

**PROPOSED SAND MINE ON A PORTION OF THE REMAINING  
PORTION OF THE FARM RHENOSTERKOP NO 155,  
REGISTRATION DIVISION OF BEAUFORT WEST,  
WESTERN CAPE PROVINCE  
SITE SENSITIVITY REPORT**



**JUNE 2025**

***REFERENCE NUMBER: WC30/5/1/3/2/10361MP***

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## **EXECUTIVE SUMMARY**

The applicant CZ Sand Mine (Pty) Ltd, applied for environmental authorisation (EA) and a mining permit to mine sand on a portion of the remaining portion of the Farm Rhenosterkop no 155, Registration Division of Beaufort West, Western Cape province.

The proposed mining footprint will be 5 ha and will be developed over an undisturbed area of the farm. The sand mining operation will employ approximately six workers and will include a temporary site office and a chemical toilet within the designated mining area. Access to the site will be via an existing farm road, haul roads will be extended as necessary and maintained throughout the operational phase.

In the proposed operation, a Front-End Loader (FEL) will be used to transport the extracted sand directly from the mining footprint to the stockpile area, following standard practices in the small-scale mining sector. If necessary, the sand will be screened before being stockpiled. Once ready for distribution, a front-end loader will load the sand onto trucks for delivery to customers. No washing of sand will be required. All mining related activities will be contained within the approved mining permit boundaries.

The applicant, intends to win material from the area for at least 2 years with a possible extension of another 3 years. The sand extracted from the mining area will be utilized for local construction, building projects, and potential renewable energy initiatives in the surrounding region. The proposed mining permit will contribute to the enhancement and maintenance of road infrastructure, as well as support building projects in and around the Beaufort West area.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended 2017) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation. This report, the Final Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the EIA process.

### **Project description**

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site will be via an existing farm road, haul roads will be extended as necessary and maintained throughout the operational phase.

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Should the MP be issued and the mining of dolerite be allowed, the proposed project will comprise of activities that can be divided into three key phases namely the:

- (1) *Site establishment/construction phase* which will involve the demarcation of the permitted mining area and the identification of the first 1 ha strip to be mined. Site establishment may necessitate the clearing of vegetation (that established through succession), the stripping and stockpiling of topsoil, and the introduction of the mining machinery.
- (2) *Operational phase* that will entail the strip mining of sand from the approved footprint area through direct excavation. The Applicant will make use of a front-end-loader directly from the mining footprint area to the stockpile area, following standard practices in the small-scale mining sector. If necessary, the sand will be screened before being stockpiled. Once ready for distribution, a front-end loader will load the sand onto trucks for delivery to

customers, via the via the existing road. The transport of sand from the mining area will be done by site management as no clients will be allowed to collect sand directly from the mine. It is proposed that the truck will visit the mining area approximately twenty times a week.

- (3) *Decommissioning phase* which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE). Once the full mining area is rehabilitated, the mining permit holder will be required to submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

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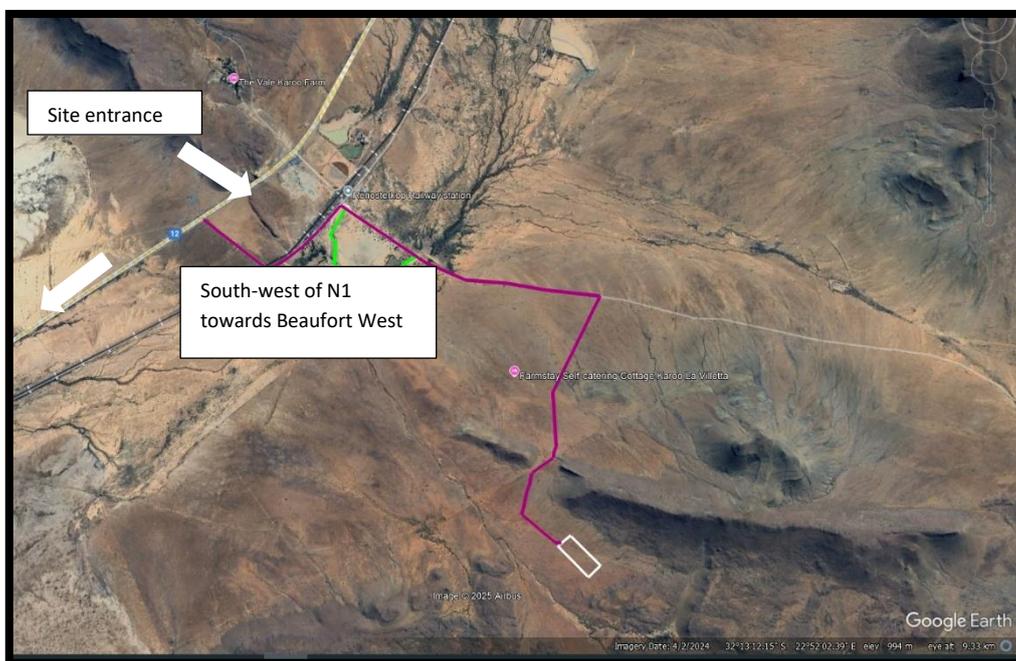
The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil;
- Screening, Stockpiling and transporting;
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

The mining site will contain the following:

- Excavating equipment;
- Earth moving equipment;
- Screening plants;
- Access Roads;

- Site office (Container);
- Site vehicles;
- Parking area for visitors and site vehicles;
- Weighbridge;
- Ablution facilities (Chemical toilet).



*Figure 1: Satellite view showing the access road entrance with (purple polygon), (green polygon) is an alternative option when the dam is at full capacity and the proposed mining area site alternative 1(white polygon) **no alternative was identified for this site.***

This report addresses the findings of the Screening Tool Report (Appendix N), generated from the National Web Based Environmental Screening Tool, and provides motivation for the various specialist studies identified to be conducted. As per the Screening Tool Report, the proposed site is located within a medium sensitivity area from an agricultural perspective, a high sensitivity area from an animal species perspective, a very-high sensitivity area from an aquatic biodiversity perspective, a low sensitivity from an archaeological and cultural heritage perspective, a high sensitivity area from a civil aviation perspective, a medium sensitivity area from a plant species perspective, a low sensitivity area from a defense perspective, a low sensitivity form a paleontology perspective and a low sensitivity area from a terrestrial biodiversity perspective.

## Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

Table 1: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT  (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p>The screening report for an environmental authorisation, as required in terms of the 2014 NEMA EIA Regulations on a portion of the remaining portion of the Farm Rhenosterkop no. 155, Registration Division of Beaufort West, Western Cape Province, identified the following list of specialist assessments for inclusion in the assessment report:</p> <ul style="list-style-type: none"> <li>■ Agricultural Impact Assessment;</li> <li>■ Archaeological and Cultural Heritage Impact Assessment;</li> <li>■ Paleontology Impact Assessment;</li> <li>■ Terrestrial Biodiversity Impact Assessment;</li> <li>■ Aquatic Biodiversity Impact Assessment;</li> <li>■ Hydrology Assessment;</li> <li>■ Noise Impact Assessment;</li> <li>■ Radioactivity Impact Assessment;</li> <li>■ Traffic Impact Assessment;</li> <li>■ Geotechnical Assessment;</li> <li>■ Socio-economic Assessment;</li> </ul>			

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<p> <ul style="list-style-type: none"> <li>■ Plant Species Assessment;</li> <li>■ Animal Species Assessment.</li> <li>■ Civil Aviation Assessment</li> </ul> </p> <p>CZ Sand Mine (Pty) Ltd (hereafter referred to as the applicant) appointed Greenmined Environmental (Pty) Ltd as the environmental impact assessment practitioner (EAP) to undertake the EIA associated with the mining permit application. In light of this Greenmined would like to respond as follows to the list of required specialist studies:</p> <p> <ul style="list-style-type: none"> <li>■ Agricultural Impact Assessment (AIA):</li> </ul> </p> <p>The portion of the remaining portion of the Farm Rhenosterkop no. 155, Beaufort West District, Western Cape Province is over an undisturbed and inactive and with medium agricultural potential area of the farm with medium agricultural potential due to the sandy surface. According to the AIA (Appendix M) the conclusion of this assessment is that the proposed is that there is unlikely to be a significant long-term reduction in the agricultural production potential of the site provided that effective rehabilitation is implemented. This is because the site has low pre-mining cropping potential anyway and retention of sufficient topsoil will retain the existing agricultural potential of the site.</p> <p>Mining with well managed and effectively implemented rehabilitation will therefore have an impact of low significance on agricultural resources. However, without effective mitigation, there may be some long-term reduction in soil and production potential and the impact on agricultural resources will therefore be higher.</p> <p>A very important factor affecting the success of rehabilitation, and consequently the significance of all direct impacts, is the level of care that is taken to rehabilitate effectively. This is dependent on the level of environmental management of all mining activities that can impact on rehabilitation, both during the mining process and during the rehabilitation phase.</p>			

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<p>The following is the sequence of recommended rehabilitation steps:</p> <ol style="list-style-type: none"> <li>1. The upper 30 cm of soil must first be stripped and stockpiled before mining.</li> <li>2. Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.</li> <li>3. Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.</li> <li>4. Mining should be done to a maximum depth of 3 metres.</li> <li>5. After mining, any steep slopes must be reduced to a minimum and profiled to blend with the surrounding topography.</li> <li>6. The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface.</li> <li>7. The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.</li> </ol> <p>Therefore, from an agricultural impact point of view, it is recommended that the proposed mining will not significantly reduce the future agricultural production potential of the site, which is already low, if effective rehabilitation is implemented. The proposed mine is therefore acceptable, and, from an agricultural impact point of view, it is recommended that it be approved.</p>			
<p>Archaeological and Cultural Heritage Impact Assessment (HIA) &amp; Paleontology Impact Assessment (PIA):</p> <p>According to the Notice of Intent to Develop conducted by Beyond Heritage (Pty) Ltd,(Appendix M3) a few CRM surveys have occurred close by with the most relevant being for a sand mine access road immediately over the N1 from Rhenosterkop and the widening of the N1 through Courlandskloof just to the northeast (Orton 2010; the sand mine itself has apparently been surveyed and permitted but no documentation of this is known and none could be sourced from the developer at the time of the road application), and a second sand mine just further north (Gribble 2020).</p> <p>These projects showed that scatters of LSA and MSA stone artefacts occur in places and rock engravings including both animals and scratching/rubbing occur in the area. Some engravings of high significance occur very close to the Renosterkop Sand mine but do not seem to be under threat yet. A stone-walled kraal is also on record north of the N1. Historical structures, artefacts scatters and aspects of the historical nineteenth century Cape Town to Kimberley railway (which broadly follows the N1) were also recorded. The latter include cast iron and stone</p>			

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<p>bridge and also an Anglo-Boer War blockhouse built at the bridge to guard it during the war. Around Nelspoort, to the northeast of the study area, there are a number of rock engravings and some rock gongs that are quite well-known (Parkington et al. 2008).</p> <p>More broadly, most Karoo farms include historical structures and graves and the kinds of archaeology noted above are expected to be widespread. Rock paintings are also known from the Karoo, but not from anywhere close to the study area. The only impact anticipated is to LSA scratched engravings on the sand rocks of the study area. While these “motifs” are poorly understood and might have once had significance beyond that which we might understand, they are also very common. A photographic record has been made of those in the study area and further work on this small sample is unlikely to accomplish anything further.</p> <p>Survey diagrams indicate that Rhenosterkop was first granted on 18 November 1890 to Adolph Siegfried Grimbeek. Portions referred to as Lucerne Lodge and Annex Lucerne Lodge were subdivided off on the northwest side of the railway line during the early 20th century. Various other subdivisions have also occurred for the railway on the land to its northwest. The rest of the farm to the south of the railway line, however, has remained intact. In light of this, a Heritage Impact Assessment was not deemed necessary by the heritage specialist.</p>			

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<p>Terrestrial Biodiversity Impact Assessment (TBIA) &amp; Plant Species Assessment (PSA):</p> <p>A motivation letter included in support of the previous report prepared by EcoFloristix Specialist Botanical Surveys (report reference number: GM.OM.2.0; hereafter “the report”) for Greenmined Environmental (Pty) Ltd., is applicable and relevant to the proposed new sand mine as defined by Mrs Murchellin Saal (Environmental Consultant at Greenmined Environmental (Pty) Ltd). Although the report does not explicitly mention the proposed new sand mine but does contain information and data relevant to it. Specifically, the proposed new sand mine overlaps with vegetation types that were mapped and ground-truthed within the report. As such, the data and analysis contained within the report are relevant and valid for the proposed new sand mine.</p> <p>According to the botanical assessment report conducted by EcoFloristix (Pty) Ltd, dated March 2023 attached as appendix M2, it is highly unlikely that this development will have an impact on ecosystem status or nationally listed vegetation types due to the limited extent of the mine, as well as the large extent of natural vegetation surrounding the mining area. Furthermore, this mine will not have a significant impact on the services and functions provided by the surrounding natural habitats, and development within this area is regarded as acceptable, provided that the mitigation measures given that in the Biodiversity Assessment report (Appendix M2) is closely followed.</p> <p>In terms of local plant species levels, the site is not exceptionally rich in species and therefore not highly sensitive in this regard. Moreover, no SCC or range restricted species are present within the study area. The extensive nature of the study area vegetation and plant community types within the wider landscape means that all species within the study area will highly likely also be found in the surrounding areas. Thus, given that the majority of impacts associated with the proposed activities are likely to be local in nature and not of wider significance, loss of particular species within the study area will not be problematic.</p> <p>Five provincially protected species were found in the study area (but only in low numbers), as well in the surrounding areas. None of them are SCC and their loss from the study area will not be significant and will not compromise the viability of the local populations of these species.</p>			

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<p>In terms of the likely botanical impacts associated with the mine, impacts on vegetation during the construction and operational phases are likely to be relatively high (medium after mitigation), and are somewhat difficult to mitigate given the destructive nature of the proposed activities. However, given the large extent of the affected vegetation and plant community types, and given the small footprint of the mining area, the impact on the vegetation is likely to be of locally high intensity but not broadly significant. Potential cumulative impacts are also furthermore regarded limited and of low to moderate significance.</p> <p>The proposed study area is well positioned to mostly avoid highly sensitive receptors, and the proposed activities will not severely compromise the survival and continued persistence any specific plant or animal species within the study area and surrounds if mitigation measures are fully implemented.</p> <p>Measures to minimize erosion:</p> <ul style="list-style-type: none"> <li>• Any signs of erosion resulting from the project activities must be rectified immediately and monitored thereafter to ensure that they do not re-occur.</li> <li>• Roads and other disturbed areas within the study area should be regularly monitored for erosion problems, and problem areas should receive follow-up monitoring to assess remediation success.</li> <li>• Any erosion points created during construction should be filled and stabilized immediately.</li> <li>• Practical phased development and vegetation clearing should be practiced so that cleared areas are not left un-vegetated and vulnerable to erosion for extended periods of time</li> <li>• Construction of gabions and other stabilization features must be undertaken to prevent erosion, where deemed necessary.</li> <li>• Soil should be stabilized in the period when it is disturbed until revegetation can take place. This can be done either temporarily or permanently, and can include methods such as using layers of either sterile mulch (that will not drastically alter soil conditions), blankets, wood binders, geo-textiles, artificial turf blankets, mats, or fiber rolls, depending on availability and how appropriate the measures are for the project.</li> <li>• Runoff water on exposed areas should be controlled, for example with use of sediment traps, articulated concrete blocks, riprap, or geotextiles.</li> <li>• Site entrances should be stabilized so that sediments are not carried away by the movement of construction vehicles to and from the site. Stabilized construction entrances can be made, for example, by making use of crushed stone. Care should be taken to remove all foreign debris from the site upon termination of the activities.</li> </ul>			

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<p>■ Animal Species Assessment (ASA) – Addendum M2</p>	<p>As per Appendix M2, the proposed development involves the construction of access roads and a sand mining area covering approximately 5 hectares. The access roads will utilize existing, already disturbed routes, resulting in minimal anticipated impact. The sand mining area overlaps with Medium SEI zones concerning the PAOI, due to the potential presence of SCC, although it is unlikely to serve as a significant habitat for these species. The impacts have been evaluated and mitigated.</p> <p>The main anticipated impacts of the project include habitat loss and the migration of fauna. Based on the information provided, there are no apparent critical issues with the proposed project. The specialist believes the project can be approved, if all recommended mitigation measures are implemented, no significant negative impacts on the Faunal component are expected.</p>		
<p>■ Aquatic Biodiversity Impact Assessment (ABIA) &amp; Hydrology Assessment (HA):</p>	<p>The proposed mining area access road intersects with more than 2 drainage lines which necessitates a water use license application in terms of Section 21 of the NWA, 1998. This was confirmed by the Risk Matrix Assessment conducted by the Biodiversity Company (Pty) Ltd (please see Appendix M1). A General Authorisation (please see Appendix Q) was obtained for the adjacent mine that uses the same road and will be used in support of this application, unless otherwise directed by the Department of Water and Sanitation (DWS). An agreement is in place with the Municipality to secure treated water for dust suppression (see Appendix M1)</p> <p>Based on desktop and survey findings in Appendix M2, the specialist disputes the “Low” rating for the mining area and agrees with the “Very High” aquatic theme sensitivity as per the National Web based Environmental Screening Tool. The specialist revised the ratings to a maximum of ‘High’ aquatic sensitivity. This is attributed to:</p> <ul style="list-style-type: none"> <li>• The project area is not located within a SWSA for surface water;</li> <li>• The project footprint overlaps only with a Western Cape ESA1 and Other Natural Areas;</li> <li>• The project area (proposed sand mine and access road) is in proximity of an NFEPA river (Platdoring River) as well as several drainage lines which are tributaries of same;</li> <li>• The project area is located along a Least Threatened and Poorly Protected watercourse (Platdoring River); and</li> <li>• No protected areas detected within the project area or immediate downstream reaches. The Steenbokkie Private Nature Reserve is approximately 15 km downstream of the project area.</li> </ul>		

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	<p>The proposed activities pose low to moderate pre-mitigation risks during the construction, operational and decommissioning phases. Moderate risks are associated with the activities proximate to the watercourse, including the drainage patterns change due to road extent and crossings, clearing of riparian (and terrestrial) vegetation, stormwater management, excavation of riparian area, bed and/or banks, operation of heavy machinery adjacent/within the watercourse, alien vegetation encroachment, conducting road and crossings maintenance, sedimentation and erosion, and hydrocarbon contamination. Due to the presence of existing roads and crossings, the implementation of mitigation measures as well as the avoidance of watercourse areas for any mining activities will reduce the risks/impacts of Moderate-risk activities to Low if done effectively. If not done effectively, the activities will not reduce the risks of aspects/activities such as clearing riparian areas, deep excavation when mining, drilling and crushing, excavations, the drainage patterns change due to road extent and crossings, dust precipitation (from backfilling), change in topography (from backfilling), dust precipitation (from shaping/contouring), change in topography (from shaping/contouring) and surface structures as well as stormwater, as these activities will result in direct loss of riparian vegetation, channel-, bed- and bank modification, and have a direct impact on the rivers and riparian areas. Water required for the implementation of the project will be bought and transported to the site.</p> <p>It is the opinion of the specialist that the project may be considered for authorization. This is on condition that all prescribed mitigation measures and recommendations are implemented. This includes the avoidance of sensitive freshwater habitats and their buffer zones (as far as is feasible), methods that prevent the introduction of contaminants into watercourses, rehabilitation of disturbed watercourses, as well as the minimization of development/disturbances within these areas.</p>		
<p>☒ Noise Impact Assessment (NIA):</p>	<p>The potential impact on the noise ambience of the receiving environment is expected to be of low significance due to the location of the proposed mining area being far away from residential dwellings. Due to the small scale of the operation an (NIA) is not deemed applicable.</p>		
<p>☒ Radioactivity Impact Assessment</p>	<p>A radioactivity impact assessment is not deemed necessary for the proposed mining operation that will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature.</p>		

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<p>▢ Traffic Impact Assessment (TIA):</p>	<p>Access to the proposed mining area will be via the N1, making use of the existing internal/haul roads to access the mining area. Haul roads will be extended as the open cast mining progress and will be rehabilitated as part of the final reinstatement of the area. Trucks delivering the materials to the destinations will take the N1 national route. In light of the small scale of the proposed operation a TIA is not deemed necessary, should the Applicant implement the mitigation measures to be proposed in the EMPr.</p>		
<p>▢ Geotechnical Assessment:</p>	<p>No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established in the proposed mining area.</p>		
<p>▢ Socio-economic Assessment (SEA):</p>	<p>The material to be sourced from the mining area will be used for the upgrading of the road infrastructure in the vicinity of the site. The proposed mine will be operated in an area with medium agricultural potential. Should any additional workers to be required on this mining activity they will be sourced from the local community. Workers will daily be transported to the site. The establishment of the mining area on the farm will also assist the property owner in the diversification of their income. In light of this a SEA is not deemed applicable to this project.</p>		
<p>▢ Civil Aviation Assessment</p>	<p>A civil aviation impact assessment is not deemed necessary for the proposed mining activities since the operations will have no effect on the air corridor that is situated above the area. The proposed operations will not consist of any high infrastructure or signal preventing equipment that will prevent airplanes from flying. The proposed mining activities is at 3400ft and has high ground surrounding the sand mine with hills at 4000ft North of the Sand mine and high ground at 3700ft south of the sand mine which makes the safe flying altitude much higher than the operating altitude of the proposed sand mine and will not infringe on air traffic operations even if aircraft do fly directly over the proposed mining area.</p>		

