the other main tributary, the Vaal River, rises on the eastern highveld escarpment in north-east South Africa (Earle *et al.* 2005). At the confluence of the Senqu and Vaal rivers, the Orange River flows in a westerly direction to the west coast entering the Atlantic Ocean through the Orange River Estuary. A smaller tributary, the Fish River, joins the Orange River in the lower Orange catchment.

The basin plays host to one of the most industrially developed parts of Africa (the region around Johannesburg) and supports a range of commercial and subsistence farming activities. Water demand in the catchment is therefore very high, resulting in substantial changes in natural river flows, particularly in the Lower Orange River with resultant impacts on the estuary.

Following South Africa's accession to the Ramsar convention, the Orange River Mouth was designated as a Ramsar site by South Africa in 1991. After Namibia ratified the Ramsar Convention in 1995, the designated area was enlarged and the Namibian part of the wetland was immediately designated as well. In the same year, the area was put on the Montreux record as part of it had been seriously degraded. The Orange River Mouth Interim Management Committee (ORMIMC) was established in 1995 and has served as an advisory body to the respective competent authorities. The ORMIMC has been the driving force behind current initiatives at the central government level in South Africa to rehabilitate the area, to remove it from the Montreux record, to get the area protected under South African law, and to draft a management plan for the Ramsar site. Despite these initiatives however, active management of the Ramsar site has been limited and has resided largely in the hands of the mining companies Alexkor and NAMDEB (jointly owned by De Beers and Namibian Government) located on the South African and Namibian sides of the estuary respectively. This situation has recently changed with the proclamation of the Sperrgebiet National Park in Namibia that includes the Namibian section of the Orange River Mouth and the settlement of a land claim on the South African section, which has now been handed over to the Richtersveld community.

The Orange River has become highly regulated by virtue of more than 20 major dams and numerous weirs or levees within its catchment. As a consequence, river inflows to the Orange River Estuary have been markedly reduced from reference, with only an estimated 44% of natural flows still reaching the system (DWAF, 2003). This causes a significant reduction in the occurrence and magnitude of large floods. Floods in the Orange system normally occur during the summer months. Also the occurrence and magnitude of smaller floods with return periods of 1:1 year to 1:10 years, also during the summer months, has been greatly reduced. This results in a considerable reduction in the occurrence of flooding of the salt marsh near the mouth during the summer months. Such floods would probably have lasted for periods of a few weeks at a time. The upstream structures eliminated the occurrence of periods of very low flow during the winter months, causing mouth closure and back-flooding in the past, to be significantly reduced, because of almost continuous releases from the dams. These releases are undertaken for the generation of electricity and for irrigation purposes. Abstraction and regulation has also resulted in a marked reduction in the variability in river inflows from a pronounced seasonal flow to a nearly even flow distribution throughout the year. Surplus water releases for the generation of hydropower has resulted in the elimination of water deficits in the lower reaches of the river and the mouth now remains open almost permanently. The lack of mouth closure and associated back-flooding is regarded as particularly problematic as it is during such occurrences that flows into the saltmarsh area typically occur (CSIR, 2011).

This situation is likely to be exacerbated in future through increased demand for water by catchment users, and through climate change. With respect to the latter, a recent climate modelling study concluded that:

- the western half of South Africa could experience a 10% decrease in runoff by the year 2015 (including the middle Orange, the Nossob, the Fish and the lower Orange sub-basins);
- The year when a 10% decrease in runoff occurs, moves progressively later (to 2060) as one moves from the western to eastern halves of southern Africa; and

- 12 – 16% decrease in outflow could occur at the Orange River mouth by 2050 (ORASECOM 2008).

The status of the water quality in the lower Orange River is generally assessed to be moderately modified to strongly affected because of fragmentation and flow regulation. Although the general water quality of the lower Orange River is still fairly good, it is deteriorating, but is still regarded as acceptable for agricultural, domestic, recreational, and industrial use. Major water quality related issues and concerns are blackfly outbreaks, increased loads of salts (salinity), and eutrophication (nutrient over-enrichment) (ARTP Joint Management Board, 2009).

In the long-term, increased pressure is expected from population increases and development in the Orange River catchment and will increase the pollution levels, which will probably necessitate additional measures and strategies to maintain acceptable water quality in the river. Management of the Orange River is the responsibility of the two water affairs departments of Namibia and South Africa, whose activities are co-ordinated through the Permanent Water Commission (PWC), and in the larger catchment of the countries involved in ORASECOM.

1.2.2 Holgat- and Kamma Rivers

The Holgat- and the Kamma Rivers, as is the case with other coastal rivers in Namaqualand, comprise relatively small river channels (in places, more than one channel) meandering in wide, shallow, alluvium-filled valleys that have been incised over time into the crystalline bedrock (Heydorn & Grindley, 1981). The episodic nature of the flow in the rivers is confirmed by long term records from Alexkor and its predecessor, Alexander Bay State Alluvial Diggings. No hydrological gauging stations were installed on either river. The catchment areas of both rivers are very small. It is, however, meteorologically improbable that the peak flow rates increased by the ratio of the catchment areas: that is, they were unlikely to have exceeded 100m^3/sec.

The ephemeral nature of the rivers in the project area means that surface water resources are not used at all in the area, either for domestic use or stock watering. Neither river flows sufficiently reliably to be considered as a possible source of water for prospecting operations.

1.2.3 Flooding

1.2.3.1 Orange River

The natural runoff of the Orange River basin is in the order of 11 600 million m^3/a of which approximately 4 000 million m^3/a originates in the Lesotho Highlands and approximately 900 million m^3/a from the contributing catchment downstream of the Orange/Vaal confluence, which includes part of Namibia and a small portion in Botswana feeding the Nossob and Molopo rivers. The remaining 6 700 million m^3/a originates from the areas contributing to the Vaal, Caledon, Kraai and Middle Orange rivers. Highly erratic runoff in the Orange River originates downstream of the Orange-Vaal confluence is.

The actual runoff reaching the Orange River mouth (estimated to be in the order of 5 500 million m^3/annum) is considerably less than the natural value (over 11 000 million m^3/annum). The difference is due mainly to the extensive water utilisation in the Vaal River basin, most of which is for domestic and industrial purposes. Large volumes of water are

also used to support the extensive irrigation (estimated to be in the order of 1 800 million m^3/annum) and some mining demands (approximately 40 million m^3/annum) occurring along the Orange River downstream of the Orange/Vaal confluence, as well as some irrigation in the Lower Vaal catchment and Eastern Cape area supplied through the Orange/Fish Canal. In addition to the water demands mentioned above, evaporation losses from the Orange River and the associated riparian vegetation account for between 500 million m^3/a and 1 000 million m^3/a depending upon the flow of water (and consequently the surface area) in the river (McKenzie et al, 1995).

It is only during infrequent and extreme rainfall events that the lower Orange catchment (excluding the Fish) makes a noticeable contribution to the Orange River. Such events may occur at intervals of many years or even decades and during such periods it is likely that the Orange River will already have above average or flood flows. The average natural inflow of ~420 million m^3/a is therefore of limited use since it occurs sporadically in large volumes when it is least required and cannot be stored since there are no storage reservoirs downstream of the Orange/Vaal confluence. The losses on the other hand occur each year assuming that there is flow in the river (which is generally the case) and therefore have a very significant and detrimental influence on overall water resources. When describing the water resources of the Orange River it should be noted that the sum of the individual natural run-offs does not necessarily give the total run-off for the whole basin. In reality, the natural run-off at the Orange/Vaal confluence is estimated to be in the order of 10 850 million m^3/a. The natural resources to the river mouth, however, should rather be quoted as approximately 11 000 million m^3/a and not 11 750 million m^3/a, since the evaporation losses downstream of the Orange/Vaal confluence tend to exceed the combined natural inflows from other areas.

Flood discharge in the Orange River is highly controlled through a system of levees. Early records in the Department of Water Affairs archives report on damage to flood levees after a flood event in 1957. However, it was only after a particularly large flood in 1974 that there was a concerted effort by the Department of Water Affairs and various local municipalities to develop a network of flood levees.

1.2.3.2 Holgat- and Kamma Rivers

Although there is no visible flow in the Holgat- and Kamma rivers for most of the time, they do experience rare flooding events. During such events, extreme out-of-channel inundation might occur. The two recorded flash flood events during the years of 1928 and again in 1996 did result in spectacular flood occurrences. These were also the only episodes when noticeable discharge was recorded in these two rivers.

In the absence of published flood flow data for these two river systems, the flooding regimes were estimated using the DWAF publication TR 137 – Regional Maximum Flood Peaks in Southern Africa (DWAF 1988), as recommended in the Best Practice Guidelines for Water Resource Protection in the South African Mining Industry (DWAF 2006). The process followed to estimate the extent of flooding resulting from high-flow events with long return periods was as follows:

(i) Estimate the catchment areas at points on each river where flooding my impact on prospecting activities.

(ii) Identify the regional category of the catchment using the categorisation in TR 137.

(iii) Estimate the peak flow magnitude (Q), in cubic metres per second (m^3/sec), of the Regional Maximum Flood (RMF) using the relationships presented in TR 137.

(iv) Estimate the peak flow magnitude for floods with return periods of 50, 100 and 200 years using the relationship between such floods and the RMF in TR137.

Note: TR137 presents relationships between the RMF and floods of other return periods for South Africa.

The results of the flood peak magnitude estimates are shown in Table 1.

Table 1.1: Estimated peak flood magnitudes at selected points in the project site

River	Location	Catchment Area (km^2)	QRMF m^3/s	Q50	Q100	Q200
Holgat	At R385	88	159,7	39.84	57.24	80.84
Kamma	At R385	242	155,3	45.75	62.95	85.25

http://www.dwaf.gov.za/Hydrology/ - Data, Dams and Flow Information

Given the uncertainties in the data used to determine the flood profiles, the results must be regarded as indicative only. The analyses do, however, indicate that the extent of flooding during the 100- and 200-year floods is not expected to exceed the limits of the well-defined riverbed / floodplain areas of any of the rivers, even for the higher peak magnitudes.

1.3. Groundwater

1.3.1 Introduction

The geological conditions on site comprise an uncomplicated arrangement of aquifers and hydrostratigraphic units. The aquifers on site can be divided into two main units as follows:

Unconsolidated primary aquifer:

This aquifer consists of the surface aeolian sands, marine sands and basal grits and conglomerates overlying the quartzitic and schist bedrock. The presence of damp sands and minor mud at the base of a number of exploration boreholes, most notably in areas corresponding to topographic lows in the surface of the bedrock, are indicative of a minor concentration of groundwater in the Muisvlak and Seemansrus areas. Although minor kaolinisation and cementation from the weathering of the feldspars in the underlying schist and gneisses exists, the unit is generally unconsolidated and relatively permeable. The unit has a relatively high clay content constituting some 20% of the overall volume on average with local values up to 35%. The undulating nature of the bedrock contact means that only local perched aquifers with limited aerial extent may form, separated by palaeo-highs in the bedrock contact.

Fractured secondary aquifer:

This aquifer underlies the primary aquifer and comprises predominantly fractured bedrock within quartzite, gneiss and schist, which underlie the site. The bedrock geology consists of high-grade metamorphic rocks of the Namaqua-Natal Mobile Belt, which are generally massive and highly deformed. The topography of the bedrock contact with the overlying weathered material has been shown to correspond with structures in the bedrock such as faults and fractures, which are generally oriented north-north-west – south-south-east, northeast - south-west and west-north-west - east-south-east. Although significant groundwater flow may be encountered in faults and fracture zones, overall storativity is likely to be very limited with a resultant decrease in long-term sustainability of abstraction, particularly at the relatively high rates that would be required for production. Based on the apparent depths of drilling, it is clear that all the boreholes in the area are drilled into fracture or fault zones in the bedrock

1.3.2 Precipitation, Evapo-transpiration and Runoff

The mean annual evaporation values for the site are given at approximately 2,524mm per year. This is significantly higher than the mean annual rainfall of approximately 50mm per year. However, rainfall on site occurs in discrete events, which tend to be of high intensity and short duration. As a result, it is possible that some runoff into the local rivers can occur without major evaporation losses. Although monthly evaporation values for the area are not available, WR2005 lists the average annual runoff for the area as 1mm per year. This is considered realistic based on observations on site corroborated by evidence from local landowners who indicate that flow in the area occurs as minor flash floods immediately during and after intense rainfall events.

1.3.3 Flow Directions

Groundwater levels on site vary from 1.6m below surface in the Kamma River bed to the south of the site, and 87.5m below surface up gradient topographically towards the eastern border. On a regional scale, groundwater flow is from east to west, flowing towards the Atlantic Ocean. On a local scale, groundwater flows from the centre of the site towards the Holgat River in the central area, and the Kamma River in the south.

1.3.4 Groundwater Recharge and Discharge

Groundwater recharge in the area is approximately 2% of mean annual precipitation. It is expected that actual recharge may be less than this figure owing to the relatively high levels of evaporation in the area. However, for the purposes of determining contribution of recharge to the aquifers, the value is not considered unrealistic. The relatively high clay content of the unconsolidated aquifer serves to retard vertical flow and may result in a significant reduction in recharge. It is thought that the recharge to the fractured rock aquifer is more regionally sourced than locally, due to the retarded vertical flow of infiltrating rainwater. The retardation is a result of both the high evaporation in the area, and the aquitard effect of the weathered, kaolinite-rich bedrock layer. This recharge occurs in the topographically higher areas to the east of the site with the resultant high head causing flow to the west. Lateral recharge of groundwater from the east follows the overall topographic gradient towards the Atlantic Ocean. The ephemeral rivers probably act as losing streams as is common in arid zones, but more detailed data from groundwater elevations around the riverbeds is required to determine this.

1.3.5 Aquifer characterisation

Due to the availability of water from the Orange River and the low potential of appreciable ground water yield in the area, ground water has been ruled out as a source of water at present. The last borehole abstraction of ground water at Alexkor and at the neighbouring properties was terminated in the late 1980's. Groundwater daylights at two localities only on the entire Alexkor property, namely at Seemansrust in the south and at Rietfontein in the central part of the area. Both these occurrences are primary aquifer related with the Seemansrust occurrence probably related to seepage from the Kamma River, and the Rietfontein springs probably fed by the secondary aquifer, but accommodated by the primary aquifer.

Historic exploration and mining indicated the presence of a thick layer of weathered bedrock material with elevated proportions of kaolinite clay between the upper aeonian sands aquifer and the lower fractured bedrock aquifer. This relatively impermeable layer probably may act as an aquitard, which restricts water flow between the two aquifers and, importantly, influences the volume and rate of seepage from backfilling operations to the water table.

Geologically there are no distinct structural or lithological boundaries within the site, and as a result it is assumed that the Holgat River to the north and the Kamma River to the south act as boundaries to flow in these directions. High ground to the east acts as a watershed for surface water, and is assumed to coincide with the boundary between groundwater units, while the Atlantic Ocean to the west acts as a natural boundary. The proximity of the site to the coastline, and the surface elevation of the bedrock and groundwater levels, does pose a risk of seawater intrusion as a result of groundwater abstraction.

1.4 Assessment of impacts

1.4.1 Impacts on groundwater

Impacts relating to groundwater are assessed for the exploration period only.

1.4.2 Impacts on surface water

Impacts relating to surface water are assessed for the exploration period only.

1.4.3 Cause and comment

No ground- or surface water will be used during prospecting. No impacts are anticipated.

1.5 Conclusions

This ground and surface water assessment cover the prospecting phase of the Vast Mineral Sands (Pty) Ltd project in terms of baseline ground and surface water data for the area. The area has been mined extensively during the past 80 years. This allowed for the establishment of a very good survey record of conditions relating to the ground and surface water situation at the site.

It is proposed that a 125m buffer zone is established between the Ramsar area and the prospecting area in order to avoid any disturbance that might cause interference with the natural flow of ground water or to generate dust that might impact the water body at the Orange River mouth. No prospecting will take place in the Holgat- and Kamma Rivers and the riparian zones should be excluded from prospecting. This will eliminate any possible impacts on both surface and ground water in these areas. Exploration over the entire area will be limited to the unconsolidated primary aquifer where drilling will be done to an average depth of 15m below surface.

1.6 References

ARTP Joint Management Board. 2009. Lower Orange River Transfrontier Conservation Area Integrated Development Plan. 41 pp

CSIR (Council for Scientific and Industrial Research), 2011. Orange River Estuary Management Plan: Situation assessment. Report submitted to Eco-Pulse Environmental Consulting Services. CSIR Report No (to be allocated). CSIR/NRE/ECOS/ER/2011/0044/B. Stellenbosch.

DWAF (Department of Water Affairs and Forestry). 1988: Technical Report 137, Regional Maximum Flood Peaks in Southern Africa, Directorate of Hydrology, Department of Water Affairs and Forestry, Pretoria, December 1988.

DWAF (Department of Water Affairs and Forestry). 2003. Preliminary ecological reserve determinations for estuaries. Determination of the Preliminary Ecological Reserve on a Rapid Level for Orange River Estuary. Final Draft. Prepared submitted to DWAF by the CSIR. CSIR Report ENV-S-C 2003-113. Stellenbosch, South Africa.

DWAF (Department of Water Affairs and Forestry). 2004: National Water Resource Strategy, First Edition, Department of Water Affairs and Forestry, Pretoria, September 2004.

DWAF (Department of Water Affairs and Forestry). 2006: Best Practice Guideline H3: Water Reuse and Reclamation. Department of Water Affairs and Forestry, Pretoria, June 2006.

Earle, A., Malzbender, D., Turton, A., Manzungu, E. (2005): A preliminary basin profile of the Orange Senqu River. URL: http://www.acwr.co.za/pdf_files/05.pdf, retrieved: March 17th, 2010.

Heydorn & Grindley 1981: Estuaries of the Cape, Part 2: Synopsis of Available Information on Individual Systems, Report No 3 Groen (CW7), CSIR Research Report 402, Heydorn AEWF & Grindley JR (Eds.), CSIR Stellenbosch, June 1981.

Maré H.G. 2007. Orange River Integrated Water Resources Management Plan. Summary of Water Requirements from the Orange River (available from www.orasecom.org/ accessed on 22 February 2011).

McKenzie R.S. and Maré H.G. 1997. Orange River Development Project Replanning Study. Hydrology and System Analysis - Orange River Basin. Report no PD 000/00/4697 by BKS (Pty) Ltd and Ninham Shand (Pty) Ltd for the Department of Water Affairs and Forestry, Pretoria South Africa.

ORASECOM, 2008. Orange-Senqu River Basin Preliminary Transboundary Diagnostic Assessment.

APPENDIX G Rehabilitation Plan

PROJECT NAME: MINE REHABILITATION PLAN FOR THE PROPOSED VAST MINERAL SAND TSF PROJECT, ALEXANDER BAY

REPORT TITLE: REHABILITATION PLAN

CLIENT: VAST MINERAL SANDS (PTY) LTD

DATE: 24/01/2018

DOCUMENT CONTROL

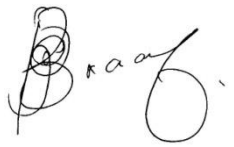
Date	Document Name & No.	Approved by	Signature
2018/01/24	Rehabilitation Plan VMS TSF January 2018.Docx	Olivia Braaf	
2018/03/29	Rehabilitation Plan VMS TSF March 2018.Docx	Olivia Braaf	

Table of Contents

List of Tables

1 INTRODUCTION

This Conceptual Rehabilitation and Closure Plan (CRCP) has been prepared as an Appendix to the Basic Assessment (BA) and Environmental Management Programme Report (EMPr) Development Proposal for the re-mining of Tailings Storage Facility (TSF) areas on Remainder of Farm 1, located within the mining right lease area of Alexkor near Alexander Bay. This CRCP will form part of the submission for a waste management license to the Department of Mineral Resources (DMR).

The Basic Assessment Report (BAR) and EMPr has been prepared for the reprocessing of the existing tailings dumps and slimes dams within the operational Alexkor Mine. These TSF's have not been decommissioned but operational activities on the mine utilise other slimes and tailings dams, thereby allowing the re-mining of the Noordsif, Gifkop, Rietfontein North and Rietfontein South and lastly, Kaap Voltas TSF's.

This CRCP has been prepared to guide Vast Mineral Sands (Pty) Ltd (Vast Minerals) in planning for eventual close of the proposed TSF's once the re-mining activity has been completed and will further require the removal of surface infrastructure established for the activity. It will be implemented in the event of a permanent closure of the TSF's. The actual cost for rehabilitation action required is also allocated. This rehabilitation plan should thus be read in conjunction with the financial provision.

The CRCP is necessarily a dynamic plan which may change over time if the requirements and expectations of the regulators, key stakeholders and interested parties change or if the project changes overtime. Once the life of mine has been reached, Vast Minerals must apply to the DMR for closure in line with the requirements of the MPRDA and NEMA, as amended, 2017.

2 BASIS OF CLOSURE PLAN

2.1 OBJECTIVES

The key objective of this CRCP is to provide an overview of the rehabilitation and closure concept of the TSF's once mining has ceased. The CRCP is a high-level plan

which identifies the rehabilitation and closure concept as well as any issues and probable costs associated with closure of the TSF mine areas.

A Final Closure, Decommissioning and Rehabilitation Plan (CDRP) will be prepared when closure of the mined out TSF's is imminent. The CDRP will outline the full costs, the works schedule, approval requirements and post closure maintenance and monitoring, as well as outlining any stakeholder consultation commitments.

The aim of this CRCP plan is to:

- Return the disturbed areas to an acceptable post mining state;
- Ensure all areas are stable, and there is no risk of erosion;
- Ensure that the mining areas are closed to protect the area against future subsidence and for safety until rehabilitation complete;
- Monitor and manage alien plant invasion on the site until the site is in a stable state; and
- Ensure that all areas are free-draining and non-polluting.

2.2 Key policies, permits and legislation

The key legislation applicable to the current and future activity on the site includes the following:

- Constitution of the Republic of South Africa (Act 108 of 1996) (Constitution);
- Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA);
- National Water Act, 36 of 1998;
- National Environmental Management Act (Act 107 of 1998);
- 2017 Environmental Impact Assessment Regulations, as amended.

2.3 Closure Vision

The closure vision of the mining operation is to ensure that the mining area is left as a sustainable environment area, that is not harmful to the health and safety of the surrounding communities and protects and enhances the local biodiversity and the natural landscape of the mining area and surrounds.

2.4 Closure objectives

The objectives of the closure and rehabilitation process are to ensure the:

- Protection of human health and safety.
- Progressive rehabilitation of the site during operations.
- Vegetation is resilient, self-sustaining and comparable to the surrounding areas.
- Project does not compromise the quality and quantity of surface water or groundwater to existing users and water dependent ecosystems.
- Altered landforms are contoured and, recognising that the regional landscape is gently undulating and relatively flat with little to no significant elevation, as inconspicuous as possible.
- Residual risks and liabilities are identified and can be readily controlled.
- Mine closure process occurs in a cost-effective and efficient manner.
- Full cost of decommissioning and rehabilitation is understood and that a mechanism for funding exists.
- Development of an environmental monitoring and reporting program which is focused towards demonstrating the achievement of closure outcomes.
- Obtaining a closure certificate from the Regulator within the shortest possible timeframe subsequent to the end of the mining operations is in essence the concrete objective of the mine rehabilitation plan. This requires compliance with all aspects finally entrenched in the BAR and EMPR that in turn must ensure adherence to all stipulations laid down in the regulations cited.

2.5 Post Closure and Land Use

Once rehabilitation has taken place, it will be the responsibility of the mine owner/operator to ensure that the land will be returned to a natural state and no further mining will occur. The end land use shall take cognisance of with the greater Alexkor EMPr and Rehabilitation and Closure Plan for the Alexkor Mine of Remainder of Farm 1.

3 CLOSURE ACTION PLAN

A Closure Action Plan aims to create stable environment, capable of supporting a vegetation community and preventing pollution, erosion and alien species dispersal. Aesthetics associated with the mine will be improved as a consequence of the re-mining of the Slimes Dams which are currently visible from adjacent road bordering the Alexkor mine. In order to gain the best possible rehabilitation outcomes from the

resultant mining operation, different actions are required to occur at different times within the life cycle of the mine.

Typical mining phases include Construction, Operational and Decommissioning phases. Prior to construction and preparation of the land for mining, best practices need to be implemented and compliance to legislation needs to be adhered to.

The following three action phases are required to be implemented by the mine owner/operator to ensure successful rehabilitation:

3.1 Land Preparation

The most important factors to bear in mind when preparing for applicable TSF mining operations are:

- To limit the areas that will be affected by the proposed mining development;
- To minimize potential future contact of toxic or polluting materials with the environment; and
- To maximize the recovery and effective storage of those mining profile materials that could be most useful during the rehabilitation process after mining has been completed (Chamber of Mines, 2007; Department of Minerals and Energy, 2008).

The following points should be considered during the implementation and operational phase of the project:

- Mine planning should be designed in a way so as to ensure the area to be occupied by mine infrastructure is minimized and placed within an area previously transformed by historical mining operation undertaken by Alexkor.
- The affected area should be kept as small as is practically possible and should be clearly defined and demarcated;
- Care should be taken around sensitive landscapes e.g. wetlands to ensure that associated impacts are preferably non-existent but if marginal, are minimized, and that the buffer zones around these sensitive landscapes are addressed and respected.
- Mine operators should restrict their activities to planned areas. Clear instructions and control systems should be in place and compliance to the instructions

should be policed by inter alia the mine manager and the ECO (or appropriate representative from the operations team).

- All stockpiles should be in demarcated and approved areas where they will not have to be removed prior to final placement.
- Sand and soils which cannot be replaced directly onto rehabilitated land should be stockpiled.
- All stockpiles should be clearly and permanently demarcated and located in defined no-go areas, re-vegetated and monitored on an annual basis;
- Infrastructure should be designed with closure in mind and should either have a clearly defined dual purpose or should be easy to demolish.

3.2 Rehabilitation for surfaces

Rehabilitation of all disturbed surfaces will include the following and will be completed within a period as specified in the appropriate closure document:

- Where sites have been denuded of vegetation or where soils have been compacted or covered with concretes, these sites will be ripped and ploughed. The topsoil shall be appropriately fertilized to allow vegetation to grow rapidly should self-succession not take place;
- All disturbed and exposed surfaces will be covered with a thick soil layer of approximately 333 mm which will be spread across the disturbed areas; thereafter the soil will be ripped, fertilised and re-vegetated (with an appropriate seed mix if required. Rehabilitation history undertaken shows that seeding results achieve low success rates compared to natural vegetation propagation over time)
- An appropriate seed-mix (determined from the composition of the surrounding undisturbed vegetation if require, refer to above point) should be obtained and broadcast over the rehabilitated areas. The seed should then be lightly raked into the soil.
- No watering of the site should take place; the seed should be allowed to germinate under the natural climatic regime to prevent die-off if germination occurs after an artificial regime caused by watering.
- The sites should be monitored over a two-year period for success or otherwise of revegetation. If initially unsuccessful, a second attempt should be carried out.
- All restoration interventions should be carried out under the supervision of a qualified restoration ecologist or landscape practitioner.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the soil will need to be analysed and any deleterious effects must be corrected, and the area be seeded with a seed mix to specification;

- All rehabilitated areas will be fenced off and access will be controlled;
- Appropriate erosion control measures (i.e. contour banks) must be taken when
- required; and
- All illegal invader plants and weeds shall be dealt with as required in terms of the
- relevant legislation.

3.2.1 Infrastructure removal and rehabilitation

Rehabilitation of all disturbed land surfaces will include the following and will be completed within a period as specified in the appropriate closure document:

- Photographs of the infrastructure, before, during and after rehabilitation will be taken at selected fixed points and kept on record for the ECO (or appropriate representative from the operations team) and the DMR purpose;
- All vehicles, conveyors and workshop equipment will be removed for salvage or resale;
- All existing plant infrastructure such as buildings etc will be removed according to the Alexkor Rehabilitation Plan which includes demolishment and removal offsite (Alexkor has indicated that all asbestos has and is currently being removed from existing plants);
- All fixed assets that can be profitably removed will be removed for salvage or resale, however should it be determined that infrastructure has a social or economic benefit for the area, the infrastructure will remain;
- Any item that has no salvage value to the mine but could be of value to individuals will be treated as waste;
- All structures will be demolished, terracing removed, and foundations demolished to ground level;
- Dismantle and remove redundant fencing for salvage;
- All services like the water supply line will be demolished only for the section on the mine's property; and
- The contractor laydown area will be demolished and rehabilitated
- All concreted areas will be broken up and removed to landfill.
- All disturbed areas will be ripped and seeded.

3.3 Disposal of Material

The disposal of material will include the following and will be completed within a period as specified in the appropriate closure document (to be compiled towards the end of the operational phase):

- No building rubble or any other types of waste shall be dumped in the surrounding environment. In cases where it has already happened the sites shall be cleaned up and the waste and/or rubble removed to appropriate sites in consultation with the ECO (or appropriate representative from the operations team); and
- All types of waste shall be removed entirely from the area and appropriately dealt with in respect of the general waste handling procedure.

3.4 Decommissioning of the Slimes Dams Remining And Excavation Areas

Soil disturbance is only envisaged within the demarcated existing slimes dams area. The minimum objectives for the closure and rehabilitation of a slimes dam must be to prevent air and water pollution in accordance with the requirements of the relevant regulations and with good international practice. The intended end use should take into consideration the prior land use and the location with respect to current and potential future socio-economic development.

The objectives of the closure and rehabilitation measures will be:

- To establish a self-sustaining solution with a minimum of on-going maintenance;
- To minimise off-site impacts;
- To create safe and stable landforms;
- To return the site to beneficial land use; and,
- To obtain a closure certificate.

However, in this instance the slimes dams will be re-mined resulting in a landform which mirrors that of the pre-mining area. All rehabilitation objectives should align with the Alexkor Rehabilitation Plan for the greater mine area.

3.5 Water pollution control structures

The continuous rehabilitation program and the demolishing and/or maintenance of water pollution control structures will attempt to restore the area to an acceptable free draining standard.

- No dirty water will be allowed to be discharged into the environment. The land must be rehabilitated until the area can be made free draining, i.e. the runoff from the area must be considered clean; and
- The clean and dirty water systems will be removed as the last phase of rehabilitation.

4 REHABILITATION STRATEGY

The following section outlines the rehabilitation strategy for the rehabilitation of mined land. Management objectives and strategies have been developed for the following activities at the Vast Minerals TSF will include:

- Storage of reprocessed tailings, and co-disposal with sand and gravels into areas identified for rehabilitation;
- Backfilling of excavated areas and soil profile construction;
- Stockpile areas;
- Soil preparation;
- Reseeding of rehabilitated areas with an appropriate seed-mix (determined from the composition of the surrounding undisturbed vegetation, if applicable); and
- Alien invasive management.

4.1 Progressive Rehabilitation

Progressive rehabilitation of the site during the operational life of the mine will be important to demonstrate the success of closure strategies prior to final closure and to enable adjustments to strategies as a result of the experience gained. Progressive rehabilitation will also reduce the long-term closure liability required of Vast Minerals after the mine closes.

4.2 Conceptual Rehabilitation Phases (outside of progressive rehabilitation)

A summary of proposed mine rehabilitation works is provided below (conceptual plan).

4.2.1 Rehabilitation – Phase 1

This phase will involve, demolition work, loading and disposing of rubble material, selling of salvage. During this phase the following activities will be carried out:

- Erection of fencing around all areas where demolition is taking place;
- Removal of all mining infrastructure and the capping or backfilling of any voids or pits to ensure safety;
- Removal of plant and plant infrastructure including all buildings;
- Removal of buildings including workshops and offices;
- Dismantling plant conveyors; and
- Removal of overland mobile water supply line from well on coast to TSF.

4.2.2 Rehabilitation – Phase 2

The purpose of this phase is to shape the areas to form a free-draining landscape which flows into the surrounding environment, loosen the compacted areas to assist in vegetation establishment. During this phase, the following activities will be undertaken:

- Ripping of soils;
- Amelioration of slimes dams which have been mined out;
- Removal of water infrastructure (Process Water Dam);
- Ensure that the slope of the remaining slimes dams is to such a degree to allow self-succession and no erosion;
- Topsoil placement (where required) and re-vegetating (where required) disturbed areas; and
- Rehabilitation of berms and channels.

4.2.3 Rehabilitation – Phase 3

Phase 3 will involve the following activities:

- Removal of fencing; and

- Aftercare monitoring:
  - Vegetation monitoring; and
  - Weed Eradication on monitoring of progress.

5 REHABILITATION RESPONSIBILITIES

The responsibilities of various parties during the rehabilitation phase are presented in Table 5-1.

Table 5-1: Responsibilities and Responsible Parties for Rehabilitation Activities

Responsible party	Responsibility
Mine Manager and Environmental Representative (with input from Alexkor's Environmental Manager)	• Planning of rehabilitation project; • Initiating rehabilitation projects; and • Compilation of closure plan with regards to rehabilitation areas
Mine's environmental representative (or independent EAP) (with input from Alexkor's Environmental Manager)	• General monitoring/surveillance and reporting and coordination; and • Implementation/coordination about particular environmental measures /action plans.
General/Mine Manager	• Authorisation of all rehabilitation projects.

5.1 Maintenance

The aim of the maintenance measures is to ensure that the area affected by the mining operations is rehabilitated according to the closure plan and to apply for closure.

The following maintenance measures will be implemented as part of the post-closure process:

- All natural physical, chemical and biological processes for which a closure condition has been specified must be monitored for three (3) years after closure or as long as deemed necessary at the time. Such processes include erosion of the rehabilitated surfaces, surface water drainage, surface water

quality, groundwater quality, vegetative re-growth, weed encroachment and colonization by animals;

- Measures must be implemented to curb environmental impacts and to ensure that they do not worsen/cumulate over time;
- The closure plan will be reviewed every five (5) years; and
- All rehabilitated areas will be monitored and maintained until such time as required to enable the mine to apply for closure of these different areas.

The following activities will be included during the maintenance phase:

- The closure costs (demolition, removal, re-shaping and rehabilitation quotes per key quantity) for each facility must be included in the database so that the total closure cost can be determined;
- All facilities that become redundant during the LOM must be rehabilitated concurrently to lighten the rehabilitation process at the end of the mine's life;
- Attention must be paid to the latest developments in mine rehabilitation sciences;
- Rehabilitation should be done as soon as possible, to ensure that the rehabilitation work required is kept to a minimum at the end of the life of the mine;
- Ensure that the area is free draining;
- Ensure that self-succession has been implemented;
- Ensure that all slopes are safe in the long term;
- Submission of NEMA and MPRDA application for decommissioning and closure (as a BAR, EMPr and Closure Report) to the authorities; and
- Environmental monitoring and maintenance for two- three years after closure.

6 MONITORING AND REPORTING

Detail methods for the monitoring and evaluation protocols will be developed and it is proposed to use a combination of techniques that include the following:

6.1 Soil erosion

Soil erosion monitoring will be done on an ongoing basis by all personnel. All problems will be reported to the Mine Manager will do a quarterly inspection of all areas in order

to assess erosion damage. The Mine Manager will do a quarterly inspection of all areas in order to assess erosion damage.

6.2 Fuel tanks

The mobile fuel tank should be monitored on a regular basis for hydrocarbon contamination.

6.3 Air

6.3.1 Dust

Visual monitoring of dust conditions should be done by the Mine Manager. All complaints by affected parties must be investigated and acted upon.

6.3.2 Carbon monoxide

Vehicles should be regularly inspected and maintained to prevent unnecessary contributions of carbon monoxide emissions to the environment.

6.3.3 Noise monitoring

Noise must be monitored on an ad-hoc basis. All complaints by affected parties must be investigated and acted upon.

6.4 Re-vegetation

6.4.1 Plant cover

The density of the plant cover over rehabilitated area should be assessed on a quarterly basis in order to evaluate rehabilitation success. A lack of plant cover will lead to raindrop erosion and will have to be addressed through repeat seeding.

6.4.2 Alien and invasive plant occurrence

- In areas where alien and invasive plant eradication has taken place, the re-growth of the plants should be assessed on an annual basis.

- The areas where eradication has not yet taken place should be monitored on an annual basis to assess the increase in population densities of the targeted species in order to reassess the project priorities.

7 REPORTING

7.1 Submission of Information

- All procedures (emergency, environmental awareness, rehabilitation strategies, etc.) must be included into the mine's overall operations system. This should be monitored by the mine manager and mine environmental representative who will monitor and assess the performance of the EMPr on an ongoing basis.
- Formal audit of the performance assessment of the EMPr will take place at the frequency required by the DMR in the approved EMP;
- All information as required by the various government departments should be captured and be readily available for submission when required;
- An annual report will be submitted to the DMR;
- An Environmental Audit Assessment will be undertaken every two years as required by the NEMA, as amended, 2017 and MPRDA and will be submitted to the DMR;
- The financial provision for closure (quantum and method) will be updated every two years as part of the Environmental Audit Assessment Report; and
- The Closure Plan must be reviewed every five (5) years and must always keep pace with the current best practices.