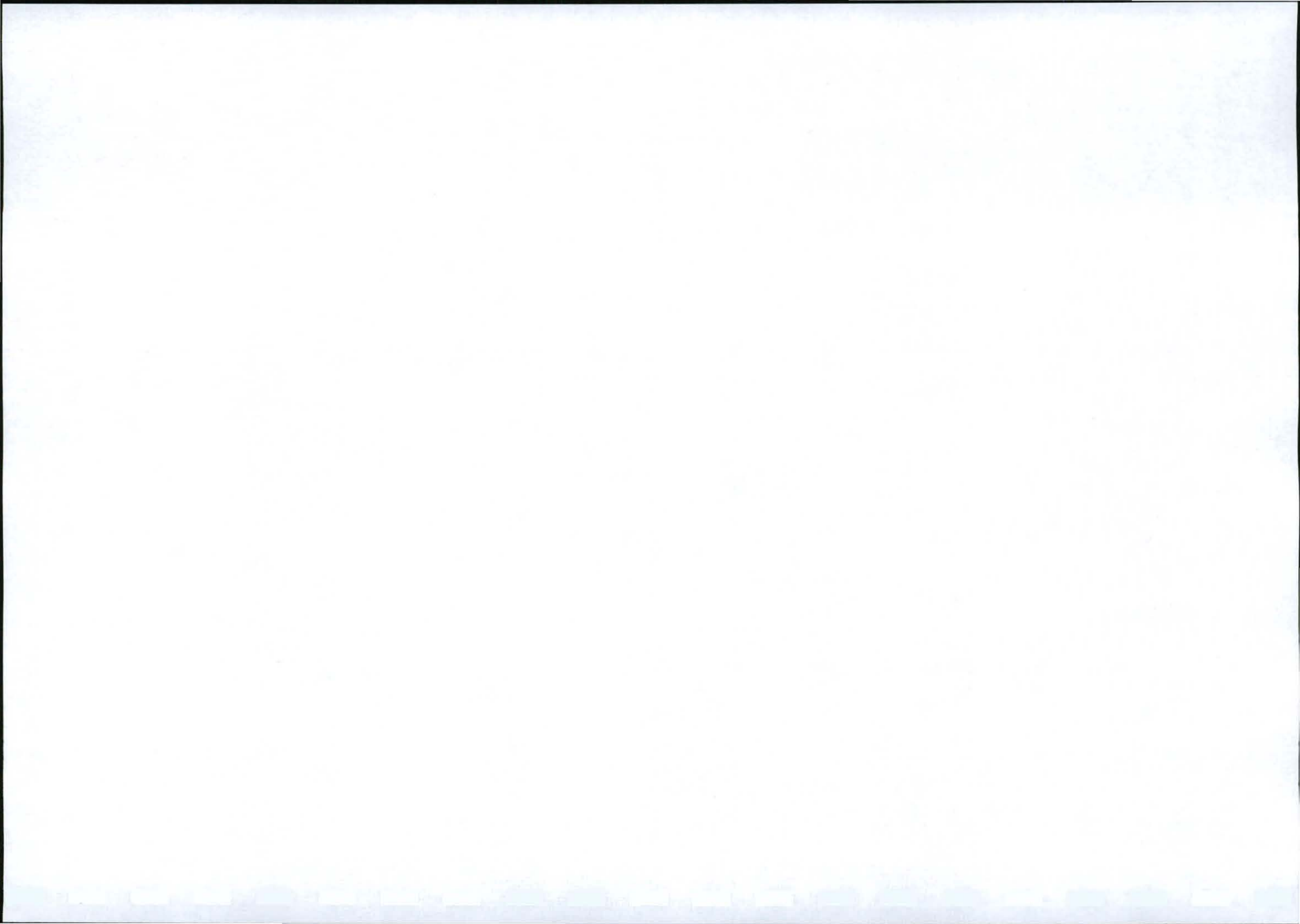
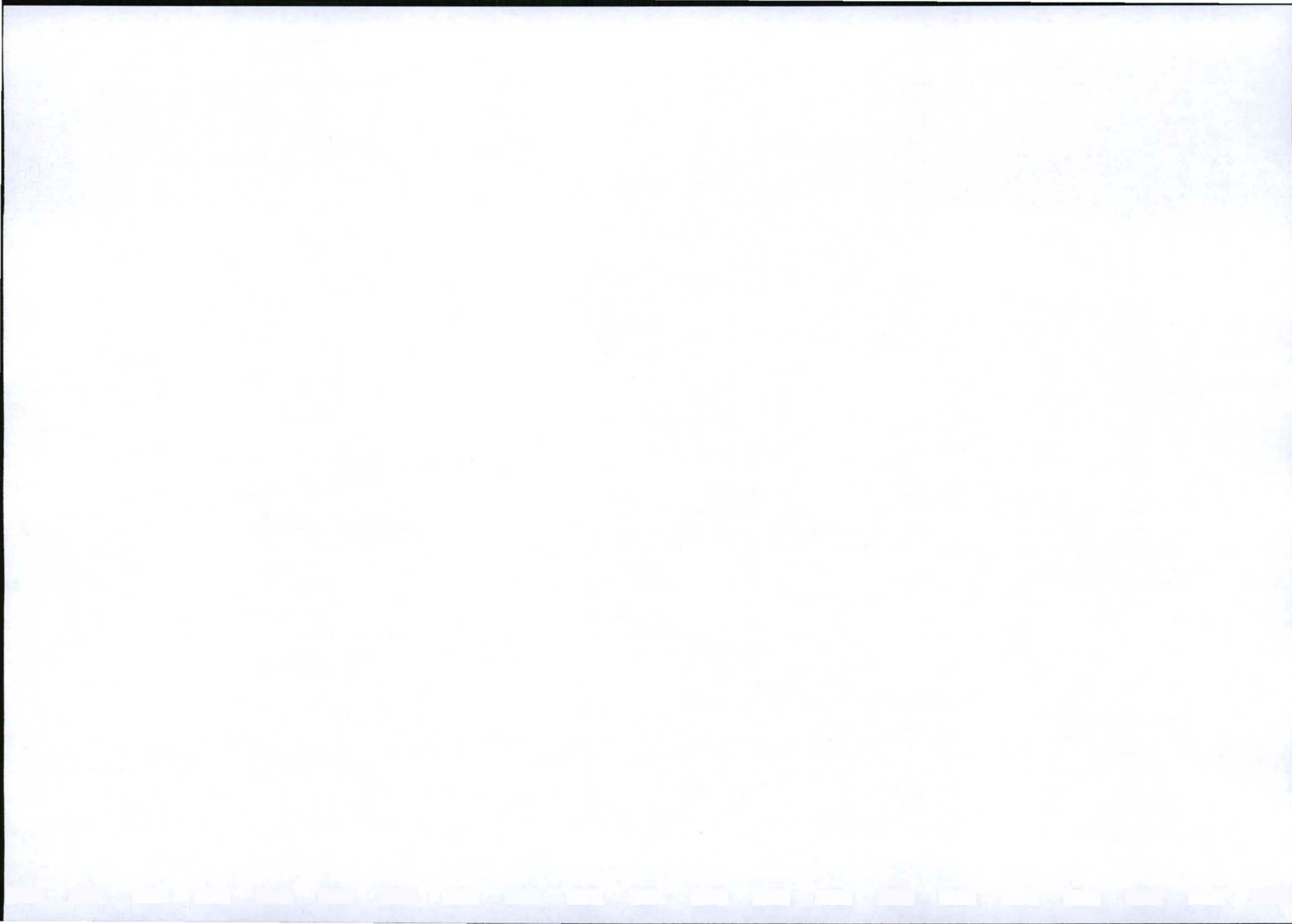


1.			•	<ul style="list-style-type: none"><li>• Also see description of the effects of dust and the management thereof in the previous sections.</li><li>• The liberation of dust into the surrounding environment shall be effectively controlled by the use of, <i>inter alias</i>, water spraying and/or other dust-allaying agents.</li><li>• The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.</li></ul>
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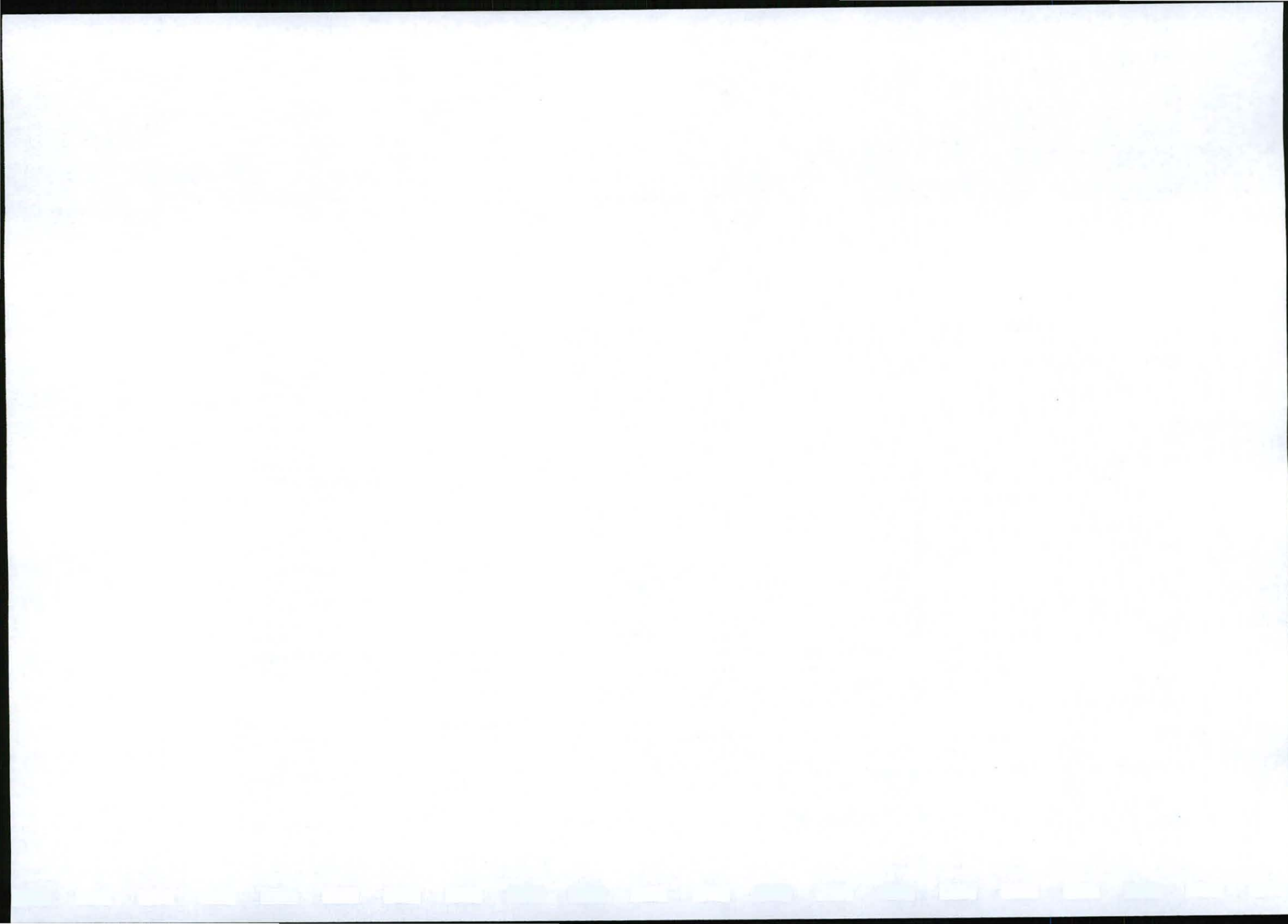


<p><b>2. Impact on air quality due to exhaust fumes, gas emissions and dust generation</b></p>	<p>The effect mining could have on people, animals, natural vegetation and crops if dust Under standard operating practices, the proposed regional landfill site would be characterized by three main sources of gaseous emissions:</p> <p>Sources of fugitive dust emissions would include:</p> <ul style="list-style-type: none"> <li>• Vehicle-entrained dust from paved and unpaved roads</li> <li>• Material handling operations</li> <li>• Wind erosion of open areas and soil covering</li> <li>• Vehicle activity on the mine site, including general vehicles traffic (tractors, trucks, etc) and earthmoving</li> <li>• Dust is also created when driving on the dirt roads.</li> </ul>	<p>Low</p>	<ul style="list-style-type: none"> <li>• There is a relationship between speed and dust generation. Earthmoving machinery moves slowly and creates little dust.</li> <li>• More dust is created when winds blow over exposed areas without vegetation than when mining takes place.</li> <li>• The further possible contaminant is from the exhaust fumes of the vehicle. The impact is small and in this rural area the dilution is relatively quickly.</li> <li>• The area in which the mine is located is undulated and the topography, the distance between the mine and the residential areas (gas dissipates over distance), as well as the vegetation that covers the remaining area on the farm collect or screen the activity so less gas reaches the residents.</li> <li>• The earthmoving machine does not run continuously but only when loading and backfilling. Dust and exhaust fumes are only generated for a limited duration.</li> <li>• The exhaust fumes of the trucks contribute to the atmosphere along with other vehicles and the vehicles should be mechanically in a good condition to reduce the creation of black smoke and toxic gasses.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Limit the size of the area opened (vegetations and topsoil removed and mining occurring) at a time to a small as practically possible.</li> <li>◆ Trucks must drive slowly on dirt roads (not more than 40 – 60 km) on public roads and 20 – 30 on private roads (access and haul roads).</li> <li>◆ All vehicles must be properly maintained and serviced regularly to ensure they are mechanically sound to reduce the quality and quantity of the gasses that are emitted.</li> <li>◆ Roads can be water down to suppress the dust if necessary.</li> <li>◆ All vehicles and earthmoving equipment must be fitted with exhaust systems.</li> <li>◆ Reduce the speed when driving past residences to reduce the potential for dust generation. Wet the road surface or used chemicals to suppress dust.</li> <li>◆ Cover the resource on the trucks to ensure the resource is not blown onto vehicles and especially the tarred roads. Use shade cloth, netting or any other suitable material.</li> <li>◆ Use water sparingly and only where and when needed use alternative methods of dust suppression or to combat wind erosion.</li> <li>◆ Alternative mechanisms for dust and wind erosion control. Cover exposes mine areas in the process of rehabilitation with straw, reeds, bark, branches or other suitable material to suppress the dust and prevent wind erosion.</li> <li>◆ Vehicles must be serviced regularly to ensure toxic gas emissions are reduced as far as possible.</li> </ul>
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<p><b>Impact on noise</b></p>	<p>When the resource is excavated and loaded noise is general. The trucks transporting the resource also generate noise. Trucks driving nearby residences can cause irritation.</p> <p>Potential noise impacts of the proposed regional landfill site and the mine could possibly have noises from:</p> <ul style="list-style-type: none"> <li>• Backfilling activities, such as off loading, load distribution and compaction)</li> <li>• Removal of the resources</li> <li>• Loading and trucking of the resources (about 10 –11 trucks per day).</li> <li>• Noise is also created by agricultural activities as well as light and heavy vehicles on the R346</li> <li>• Noise from generators, farming equipment, pumps, etc.</li> </ul>	<p>Low. Due to the nature, scale and duration of the activity the impact from mining is low in significance and more so if mitigation and management measures are followed. However, earthmoving vehicles with reverse warning signals are used and they normally exceed acceptable noise levels up to a distance of 1030 m.</p>	<ul style="list-style-type: none"> <li>◆ Noise emitted from the vehicle on the site competes with light and heavy vehicles travelling on the R346.</li> <li>◆ Noise created by the mining activity is not continuous. The earthmoving machinery will only work when the trucks arrive to load resource.</li> <li>◆ The mine will not produce additional to the current mining in the sabunga mine.</li> <li>◆ The nearest noise sensitive receptor is the landowner, which is located within 15 m from Site A. The landowner is aware of the activity and approved of the resource mine.</li> <li>◆ The traffic volume is about 10 – 12 trucks per day if 50000 cubic meters are mined per year..</li> <li>◆ The SANS standard for acceptable noise levels would be reached at a distance of between 48 and 190 m (depending on weather conditions) although the noise would be clearly audible fro some distance beyond that.</li> </ul>	<ul style="list-style-type: none"> <li>◆ It is important to see that vehicles are in a good working order thereby reducing the noise resulting from friction of mechanical parts.</li> <li>◆ The use of effective silencers also reduces the noise created by vehicles.</li> <li>◆ Change to lower gear before reaching residential areas to reduced the noise created.</li> <li>◆ Bleepers must be switched off and exchanged for flashing lights if legally allowed and if the sound bothers residents (especially where sound is carried by the wind).</li> <li>◆ Mining must take place between sunrise and sunset (working hours) mainly unless an urgent contract requires longer hours in which case it must be cleared with the landowner who's residence is the closest to the activity.</li> <li>◆ The vehicles must be mechanically sound to reduce noise generated as a result of friction or movement of mechanical parts.</li> <li>◆ Should the noise become a problem a berm (as noise barrier) can be constructed that will not only screen most of the sound generated, but also function as a visual screen. For long-term activities, trees can also be planted on the berm or around the mining activity. The noise barrier can be 2 – 3 m high and should be erected about 6 m from the school boundary.</li> <li>◆ Stored topsoil can be used to construct a berm. Topsoil stockpiles should preferably not be higher than 2 m but should not exceed 5 m.</li> </ul>
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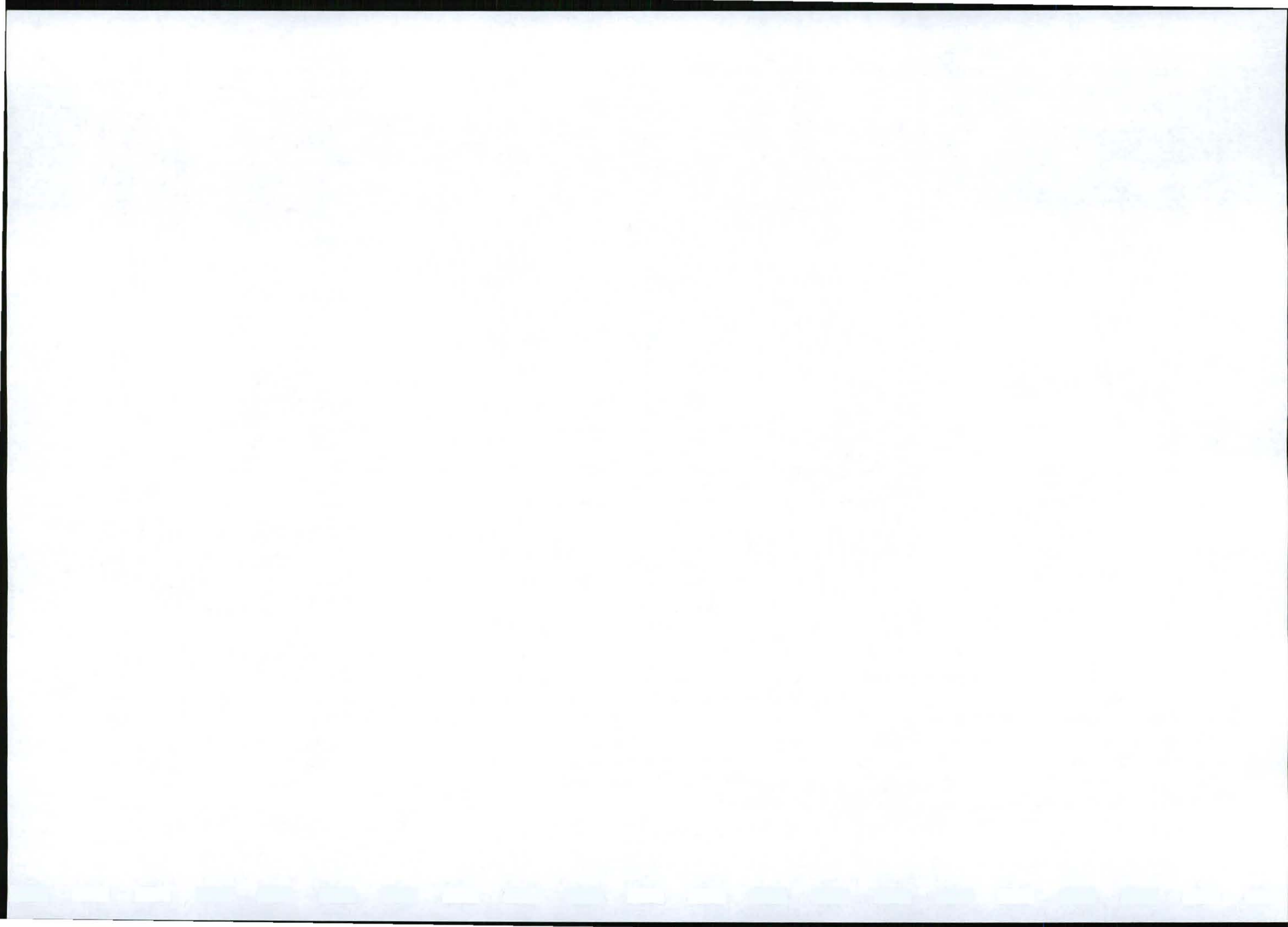


Noise generated by vehicles (including tractors) and farm equipment (including pumps and generators) is the main source of noise pollution. Current vehicular noise results from trucks and vehicle traveling on the roads in the area. The significance of the noise impact created by the trucks is determined by the type and number of receptors as well as the intensity and duration of the impact created by, for instance, the volume of vehicles or trucks passing the receptor at a given time. However, the severity of the impact also depends on the distance of the noise from the receptors as well as the frequency (pitch) of the noise. Any noise created by vehicles as well as the other activities will mask the noise created by the earthmoving machinery to some extent, but on the other hand the noise can also be cumulative if added to the existing noise created in the area (mostly farm noises). Noise associated with the R346 (not only the mining activity) and other noise in the vicinity is continuous whereas mining is periodic, with removal and loading only occurring when a truck arrives on site and leaves the site. This situation is also expected to occur at this proposed mine. Measurements conducted by a specialist on other similar mines produce the results in Table 24 below. According to the readings there is little difference between the vehicles used on the farm and a mine truck. Looking at the measurements, the ideal would be for the trucks to drive around a steep area such as a hill, rather than over it (prevent the changing to lower gears). Because the site is located in a rural area, the noise receptors are few and far between. The sound is screened by the vegetation that remains on site

Table 16: Noise measurements in dB

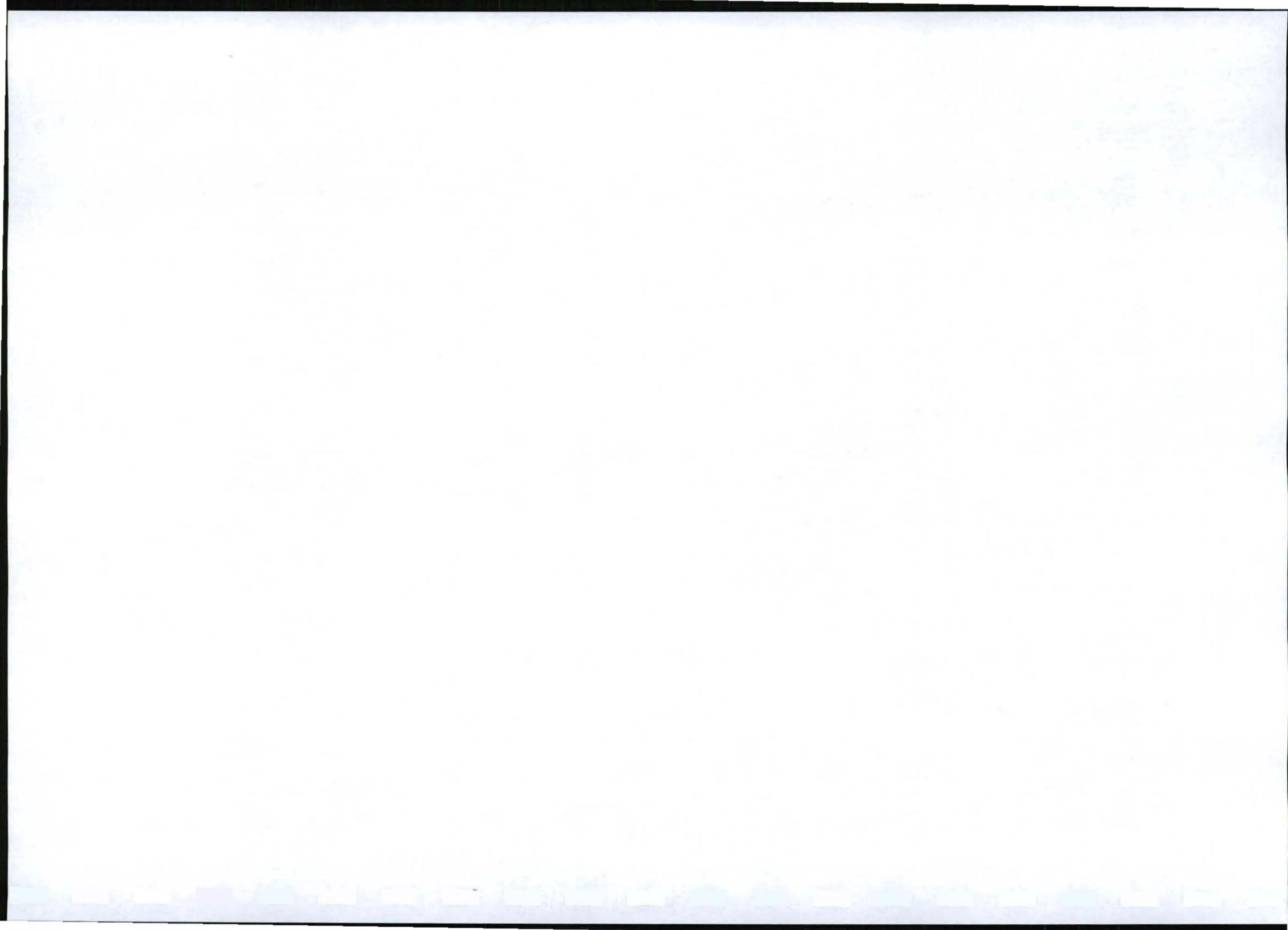
Vehicles	A		B		C (steepest area)		D	
	Up hill	Down hill	Up hill	Down hill	Up hill	Down hill	Up hill	Down hill
Truck (mining)	44.9	40.1	50.0	50.1	73.6	70.0	49.8	50.2
Tractor	44.9	43.6	61.0	59.0	78.9	74.8	49.7	46.9
Truck (farming)	44.7	43.9	61.4	58.6	74.1	70.9	48.7	48.8
a. Vehicles	b. A (dB)		c. B (dB)		d. C (steepest )		e. D (dB)	
f.	g.	h. D o w n h i l	i.	j. D o w n h i l	k.	l. l i l l	m.	n. l i l l
o. Truck (mining)	p. 4	q. 4 n	r.	s. 5 n	t.	u. 7 n	v.	w. 5 n

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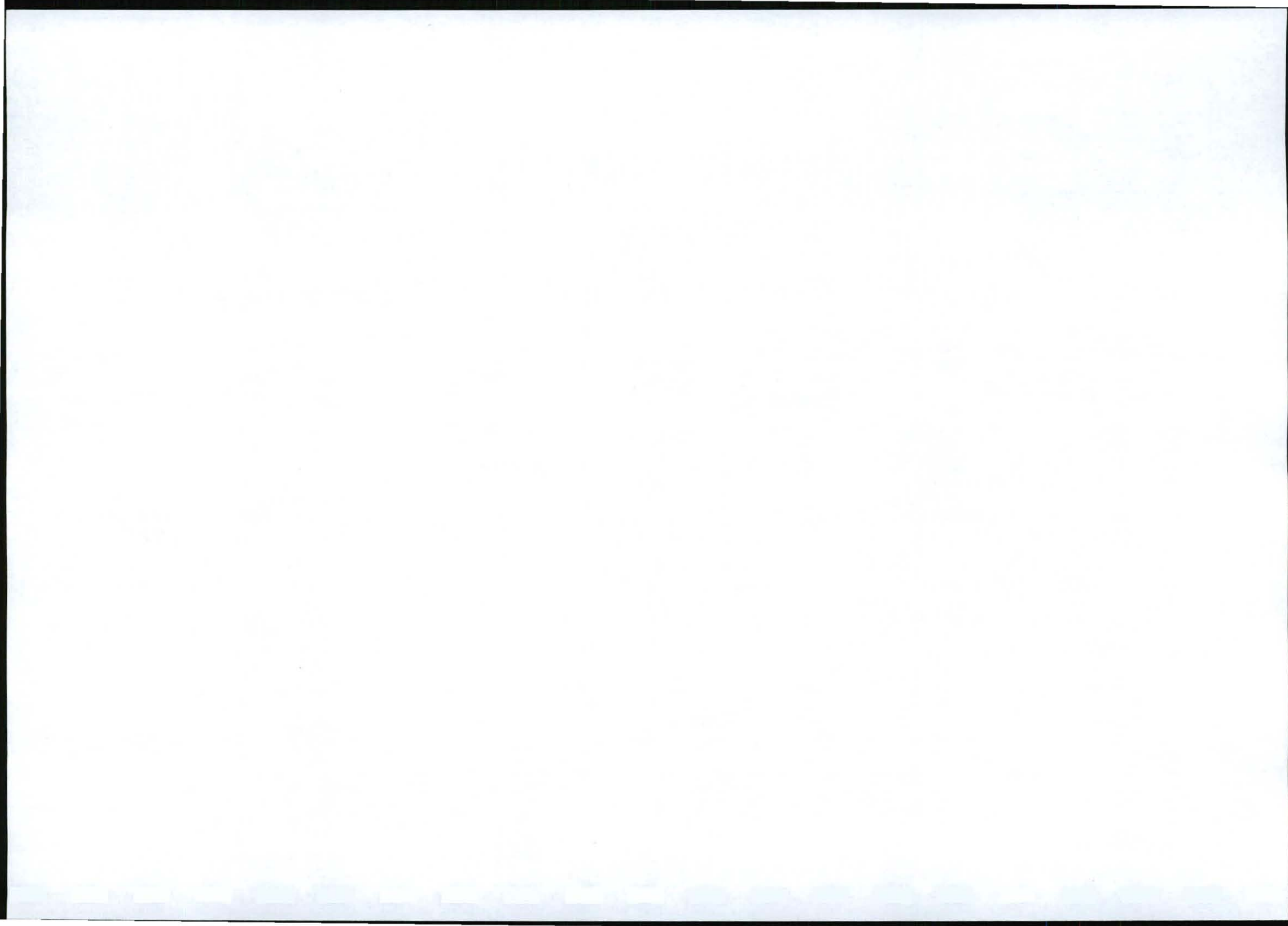


<p><b>Impact on surface water</b></p>	<p>If there is surface water on the site there is a chance that water could be polluted.</p>	<p>Low to negligible.</p>	<p>Surface water is not present on site in the form of dams, drainage channels, streams, rivers or wetlands.</p>	<ul style="list-style-type: none"> <li>◆ The excavation will not be within 100 m from the centre of the rivers or streams, 25 m from any wetlands or drainage channels and not within 10 m from any man made dam.</li> <li>◆ As further precaution, remove all contaminants (spills from contaminants) to prevent runoff water from flowing over them and collecting toxic materials as it drains towards river courses, streams, dams, etc.</li> <li>◆ Any water flowing from the mine area will be collected in a settling pond or sump where the suspended solids can settle before clear water is allowed to enter any rivers, streams, dams or other watercourses.</li> <li>◆ Water used for dust suppression will not be allowed to contain contaminants - contaminants must be removed before using water (such as that collected in the borrow pit).</li> <li>◆ Natural watercourses may not be diverted without permission from DWAF.</li> </ul>
<p><b>Impact on cultural and heritage sites.</b></p>	<p>Heritage and archaeological sites have been found in the East London area.</p>	<p>Negligible</p>	<ul style="list-style-type: none"> <li>◆ The site is small (1.5 ha) and the impact will be relatively small compared with the rest of the area.</li> <li>◆ The heritage and archaeological assessment did not note any sites or artefacts</li> </ul>	<ul style="list-style-type: none"> <li>○ Graves, if found, must be reported to the SAP and SAHRA and may not be disturbed.</li> <li>○ Excavations must avoid the heritage/cultural/ archaeological site - these may not be disturbed.</li> <li>○ If any archaeological or heritage material is found during mining it must be dealt with in accordance with the National Heritage Resource Act (No. 25 of 1999).</li> </ul>
<p><b>Impact on infrastructure</b></p>	<p>The excavation of resource could cause damage to infrastructure if it occurs too close to such structure.</p>	<p>Negligible</p>	<p>There are no plans to damage any infrastructure. Improvements may occur.</p>	<ul style="list-style-type: none"> <li>◆ The excavation will be within a reasonable distance from any buildings (at least 10 m) and at least 9 m from fences, gates and other infrastructure.</li> <li>◆ Any accidental damage will be repaired or replaced as the case may be (to fences or gates).</li> <li>◆ A new gate may be installed at one of the approved accesses to the site, as there is currently just a "fence gate".</li> <li>◆ All access roads must be repaired and maintained as discussed above. Where necessary, material from the site (sabunga) will be used to strengthen</li> </ul>





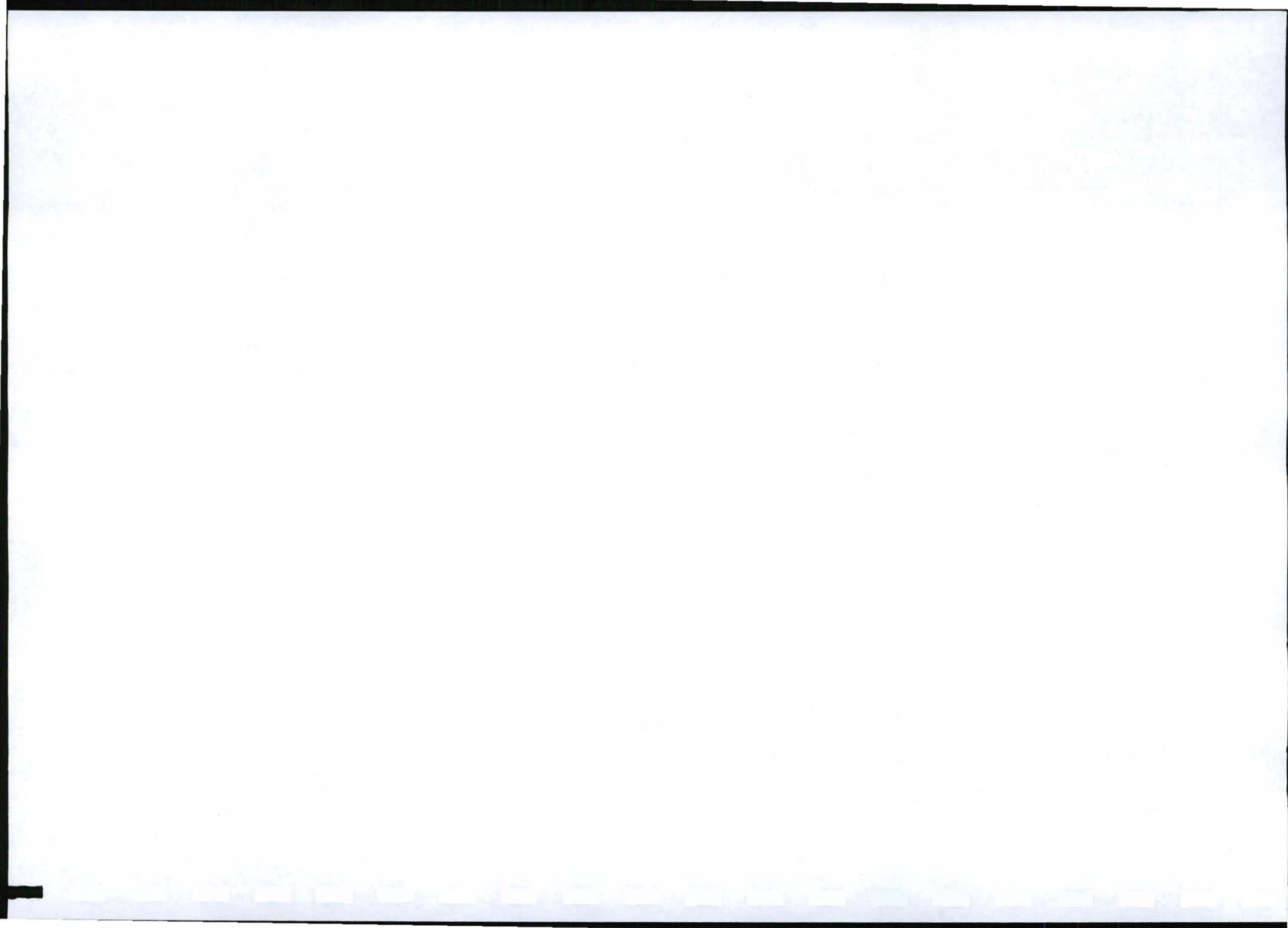
				the road surface.
<b>Impact on Yaps</b>	Health, dust, noise, safety.	Negligible to scale and duration of the operation (each is discussed separately in the assessment)	<ul style="list-style-type: none"> <li>◆ The activity is conducted on farms where the people live far apart. The activity will not impact on any people other than the landowner or workers. The activity is short term (two year application that can be extended to a maximum of 6 years)</li> <li>◆ The possible negative impacts that can occur can be managed or mitigated.</li> <li>◆ This is a rural location of the site with settlements not in close proximity</li> </ul>	<ul style="list-style-type: none"> <li>◆ No action needed during this phase except for considerate and safe driving on shared access roads. Trucks may not exceed the speed limit on and off the mine site.</li> <li>◆ Manage impacts identified by Yaps as far as is practicable or possible.</li> <li>◆ Log all complaints and provide in the annual performance assessment report.</li> <li>◆ The management of dust is discussed elsewhere in this document.</li> <li>◆ Noise management is discussed elsewhere in this document.</li> <li>◆ Visitors to the mine may only allowed on the mine with permission and supervision of the mine owner or the contractor (when and where applicable).</li> </ul>
<b>Impact on infrastructure</b>	Mining can damage infrastructure (vehicles accidentally bumping against fences, gates, buildings, etc.)	Low to negligible. This will depend on whether it is necessary to remove fences, gates, etc.	There is no infrastructure on or near the site.	<ul style="list-style-type: none"> <li>◆ Only remove fences and gates where there is no alternative. Replace these structures as soon as possible.</li> <li>◆ Repair roads if damage occurs.</li> <li>◆ No mining in close proximity of residence. No mining within 30 m of power lines, no mining within 100 m of the main roads, no mining within 25 m off any other permanent structure (dams, fences, gates).</li> </ul>
<b>Heritage sites</b>	Impact of mining on cultural and heritage sites.	Negligible	The Phase 1 heritage and archaeological assessment is negative – no sites or artefacts were found and there is no heritage or cultural sites.	<ul style="list-style-type: none"> <li>◆ Should any graves or sites be found during mining, SAHRA and the South African Police will be contacted.</li> <li>◆ If sites are found a specialist will be appointed to do further assessments</li> </ul>
<b>PHASE 3 OF THE OPERATION IS REHABILITATION PHASE</b>	<b>Potential impacts of the activities in each phase</b>	<b>Rating: High/medium/low/negligible</b>	<b>Mitigation</b>	<b>Management</b>
TOPSOIL MANAGEMENT DURING REHABILITATION.	The topsoil that was removed and stored is not replaced over the mined areas (no rehabilitation takes place).	Negligible	<ul style="list-style-type: none"> <li>◆ The topsoil is retained specifically for rehabilitation that is a requirement according to the proposed rehabilitation plan and mine.</li> <li>◆ Topsoil or soil mixed with the topsoil cannot be used by the building and construction industry.</li> </ul>	<ul style="list-style-type: none"> <li>◆ All the available topsoil must be removed, stored and replaced.</li> <li>◆ No topsoil may be sold or taken from the site.</li> <li>◆ The area must be rehabilitated and this will be included in the contractual requirements of the applicant with the DME (in this document).</li> <li>◆ If</li> </ul>





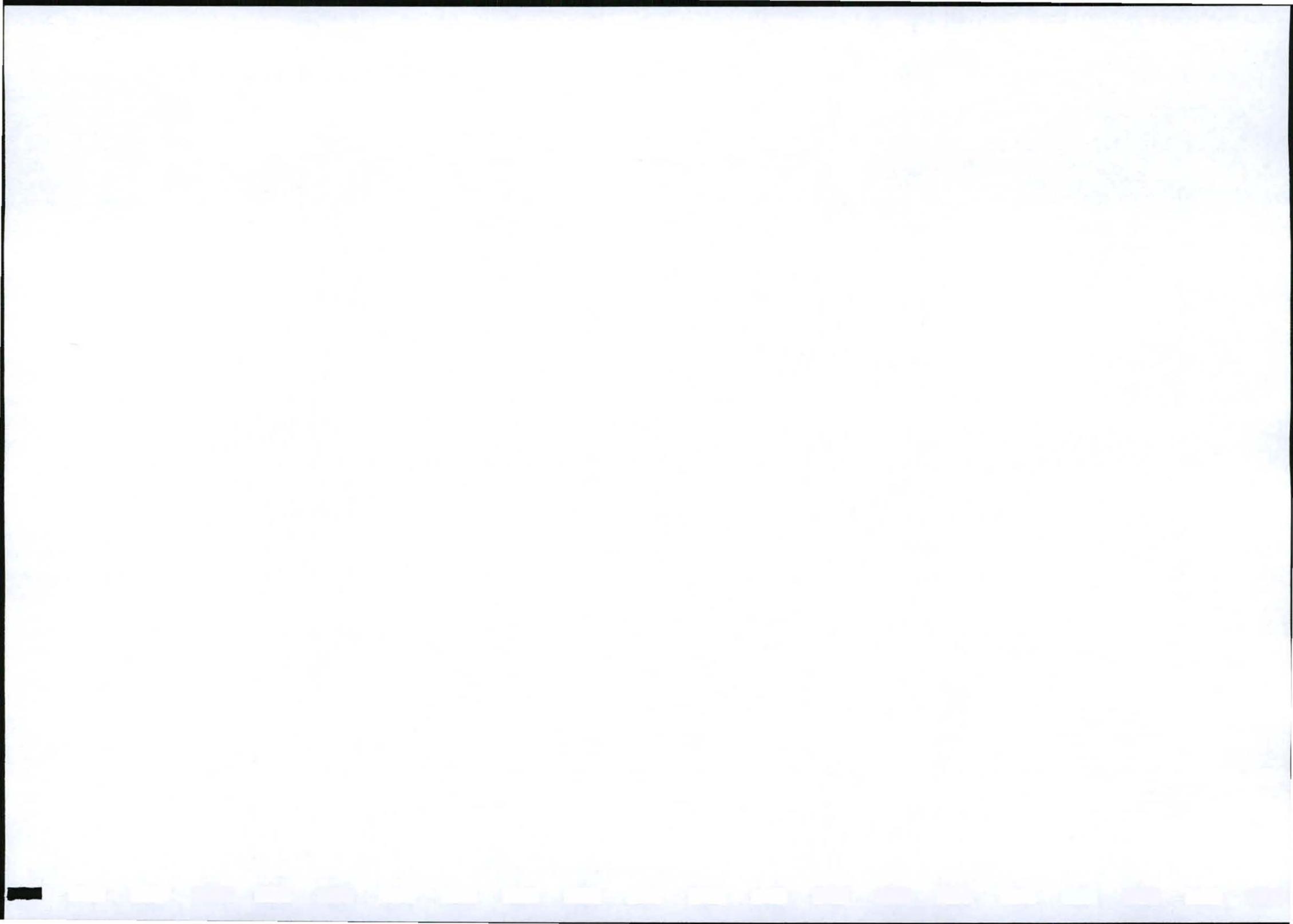
EMPLAN COMPILED FOR MINING ON PORTION 1 OF FARM 800, GONUBIE. EAST LONDON

				the roads are no longer required, they must be lifted, graded or ripped and the topsoil replaced.
	When replacing the topsoil the machinery drives over the topsoil to spread and level it. During the process the topsoil can be compacted, therefore impacting on the capacity for the soil to absorb water and root penetration.	Low	<ul style="list-style-type: none"> <li>◆ The topsoil compaction is inevitable, although the extent of the compaction can be limited. The topsoil can be treated to reduce the effect.</li> </ul>	<ul style="list-style-type: none"> <li>◆ When replacing the topsoil and levelling the area, drive over the area as little as possible. If possible use the blade or bucket of the earthmoving machine to scrape and loosen the soil.</li> <li>◆ If further loosening of the soil is required, a tractor with a plough, ripper or grader can be used.</li> </ul>
	The compacted topsoil is not loosened before the reinstatement of the vegetation and the vegetation success is hampered.	Low	<ul style="list-style-type: none"> <li>◆ The loosening of the soil forms part of the rehabilitation i.e. the preparation of the soil for the reinstatement of the vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>◆ As stated under the previous point, the soil will be loosened before planting or seeding takes place.</li> </ul>
	Topsoil that has been stockpiled for longer than 6 months loses its viability.	Low	<ul style="list-style-type: none"> <li>◆ Apart from block one, the topsoil from the other blocks will be replaced on another block as soon as it is removed from the block to be mined.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Replace the topsoil as soon as possible after it has been removed from an area to be mined.</li> <li>◆ Any topsoil that has been stockpiled for longer than 6 months will be ameliorated.</li> <li>◆ Replace the soil. Ameliorate the topsoil if necessary after replacement. The topsoil will be stored for such a short period that amelioration will not be required.</li> <li>◆ If the vegetation struggles to establish after the topsoil has been replaced immediately after it has been removed, the topsoil must also be ameliorated.</li> </ul>
	The reinstatement of vegetation does not take place and erosion of the exposed soil will take place.	Low	<ul style="list-style-type: none"> <li>◆ Management measures are in place to reduce the potential of wind and water erosion on exposed soil.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Straw or reeds can be placed over exposed areas until the vegetation has established.</li> <li>◆ Ensure trenches, ditches and contours are in place so that topsoil is not washed away.</li> </ul>
	Mining too deep to successfully rehabilitate the area.	Negligible	<ul style="list-style-type: none"> <li>◆ Elevation pegs can be used to ensure that the depth of mining does not exceed the maximum depth of the excavation across the site.</li> </ul>	<ul style="list-style-type: none"> <li>◆ The soil extends beyond 4 m and mining will remain at least one meter above any root and water-limiting layer.</li> </ul>
	<u>Soil fertility.</u> Topsoil is compacted or contaminated and this reduces the soil fertility	Low. With mitigation and management, negligible	<ul style="list-style-type: none"> <li>◆ Topsoil is a valuable commodity as it contains organic material and embedded seeds. It must be managed (preserved and protected) during the mining operation. Therefore, the topsoil will not be discarded but stored, and replaced after inspection of the prospect holes.</li> <li>◆ Soil on the site is compacted and microbes and organisms in the soil cannot function optimally.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Store the topsoil for as short a period as possible.</li> <li>◆ Ameliorate replaced topsoil if necessary, for example when re-vegetation success is low.</li> <li>◆ Replace vegetation as soon as possible to reduce the potential for water and wind erosion.</li> <li>◆ Do not rip, plough or scarify deeper than the depth of the topsoil to prevent the mixing of the topsoil and subsoil.</li> </ul>





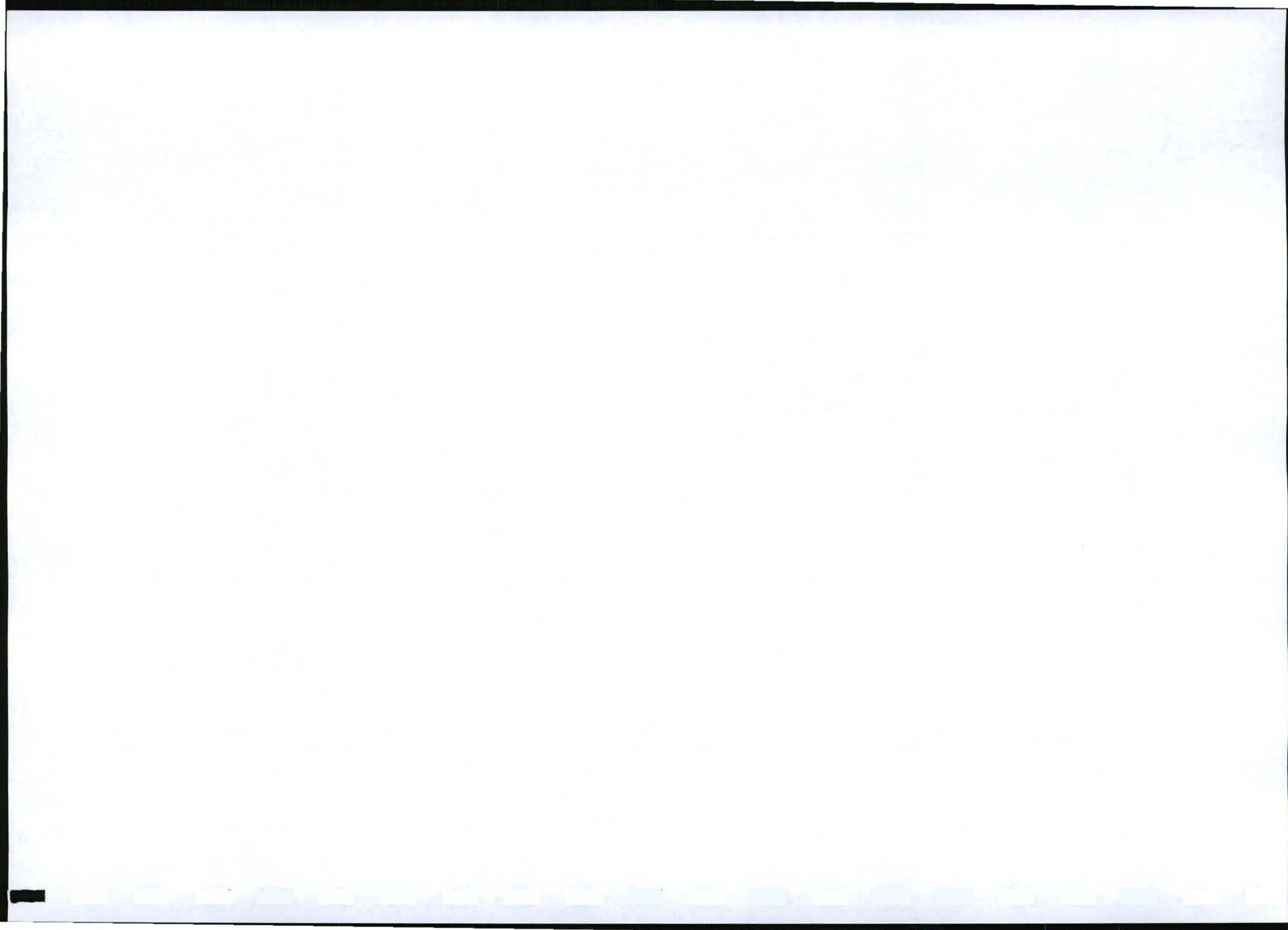
	<b>Impact on Yaps</b>	Low-negligible. When mitigated and managed, negligible	<ul style="list-style-type: none"> <li>◆ The area is rural with people living far apart. The activity will not be visible all the time.</li> <li>◆ Damage to infrastructure will not be permanent and will be repaired.</li> <li>◆ Prospecting activities on site is short term – therefore of short duration.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Repair infrastructure damaged.</li> <li>◆ Take complaints seriously and try to accommodate Yaps where practicable.</li> <li>◆ Clean spills</li> <li>◆ Rehabilitate site to the satisfaction of the landowner (and the regional Manager: DME).</li> <li>◆ Spend as little time possible on site to reduce the impact.</li> <li>◆ Manage dust and noise – keep to the arranged daily commencement and termination time.</li> </ul>
<b>Supporting activities</b>	Water extracted or supplied	Low	Water will be used for dust repression when required. The scale of the operation is small and the water required will not be significant. Water will be obtained from the landowner (man made dam or if necessary borehole)	Use water sparingly.
	Firewood	NA	None will be collected on site.	No action required
	Workshop: repairs and maintenance of equipment	Negligible. When mitigated and managed, negligible	The workshop would either be off site or repairs and maintenance will be conducted at the landowner's facility (if permission can be obtained).	No action, no impact
	Most probable fuel storage	Low-negligible. When mitigated and managed, negligible	A diesel bowser will be used to transport fuel to the equipment and to store fuel. The alternative (drums on site) is discussed above.	The management of spills and storage is discussed above. The management of toxic waste is also discussed in detail in C6.6.2 and C6.6.3



**C.7 ENVIRONMENTAL MANAGEMENT PLAN: ENVIRONMENTAL IMPACT ASSESSMENT**

For most mines the management of the impacts is similar as it involves not only managing the impacts that occur, but also management of the operation to prevent impacts from occurring. On a mine site there are standard operational and management procedures that relate to all mining activities and then some that are specific to a particular site. Those particular to a specific mine site are related to differences in the environmental conditions.

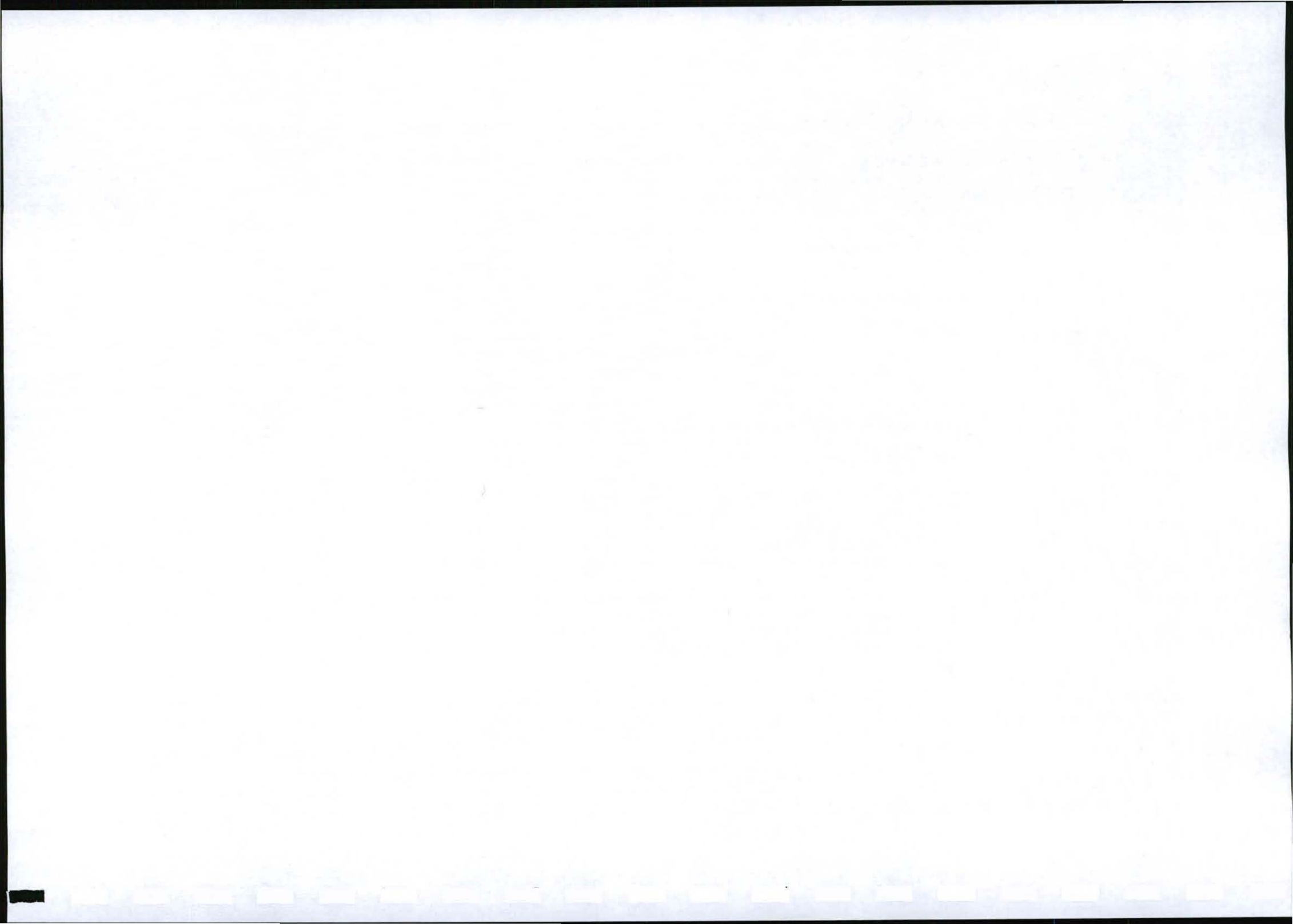
ENVIRONMENTAL MANAGEMENT PLAN: MANAGEMENT OF IMPACTS				
	Rules and objectives	Action Plan	Requirements for implementation	Schedule
A.	To assign rules and regulations for the implementation of the EMP requirements	The company (including the workforce) is ultimately responsible for compliance with the EMP	Knowledge of the contents of the EMP. Knowledge of the mining operation and mine plan. In the case of this mine, the operations will be managed by the applicant and mine owner together with the operations manager and the site manager/supervisor.	Immediately on the approval of the EMP
		The company (through the mine owner and site manager) is ultimately responsible for the implementation of the EMP.	The mine owner will also be the site manager, but with training and through skills development, the earthmoving operator will be trained to manage the site and the basic activities on the site with the mine manager overseeing operations (including the rehabilitation).	Immediately on the approval of the EMP
		If the mine manager is not able to conduct such activities, appoint a responsible person for the environmental induction training, environmental site assessment and performance monitoring.	Assigning responsibility and liability for compliance with the EMP. In this case the site manager/supervisor and the operations manager.	Immediately on the approval of the EMP
B.	To ensure that all members of the mining team are aware of their responsibilities towards environmental protection and requirements	All personal involved in the project will undergo environmental induction training.	On a mine such as this, much of the training is obtained on site during normal operations, but the difference is that specific attention is placed on how the activity is affecting the environment and best practices are introduced to avoid or minimize any impacts. Induction training in this case would be to set out rules and procedures that must be followed. These rules are also relevant to the contractors or truck drivers. Environmental Induction Programme including: <ul style="list-style-type: none"> <li>• Environmental awareness Job specific training</li> <li>• Emergency procedures Code of conduct (if available)</li> </ul>	Prior to commencement of work on site.



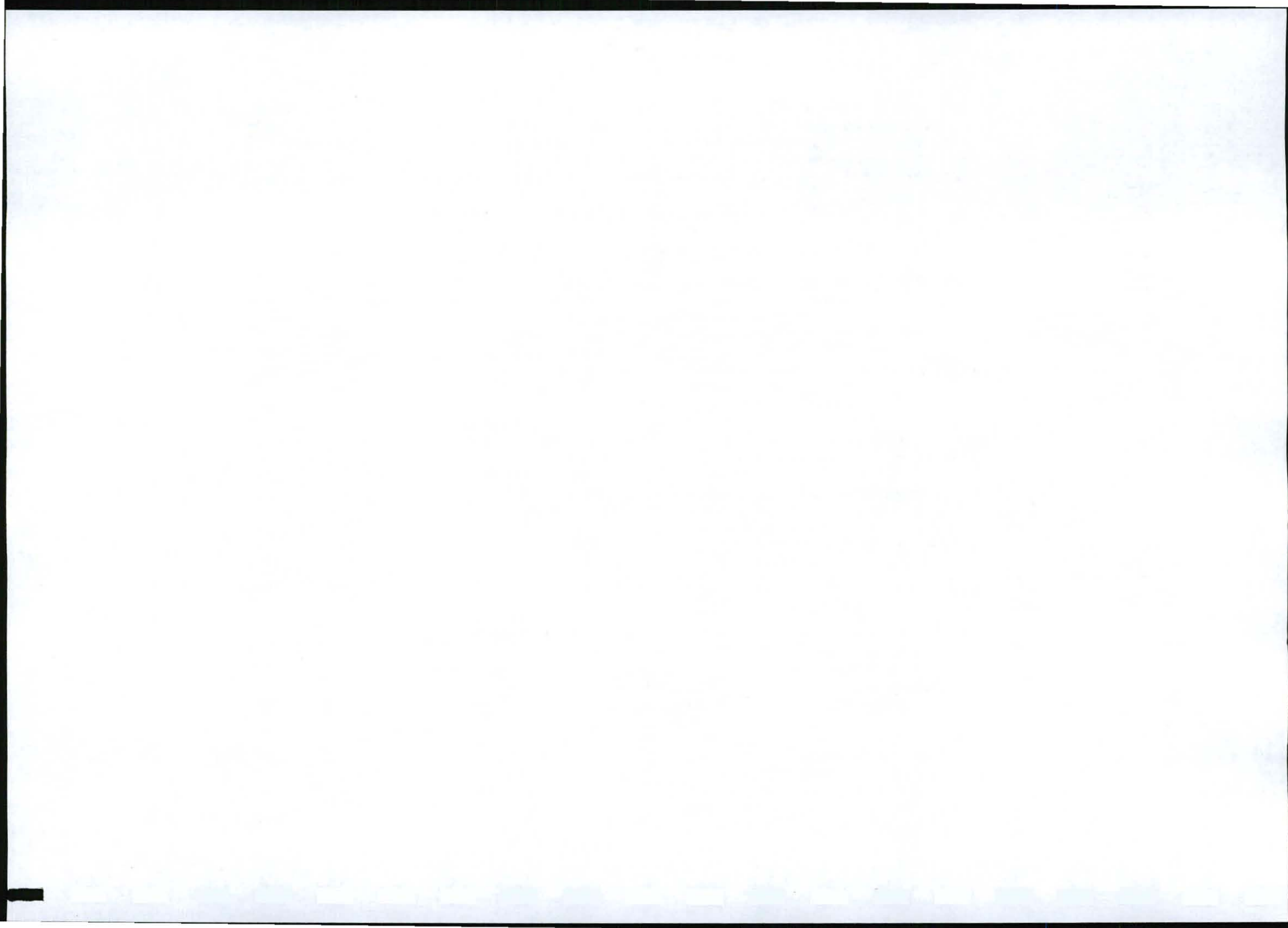


	of the EMP.	All personnel should sign a register acknowledging that they have understood and will adhere to the code of conduct.	Code of Conduct and Emergency Procedure posters can be displayed on site if necessary. In the case of this mine, communicating the requirements or providing the workers on site, the truck drivers and visitors to the site with a paper copy of the requirements.	When appointed/prior to commencement of work
C.	Reduce the impact on the land capacity and land capability	Managing the removal of topsoil	<p><b>The mine area is divided into blocks to ensure that mining occurs systematically so that all the topsoil is not removed from the site at once.</b></p> <ul style="list-style-type: none"> <li>Remove the vegetation before removing the topsoil.</li> <li>The most viable topsoil (most organic material and nutrients) is the first 300 to 500 mm of soil. However, soil contaminated by organic material cannot be utilized for industrial use and will also be removed for storage. The proposal is that at least 300 mm of topsoil should be removed and stored. There should, however, be about 500mm of material above the water and root-limiting layer as this 200 mm should rather be left undisturbed on the mine floor than removing it and replacing it. After mining, the topsoil is replaced over the remaining subsoil.</li> <li>If using a modern earthmoving machine, the blade of the earthmoving machine must be set to the correct level to make sure that the correct amount of topsoil is removed. On older machines the depth to which the blade is inserted in the resource is dependent on the training of the operator. To assist the operator, elevation pegs can be used to indicate the amount of topsoil to be removed. If an excavator is used, the operator must have adequate training to ensure he/she can judge the correct amount of material to be removed.</li> <li>The topsoil that is removed must be stored for later replacement and may not be removed from site, used on any other area than the mine area and may not be sold.</li> <li>Remove and storage of topsoil store separately from any subsoil (stored or mined). The topsoil is removed first and replaced last.</li> <li>Topsoil must also be removed from the areas where roads will be constructed (haul road and other access roads, if required). The topsoil is removed and stored at least 2 meters from the shoulder of the road to prevent trampling and compaction by the vehicles.</li> </ul>	During preparation for mining and continuously during mining
		Managing the storage of the topsoil and the topsoil stockpiles (Also see Topsoil Management Programme below in Section 6.1.2).	<ul style="list-style-type: none"> <li>Topsoil is stored separately from the subsoil to prevent the dilution of the nutrients per volume of the topsoil and thereby reduce the viability of the topsoil.</li> <li>Store topsoil away from the mine area and access roads so that it will not be trampled and compacted by trucks and earthmoving equipment.</li> <li>Store the topsoil away from the edge of a mining area so that there is no possibility for the topsoil to slide into the mine area where it can be trampled or where it can mix with the subsoil.</li> <li>Store topsoil where it will not be washed away by storm water or surface water run-off. Construct diversion or collection ditches or trenches above the stockpiles to divert surface water run-off and prevent the topsoil from being washed away. Berms instead of trenches or ditches can also be used. See erosion control measures given in C.6.6.2 of the document as well as below.</li> <li>Store topsoil away from any alien vegetation – especially if the alien vegetation was removed from the site and left on site to dry out.</li> <li>Topsoil stockpiles may not be high than 5 meters. However, to reduce the possibility of wind erosion occurring, the stockpiles will, as far as is practicable, be 2 m. This is achieved by stockpiling the</li> </ul>	During preparation for mining and continuously during mining and rehabilitation





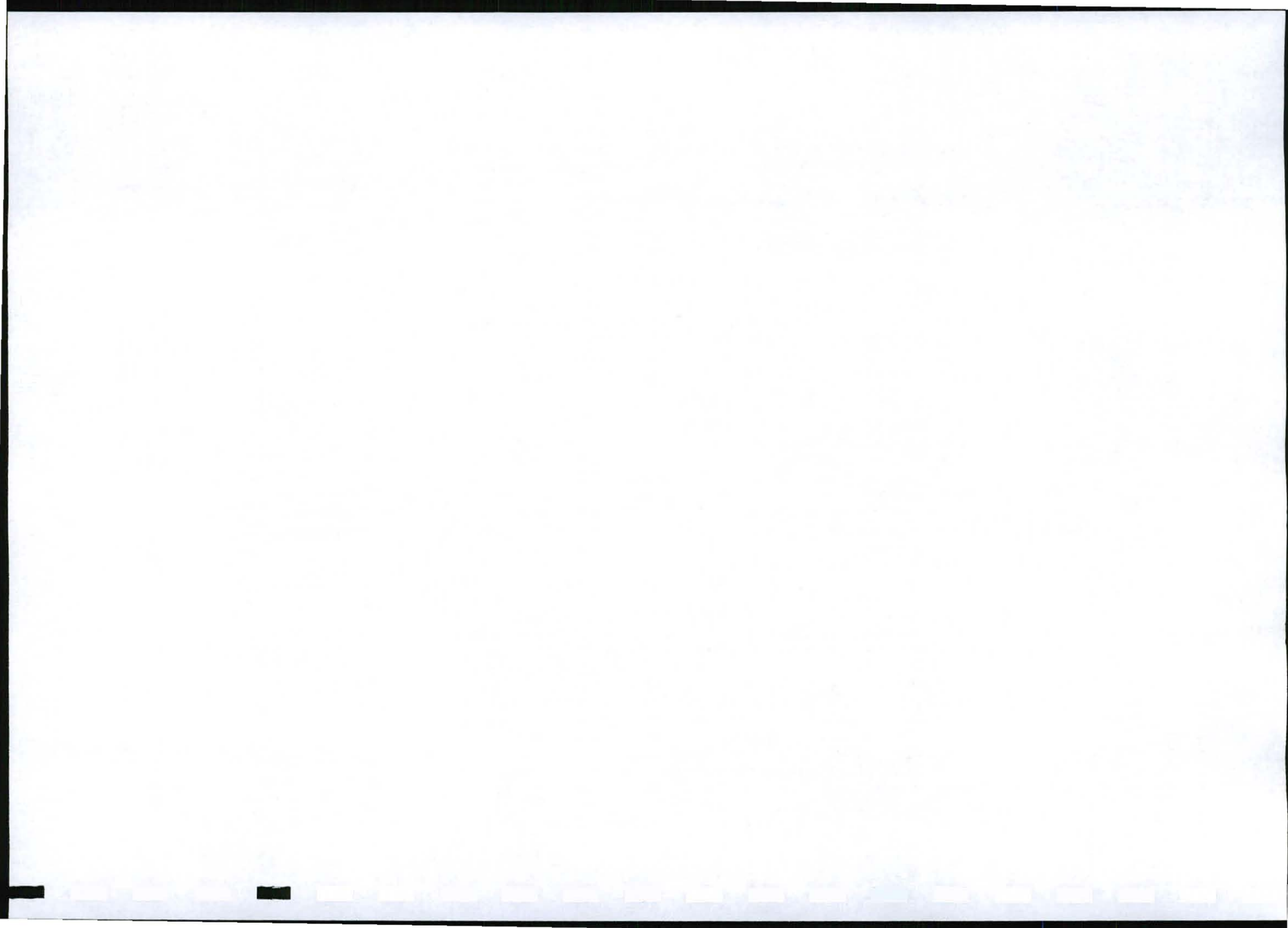
			<p>topsoil out along the border or side of the block and spreading the stockpile over a distance.</p> <ul style="list-style-type: none"> <li>• Adhere to the mine plan and schedule to ensure that concurrent mining and rehabilitation make provision for topsoil to be stored for as short a period as possible. Replace the topsoil as soon as possible after mining of an area has occurred. Mine and rehabilitate on a 1:1 basis. Is ideal. For every section mined a section equal in size is rehabilitated. This is, however, difficult in a borrow pit situation where the mine area increases by moving the previously mined face back. In most cases rehabilitation of the faces can only occur after mining has been completed.</li> <li>• The aim is to store topsoil as for as short a period of time as possible. Where topsoil is stored too long its viability is compromised. If the topsoil was stored for longer than 6 months, the topsoil must be ameliorated and enriched. The topsoil is enriched with fertilizer and compost (ameliorated).</li> <li>• Topsoil stored for shorter periods are also treated if the subsequent re-vegetation is poor. The topsoil is spread over the mined area and organic materials and nutrients are ploughed into the soil. Lupines can be planted to enrich the soil before utilizing the soil for other annual crop cultivation.</li> <li>• Topsoil stockpiles slopes should not exceed a gradient of 1:3.</li> </ul>	<p>During preparation for mining and continuously during mining and rehabilitation</p>
		Monitoring of topsoil stockpiles	<ul style="list-style-type: none"> <li>• Delineated droppers can be placed on the stockpile to monitor the erosion.</li> <li>• To prevent or reduce erosion of the topsoil cover the topsoil stockpile with, for example, reeds, branches, bushes, straw, shade cloth and bark until vegetation has managed to root on the topsoil.</li> <li>• Initially annual crops can be planted on the stockpile to bind and stabilize the soil. Seeds, such as that of annual crops previously planted or grasses that occurred on the site are embedded in the topsoil and normally germinate during the rain episodes and cover the surface of the stockpile (they germinate and grow when water becomes available).</li> <li>• To facilitate vegetation growth on the stockpile indigenous (perennial) grass seeds can be sown or grass can be planted on the topsoil stockpile. The reinstatement of vegetation can be discussed with the landowner just prior to planting or seeding.</li> <li>• Maintain and repair the diversion ditches/trenches or berms when required.</li> <li>• Remove all alien vegetation from the topsoil stockpiles as soon as they are seen. Checking for invasive plants should occur everyday, but clearing must be conducted at least monthly or before the plants are too difficult to remove or to control.</li> </ul>	<p>Continuously during mining and rehabilitation</p>
		Concurrent mining and rehabilitation	<ul style="list-style-type: none"> <li>• Mine small areas at a time while keeping safety on the mine in mind. There must be space for the maneuvering of the earthmoving equipment, trucks and for the loading of the material onto the trucks.</li> <li>• Do not remove all the topsoil over the entire mine area all at once. The mine is divided into blocks to better manage and monitor the activities. Remove topsoil section by section as mining progresses. Topsoil is cleared systematically in strips along the face. If strips are cleared along the face (topsoil is cleared systematically), the removal of the topsoil and vegetation and the potential for erosion to occur is reduced.</li> <li>• Topsoil is replaced as soon as possible after mining is completed over a block. .</li> </ul>	<p>During mining and rehabilitation</p>
		Management and monitoring of the replacement of topsoil	<ul style="list-style-type: none"> <li>• Ripping, scarifying or ploughing of the mined areas and also the floor must preferably precede the replacement of the topsoil if the mine floor has become compacted as result of the heavy vehicles driving or maneuvering on the mine. Ripping of the mine floor should occur perpendicular to the natural contours of the land to facilitate drainage from the site. Loosening of the mine floor is especially important in the case where the soil on the mine floor is in reach of the plant roots as the</li> </ul>	<p>During mining and rehabilitation</p>



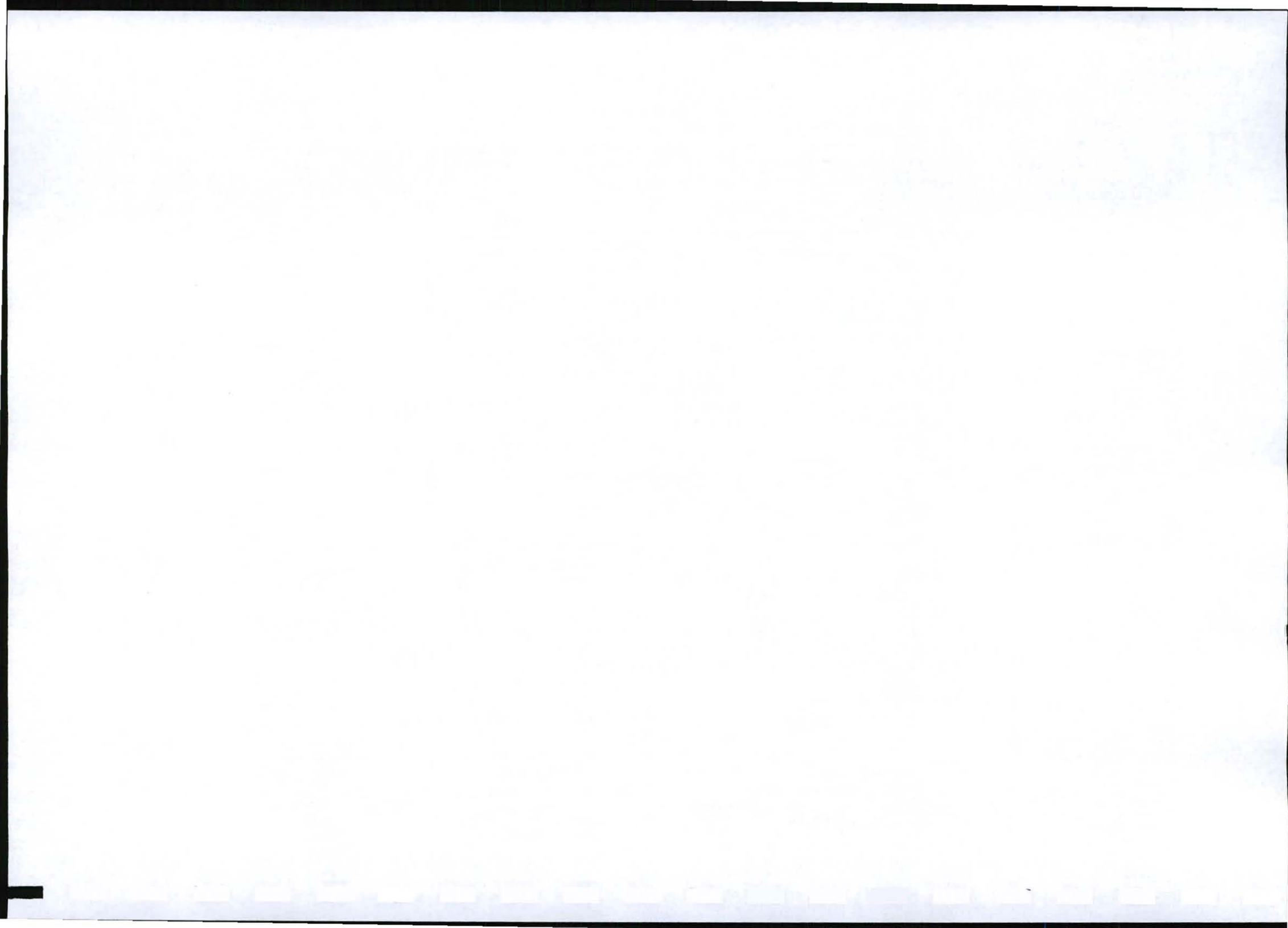


			<p>loosening will allow the roots to penetrate the soil easier.</p> <ul style="list-style-type: none"> <li>• Ripping, scarifying or ploughing of the mine floor is also important to facilitate the absorption of water as well as the lateral and vertical movement of water through the soil. This promotes drainage as well as prevents erosion of the rehabilitated areas, especially if the area is located on a slope.</li> <li>• After replacement of the topsoil, the depth of the topsoil is measured to ensure the required amount of topsoil is returned. No less than 300 mm of topsoil may be replaced.</li> <li>• Rip the surface (after replacement of the topsoil) parallel to the contours. Ripping loosens the soil and allows effective root penetration, water absorption, drainage of water, and movement of water in the soil as well as aeration of the soil. Ripping or ploughing of the surface layer (topsoil layer) should be to a depth of about 200 mm.</li> <li>• Re-vegetation must occur as soon as possible after the replacement of the topsoil but only forms part of the rehabilitation during the rain episode or season when most raining occurs so that there is water available for the germination of the seeds and to optimize the success for the reinstatement of the vegetation.</li> <li>• Construct contours parallel to the natural contours of the area.</li> <li>• Where necessary make use of trenches and diversion ditches above the rehabilitated areas to control and divert water until the vegetation has established</li> </ul>	
		Management and monitoring of the rehabilitated area	<ul style="list-style-type: none"> <li>• Remove invasive plants from rehabilitated areas (if they occur). It is vital that any infestation by alien vegetation be prevented at all cost (see alien vegetation management plan in section 6 of the document). The plants must be removed as soon as they are observed or must be cleared from the mine site at least once a month and before they are taller than 500 mm. On this agricultural land there is no alien vegetation, but it sometimes happens that alien vegetation does root on mine site, or even on the rehabilitated areas. This is most often as a result of seeds being transported when they get attached to the wheels of the trucks or transported by people or animals. The wind can also transport seeds. Where possible, a specific area must be prepared for the alien vegetation that is removed and this area must be away from any topsoil or from the rehabilitated areas.</li> <li>• Maintain all contours and diversion or collection ditches that were made to control surface water on and around the mine site and the topsoil stockpiles.</li> <li>• The measurement of the depth of the topsoil replaced must be included in the monitoring programme to make sure that the correct amount of material is replaced after mining. Profile holes should be made every 50 m to measure this. See proposed Monitoring and Performance Assessment in this document.</li> </ul>	During mining and rehabilitation
		Construction of haul and access roads	<ul style="list-style-type: none"> <li>• Existing roads are used as far as possible, but if road (haul roads) need to be constructed on the mine, the topsoil is removed and stored for later replacement. The topsoil is normally stored about 2 meters from the shoulder of the roads. This is a sufficient distance to protect the topsoil.</li> <li>• Sabunga can be used to re-enforce the roads. Building rubble should not be used as sub-base or base material.</li> <li>• Roads should be made parallel to the natural contours to reduce the chances of erosion occurring.</li> <li>• Before replacing any topsoil, rip or scarify the mine or road surface to facilitate rehabilitation (root penetration and the absorption of water). Ripping or scarifying can be done with earthmoving equipment or with appropriate agricultural equipment.</li> </ul>	Prior to and during mining and rehabilitation





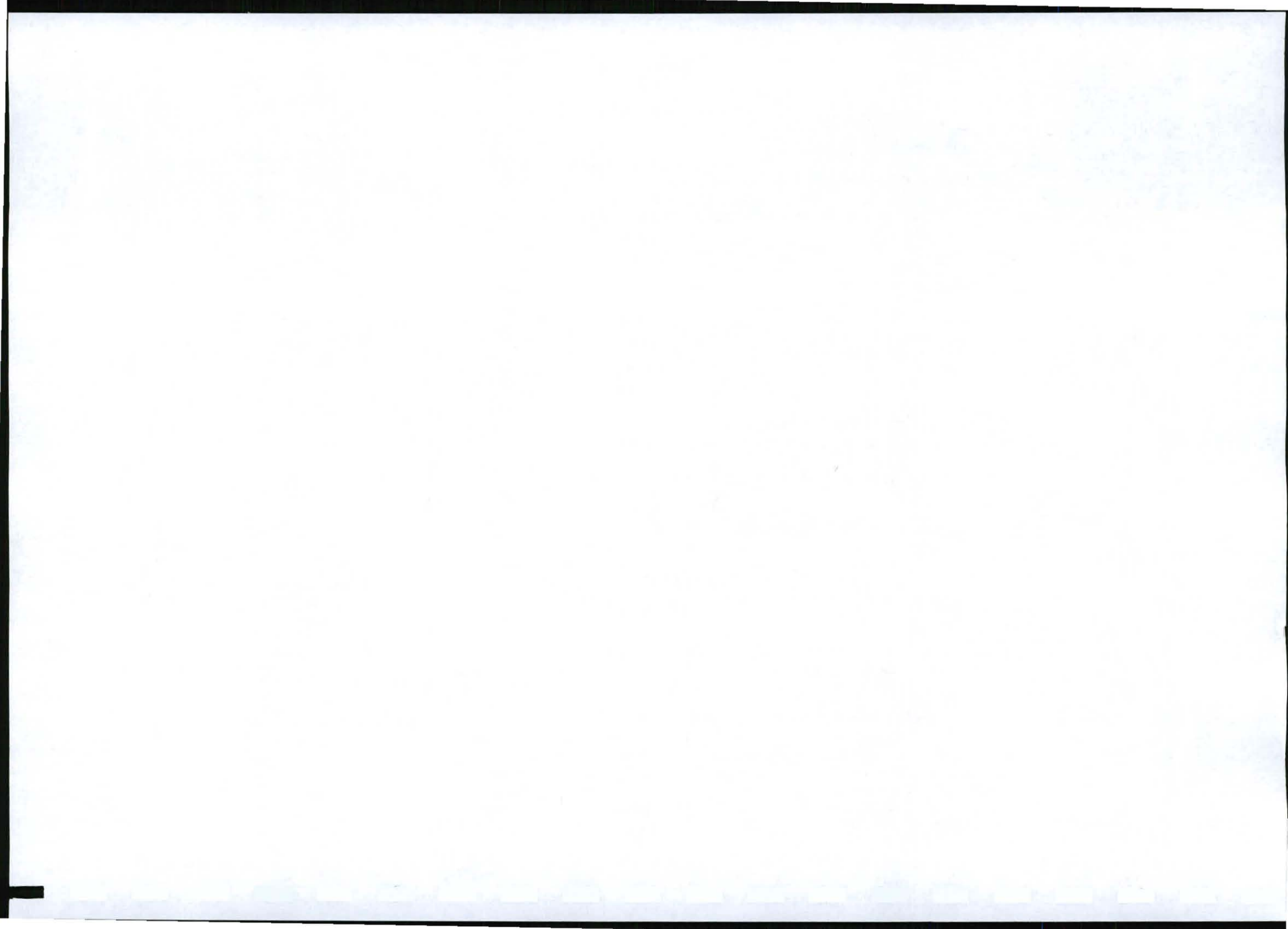
		<p>Management of the mining activity</p>	<ul style="list-style-type: none"> <li>• If required by the landowner, the material used for base and sub-base will be removed from the site.</li> <li>• The MPRDA requires that the miner have the technical skills or must have access to the technical skills to mine and rehabilitate. This requirement is investigated prior to approving the license.</li> <li>• The areas must be clearly demarcated. Painted rocks or flags can be used to demarcate the area. The areas are indicated in the drawings/maps and coordinates are provided.</li> <li>• Mine only within the demarcated area</li> <li>• Mining will take place according to an approved mine and rehabilitation plan and schedule. A mine and rehabilitation plan and schedule is plan is proposed in this document and will be implemented if approved by the DME.</li> <li>• The depth of the ground water, any raised water table as well as the drainage of the ground water and subsurface water will make up part of the limiting factors that will determine the depth to which mining should occur. In general, when a permanent water table is reached, mining should cease and at least one meter of material must be placed over the exposed water (ground or surface water table). Water found on site for a temporary period after a rain episode is not regarded as a water table as this water will drain away or down the slope or evaporate. The slope on this site will facilitate drainage of water from the site and water is not expected to dam up on site.</li> <li>• Elevation pegs or marked poles driven into the resource can be used to indicate the depth of the resource to be removed.</li> <li>• When mining, leave enough material above the impermeable layer or remove all the material over the impermeable layer and replace before replacing topsoil.</li> <li>• The water can be kept off the site by making diversion ditches or berms at the top of the mine face or areas where it is found necessary to divert water away from the mine site. Permanent structures can be made if they will be required for closure.</li> <li>• During mining the floor of the mine can be leveled temporarily for the safety of the trucks and the earthmoving machinery. In this case the slope is corrected before replacing the topsoil. Water can collect on level areas especially if the mine floor has been compacted, but will drain after the mine floor has been ripped and the slope has been corrected. The slope is corrected during rehabilitation and before the replacement of the topsoil.</li> <li>• The angle of the slope must be measured before mining commences as a control against which the slope of the area can be checked during mining, after mining has been completed, before replacing the topsoil as well as after replacement of the topsoil. The impact on the topography will be reduced and the impact on the drainage of water from the site will be prevented.</li> <li>• Any oil, lubricants and toxic material is removed from the mine floor to the depth of penetration before the topsoil is replaced to prevent pollution of surface and ground water. Follow the pollution prevention and control methods in the document to manage possible pollution resulting from solid and toxic waste.</li> </ul>	<p>During mining and rehabilitation</p>
		<p>Preparation for rehabilitation and rehabilitation of the mined areas</p>	<ul style="list-style-type: none"> <li>• Visual inspection and surveying of the (or taking GPS height points measurements) area is undertaken to ensure the slope is maintained. The slope is corrected after topsoil is replaced and before re-vegetation of the area. The slopes may, however, not exceed 1:3.</li> <li>• The slope between the mined and the un-mined areas must also not be steeper than 1:3. Refer to the management plan under the section on flora below.</li> </ul>	<p>During mining and rehabilitation</p>



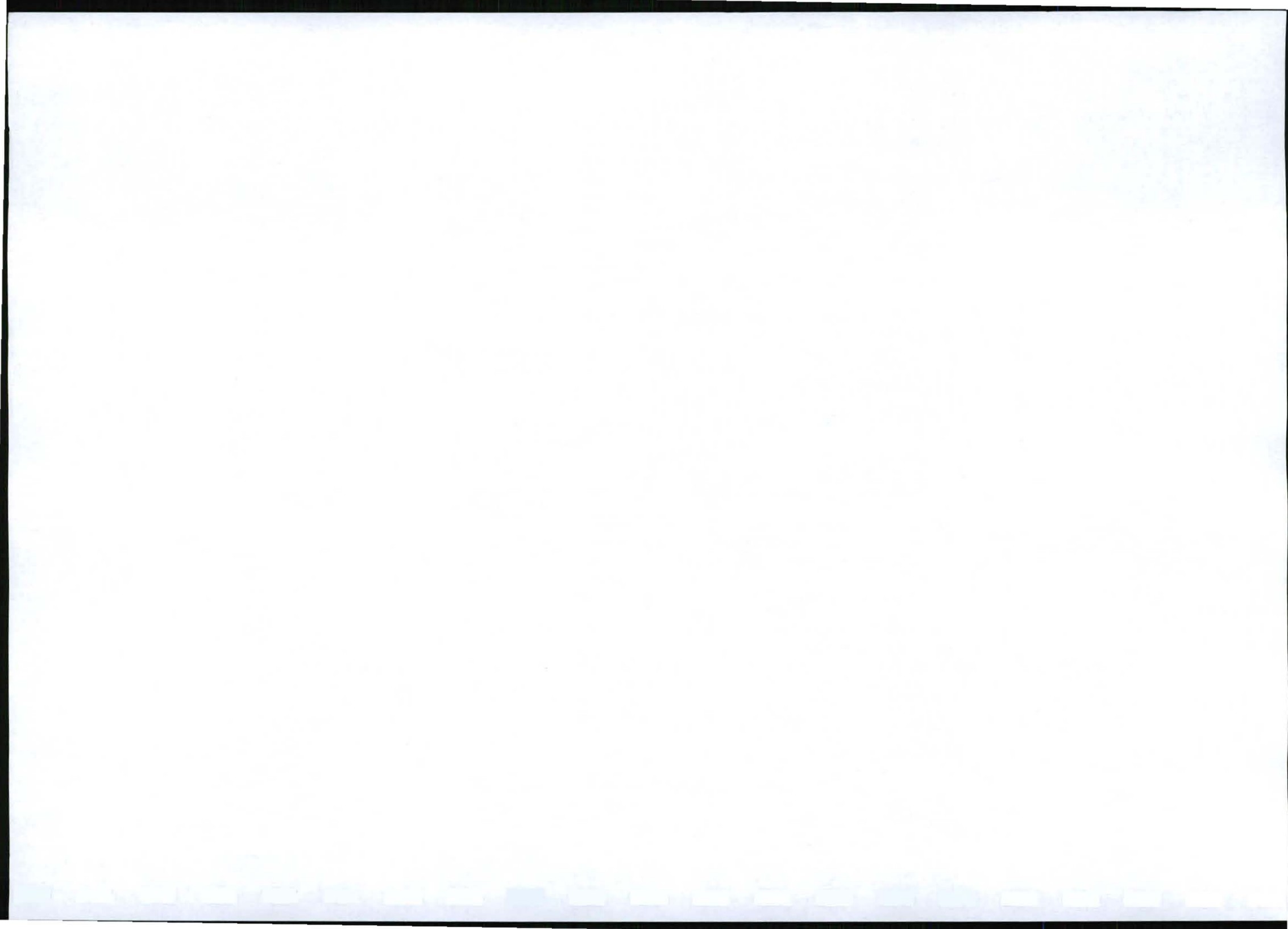


			<ul style="list-style-type: none"> <li>• Sloping is maintained to prevent the impact of mining on the drainage as well as reduce the impact the removal of the resource has on the topography.</li> <li>• The surface of the mine floor is checked before the topsoil is replaced to see if water dams up. Depressions are removed (scraped away or backfilled) to prevent surface water from collecting in them giving a false indication of a raised water table after mining as well as prevent the depressions interfering with the drainage of the water from the site.</li> <li>• Re-vegetate the mined areas as soon as possible to bind and stabilize the soil and thereby prevent erosion.</li> <li>• Any oil, lubricants and toxic material is removed from the mine floor to the depth of penetration before the topsoil is replaced to prevent pollution of surface and ground water. Follow the pollution prevention and control methods in this document to manage possible pollution resulting from solid and toxic waste.</li> </ul>	
		Maintenance and monitoring of the mining and rehabilitation activities	<ul style="list-style-type: none"> <li>• The proposed mining and rehabilitation must be followed as far as practicable to reduce the potential impact from mining on the land-end (see proposed mine and rehabilitation plan in This document 4). Compliance to the mine and rehabilitation plan in the EMP must be checked and monitored on a regular basis and reported to the DME on a biennial basis (every second year).</li> <li>• The aim should be to rehabilitate an area equal in size as the area that was exposed for mining. Because the re-vegetation is more successful when it coincides with the availability of water such as when it rains.</li> <li>• Check rehabilitated areas during the rainy season to determine if the gradient is effective in allowing water to drain from the area.</li> <li>• Check the site regularly (see monitoring programme in this document below) and utilize the pollution prevention methods in this document to control and manage possible pollution resulting from solid and toxic waste.</li> <li>• Remove alien vegetation if they are found.</li> </ul>	During mining and rehabilitation
D.	<b>Visual Impacts</b>	Mining is conducted in a fashion that will reduce the visual impact resulting from mining	<ul style="list-style-type: none"> <li>• As mining proceeds, areas are systematically cleared of vegetation and the entire mine site is not cleared at once. The areas exposed (vegetation and topsoil removed) must be as small as possible. The size of the area mined at a time must not exceed one block (preferably smaller) and occurs in strips within the blocks (see section B on the Mine and Rehabilitation Plan and Schedule)</li> <li>• To reduce any possible visual impact of the mine from the R346, topsoil can be stockpiled along the southern boundary.</li> <li>• As soon as the stockpile is vegetated, there will be no contrast that will indicate the position of the stockpile.</li> <li>• Mined areas must be rehabilitated and re-vegetated as soon as possible after mining has been completed to reduce the potential visual impact resulting from mining.</li> <li>• The mine areas should be landscaped to blend in with the un-mined area and the slope must be as slack as possible (see management of mining above).</li> <li>• Landscaping will involve smoothing over and rounding off of all the sharp edges between mine and un-mined areas.</li> <li>• Topsoil should be placed as a berm rather than a heap.</li> </ul>	Ongoing during the preparation, mining and rehabilitation stage and afterwards





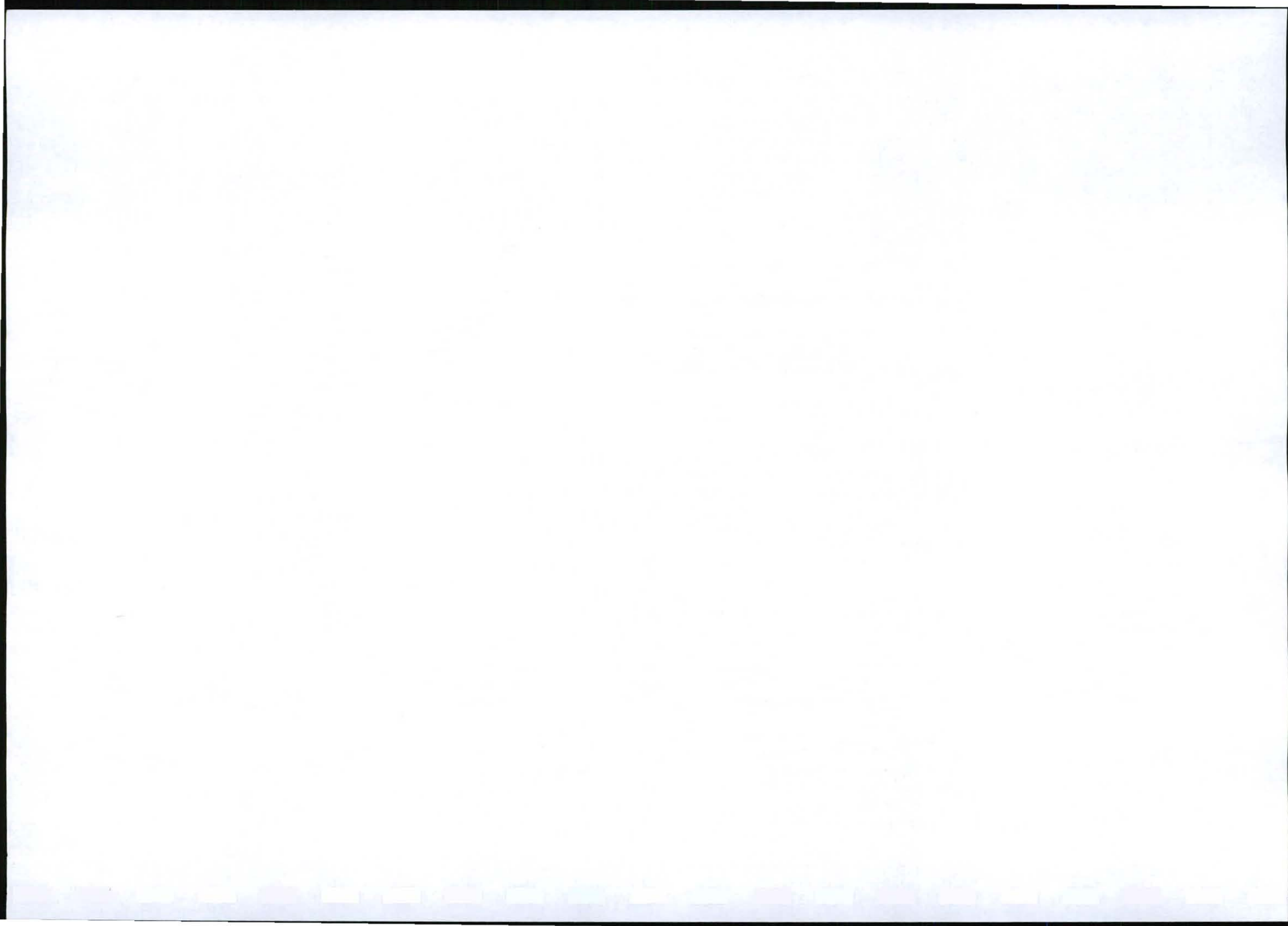
			<ul style="list-style-type: none"> <li>• Erosion must be prevented to reduce the impact on the topography and the visual impact. See the management of erosion in below.</li> <li>• Mining and rehabilitation must occur according to the DME approved mine and rehabilitation plans and schedule.</li> <li>• Re-vegetation should occur as soon as possible after mining has been completed to reduce the impact of mining on the landscape.</li> </ul>	
E.	Flora	Ensure the removal and replacement of vegetation is managed and controlled according to best practices for mining	<ul style="list-style-type: none"> <li>• The land is used for grazing and crop cultivation and the vegetation on the site is removed and stored with the topsoil. Where there are bush or trees they are removed first before the topsoil is removed. Seeds are retained within the topsoil.</li> <li>• Remove vegetation only from the area where mining is going to take place, keeping the exposed areas as small as possible (see the section in this document on mining and rehabilitation above)</li> <li>• The seeds of these plants will in all probability remain in the topsoil and some will germinate in the stockpile or when the topsoil is returned.</li> <li>• Keep topsoil stockpiles as low as possible to expose as much of the surface area of the soil (with embedded seeds) to air and sunlight as possible. Ensure that as much organic material and seeds are preserved within the topsoil. See the topsoil management programme in this document.</li> <li>• If any alien vegetation manages to establish on the site prior to mining commencing, they must be removed prior to the removal of the topsoil and the aliens must be separated from the topsoil stockpile.</li> <li>• As stated above, alien vegetation must be removed from the topsoil stockpile and from the rehabilitated areas. The alien vegetation control programme is provided below. The removed alien vegetation must either be stored on a stockpile and left to dry out or must preferably be removed to an approved landfill site.</li> <li>• As the area is zoned for agriculture, re-vegetation can occur with Grade-A annual crops sown at a density of 70-100 kg/ha.</li> <li>• Commence with re-vegetation as close as possible to the major rain period (just prior to or during) to ensure that there is water available for the vegetation to grow.</li> <li>• All the slopes must be re-vegetated. The surface layer (topsoil layer) must be prepared as describe above before re-vegetation can commence.</li> <li>• Mine within the mine borders and do not cause physical damage to indigenous vegetation outside the mine area.</li> <li>• If necessary, make use of a water cart to reduce any possible dust created during mining to reduce the amount of fall-out dust on the indigenous vegetation.</li> </ul>	During the preparation, mining and rehabilitation stage and afterwards. Ongoing on a daily basis for the duration of mining
			<ul style="list-style-type: none"> <li>• Animals in this case do not include the insects that might be destroyed when the vegetation is removed. Special attention must be given to all animals that can be removed from site such as tortoises, snakes, small mammals, buck/deer, porcupine or any others that might venture on the site before or during the mining operation.</li> <li>• Before starting to mine at the beginning of the day, the site is checked for animals. If found they are chased or physically removed from the area to be mined.</li> <li>• On a daily basis, check the site for traps and also check on the action of personnel during the day.</li> <li>• Continual awareness regarding the protection of the fauna and flora should be communicated (see Environmental Awareness Plan in this document).</li> </ul>	



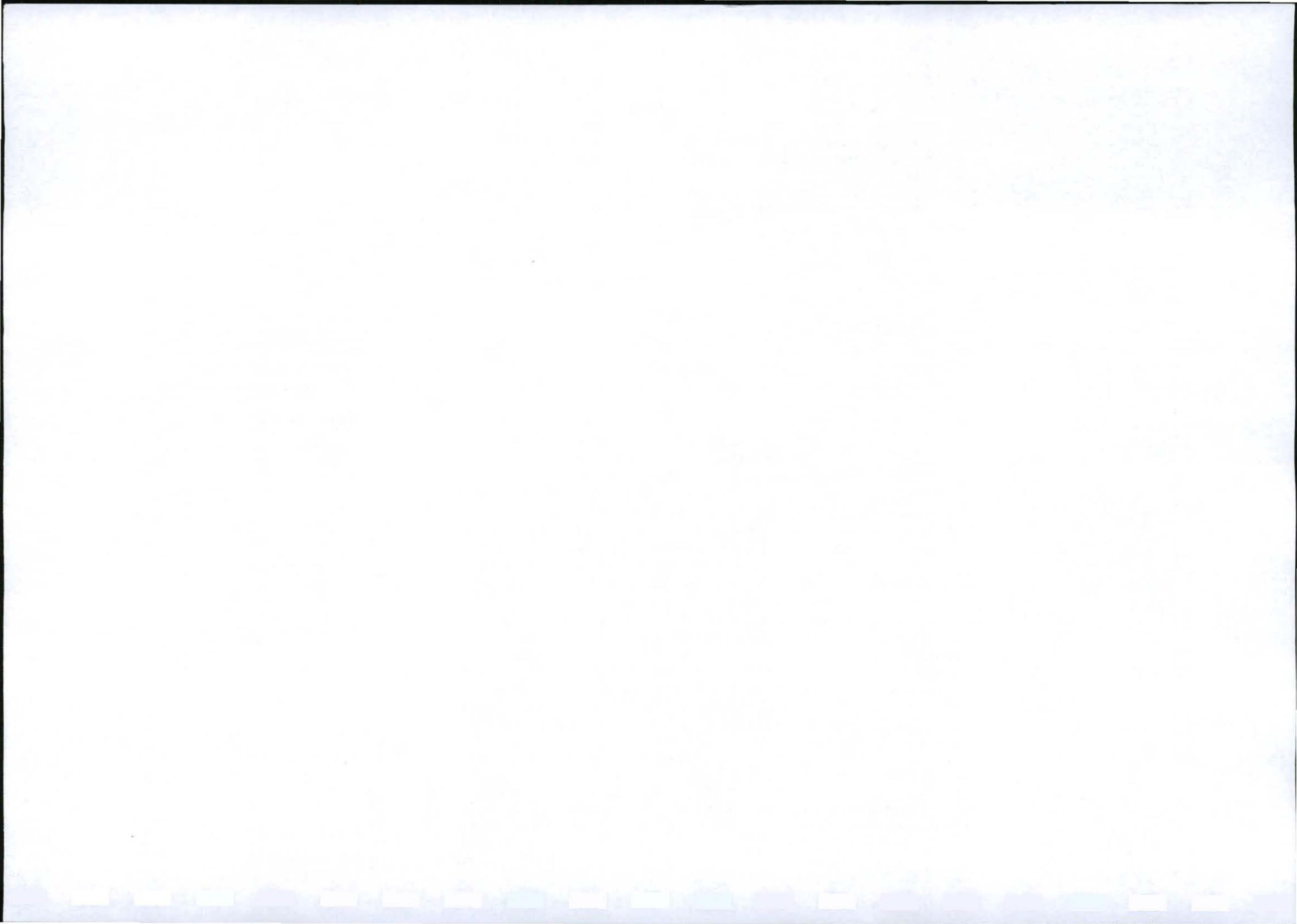


			<ul style="list-style-type: none"> <li>• Site manager or responsible environmental person must check the site and surrounding areas regularly and ensure that the site personnel and visitors to the site (truck drivers) stay on site.</li> <li>• Do not remove the vegetation and soil that provide shelter and food to the fauna from the entire mine area all at once. Remove only sections of vegetation and soil at a time - as mining proceeds – to ensure that the animals can move or flee to undisturbed areas in close proximity.</li> <li>• Follow the guideline provided in the Mine and Rehabilitation Plan and Schedule to ensure the least impact is exerted on the fauna.</li> <li>• Rehabilitation of an area occurring as soon as possible will make the area available to the fauna for re-habitation.</li> <li>• Truck drivers will be instructed to keep within the speed limit and to be vigilant to avoid killing animals on the road.</li> </ul>	
F.	Water	Ensure responsible utilization of water	<ul style="list-style-type: none"> <li>• Water must be used sparingly and reeds (not suitable for the market), bark, branches, straw, etc. can be placed over the topsoil on the stockpile or rehabilitated areas to reduce dust rather than use water for dust suppression.</li> <li>• Potable water for drinking and sanitation must be brought to site on a daily basis. The water normally does not exceed 20 to 25 liters per person per day. Sanitation will required 20 liters at most. Since mining is not continuous, it is possible for the site personnel to walk to the homestead for drinking water and to wash their hands.</li> <li>• An environmental awareness plan can details guidelines on how and what information can be presented to the workers to conserve water. An environmental awareness plan is not required for the permit application, but could be useful in any event to draw up a plan.</li> <li>• Do not leave any taps running.</li> </ul>	During the entire mining and rehabilitation process.
		Prevent the pollution of surface and ground water	<ul style="list-style-type: none"> <li>• When refueling, use funnels that are suitable for the type of equipment so that no fuel is spilled onto the soil.</li> <li>• Place an impermeable PVC lining, or other suitable cover or drip tray under the re-fuelling point to collect any spillage that could occur.</li> <li>• If spillage occurs, the excess fuel is absorbed with a product such as "Spillsorb" (peat or pine needles).</li> <li>• Spillage on to the soil must be removed with the contaminated soil to the depth of penetration into the soil.</li> <li>• The contaminated soil is either taken to an appropriate landfill site that allows the dumping of the toxic material or is treated on site.</li> <li>• The soil is either treated in a container or in a previously prepared area. The latter area is a depression or ditch covered with a PVC lining to prevent further leaching of the hydrocarbons into uncontaminated soil.</li> <li>• This treatment involves the bio-degradation of the pollutant and allows the recovery of the soil. The treated soil can be re-used as a result of the microbes in the soil that break down the hydrocarbons.</li> <li>• The contaminated soil can be mixed with additional microbes (supplied by Spill-sorb and similar companies) to enhance the breakdown process (also see emergency procedures for waste).</li> <li>• Toilets must be clean and in a working order. If a chemical toilet is used, it must be removed before it</li> </ul>	During the entire mining and rehabilitation process





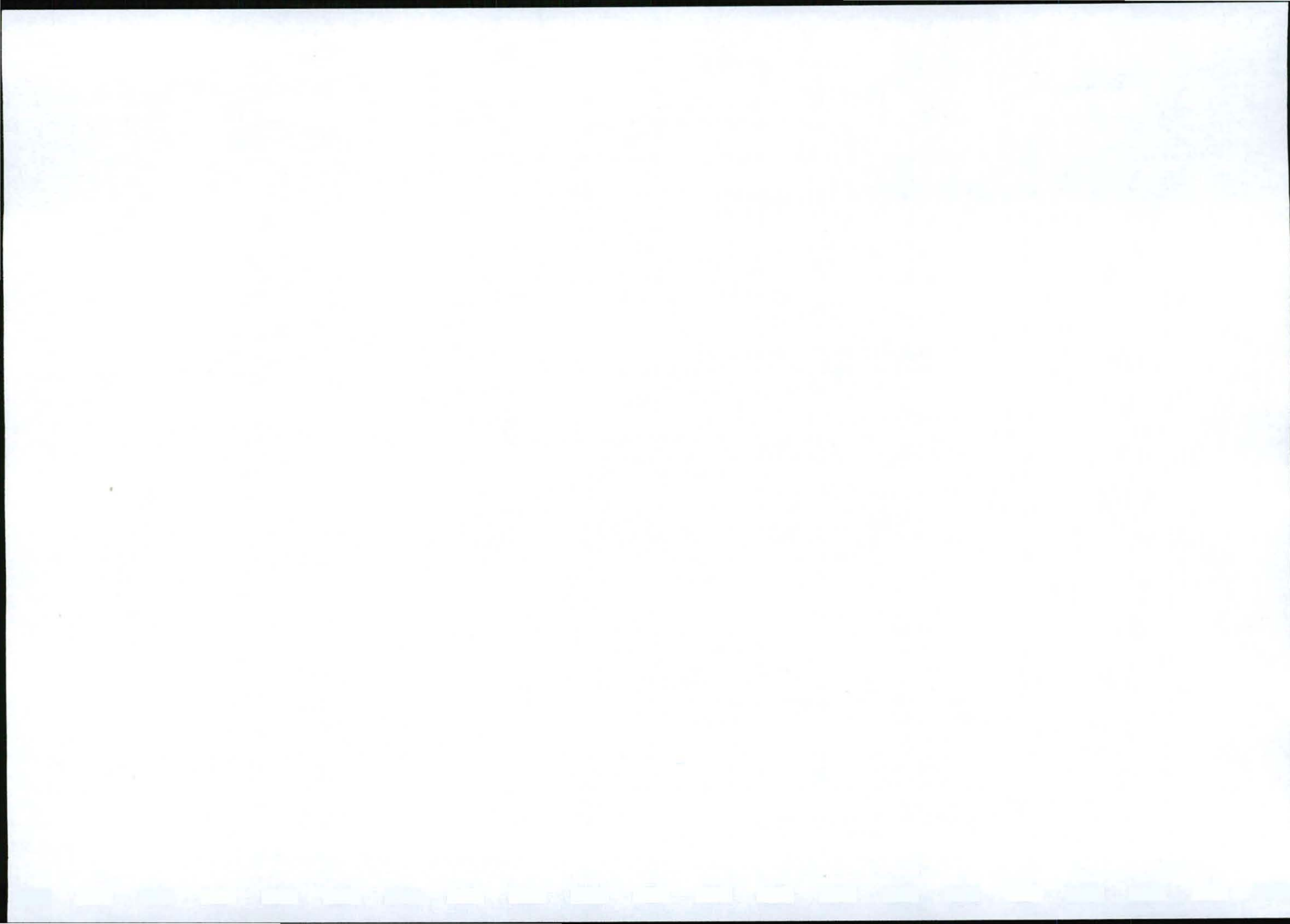
			<p>is full and must be cleaned regularly. The toilet must be placed on an impermeable permanent structure or a PVC (or similar) lining if at all possible. Alternatively a diversion ditch can be made to divert water away from the area around the toilet.</p> <ul style="list-style-type: none"> <li>• Fuels, oils and lubricants are not stored on site. These toxic pollutants must be stored in a bunded area on a floor that is covered with an impermeable material. There is a workshop on the farm with a cement floor that is used for farming activities and storage of farming equipment. If a permanent bunded area (cement) is not available for the fuel used on the mine, a designated area near the workshop must be selected for storage. The floor of this area must be covered with impermeable PVC lining (or equivalent material) and resource bags can be used to bund the area. No more than 30 m<sup>3</sup> may be stored on a particular site. Resource bags can also be used on a concrete floor to bund the area if there is no bund to contain fuel spills. The bund should be adequate to contain 110% of the stored material. Bags made from material and filled with fill-resource. Provide bins with lids for the solid waste to prevent waste from being blown around over the landscape.</li> <li>• Collect and store solid waste from the site and discard at a suitable landfill site.</li> <li>• Toxic materials should only be discarded at landfill sites designated to treat toxic materials.</li> <li>• Contaminants are normally collected from sites or depots by waste disposal companies, such as Oilkol, across the Cape and taken to toxic waste disposal sites or is treated at established facilities.</li> <li>• The contaminated rags must be collected in a container and the full container must be discarded at a suitable landfill site or can be washed. Discard contaminated (soapy) water in a proper manner.</li> <li>• Do not burn oil rags or contaminants on site.</li> <li>• Do not discard solid waste on site and particularly not oil filters, cans, paint, etc.</li> <li>• The applicant on a regular basis will remove scrap metal.</li> <li>• Also see Emergency Procedures in this document.</li> </ul>	
<p><b>G.</b></p>	<p><b>Dust and exhaust gas control</b></p>	<p>Management and control of fall-out dust on the mine site, the access roads as well the DR1521.</p>	<ul style="list-style-type: none"> <li>• The transporting of resource is not part of the mining activity (is linked to the mining activity), but the mine owner can consult with the truck owners to adhere to the requirements that will reduce the generation of dust on the access road.</li> <li>• Ensure that dust is controlled on the access roads if there is a possibility that the dust will cause irritation to the residents living close to the access road.</li> <li>• Dust will be measured once mining commences to determine whether mining and the dust generated on the access roads are above allowable SABS standards.</li> <li>• If measurements determine that dust is above allowable levels, the impact will be managed as follows: <ul style="list-style-type: none"> <li>➤ More trees will be planted in front of the landowner's residents or along the R346.</li> <li>➤ On average, 10-12 trucks use the road on a daily basis and the roads are also used by other persons (including another resource mine).</li> <li>➤ Mr. Gerry Kuhn is a specialist on fall-out dust and the effect thereof on health. According to Mr. Kuhn (personal communication), it is speed rather than the size of the vehicle that determines the amount of dust generated. Therefore, the trucks should not exceed the 60 km speed limit on public dirt roads and 30 km on the site.</li> </ul> </li> </ul>	<p>During the entire mining and rehabilitation process</p>



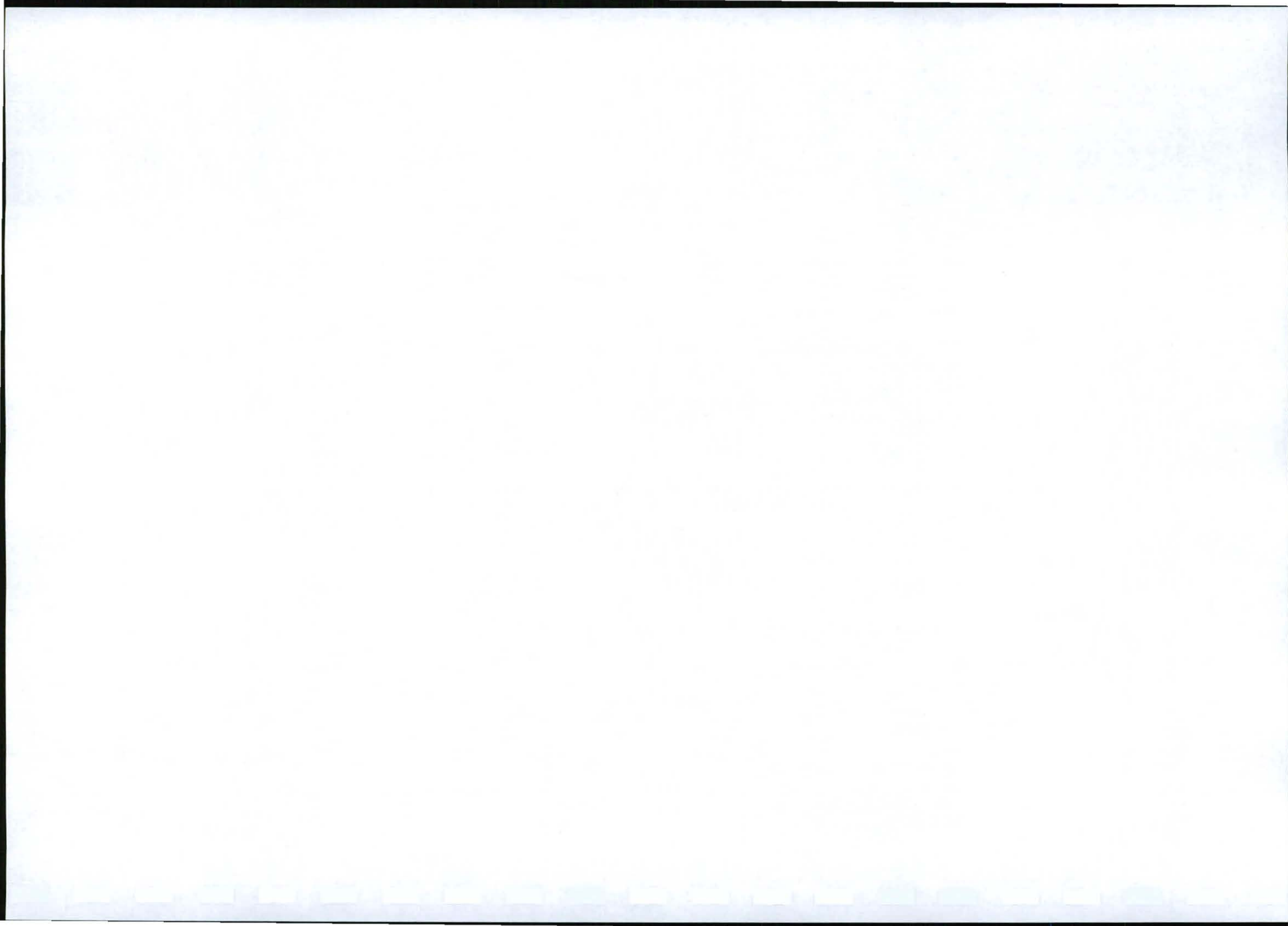


			<ul style="list-style-type: none"> <li>• Netting or shade cloth must cover the resource on all trucks leaving the site to prevent resource being blown off onto oncoming vehicles.</li> <li>• Put control measures in place to prevent the blowing of dust, saltation and crawling of resource (wind erosion). If vegetation (grass) does not yet cover the stockpile or rehabilitated areas, use straw, bark or branches as cover if necessary. Water can also be used, but water is a scarce resource and should be used sparingly.</li> <li>• Provide personal protective equipment (PPE) such as dust masks for protection against dust as preventative measure, even if the dust created is negligible. The PPE must be suitable to effectively protect the site worker against dust entering his nose and mouth.</li> <li>• Site workers should be checked to ensure that PPE is used.</li> </ul>	
			<ul style="list-style-type: none"> <li>• Do not apply dust suppressants within 100 m of water that is used as a water reservoir, near critical habitats or endangered species or a bio-criteria reference stream or within 30 m from a river or permanently flowing stream of water.</li> <li>• Apparently the subsequent treatment of the salts of calcium and magnesium required is less than the initial treatment and depending on the traffic may need to re-applied once or twice a season.</li> <li>• Saline or brine water with salts such as magnesium chloride or calcium chloride is very effective in improving the ability of water as a dust control agent (a palliative). Salts have been used for many years and have the added advantage that it stabilizes the road surface. The amount of calcium chloride used with the brine solution is 0.75 l – 1.89 l per 0.83 m<sup>2</sup> and for magnesium chloride 0.95 l – 3.78 l per 0.83 m<sup>2</sup>. The salts work by absorbing moisture from the air that binds to the small dust particles. Heavy rains can leach the salts, but during the rain seasons it is not necessary to wet the roads. Certain salts become slippery during heavy rains and should not be used. The salts have a disadvantage in that they can be harmful to many plants and some animal life. This can be prevented by not adding salts when it rains. Even a weekly spray is a huge saving and reduction in the water use. Salts are corrosive to steel and other metals and although the product specifications state that in the prescribed dosages it will not be problematic, the existing saline conditions could aggravate the problem and it might be necessary to rubberize the under carriages of the vehicles.</li> </ul>	
		Control and management of exhaust fumes	<ul style="list-style-type: none"> <li>• All vehicles must be fitted with effective exhaust or filter systems that can filter emission gasses</li> <li>• The vehicles must be serviced regularly to ensure the engine is in a good working condition.</li> <li>• Fuel and oil of good quality must be used to reduce the possibility that engine will smoke excessively and the engine must be in a good condition so that fuel burning is clean.</li> </ul> <p>The owner of a truck must be contacted to have the problem fixed if a truck emits excessive black smoke. The problem should be fixed before the truck is allowed on site.</p>	
H.	Noise	Ensure management and control of noise as result of mining exhaust fumes	<ul style="list-style-type: none"> <li>• Vehicles must have a working silencer or noise muffling equipment.</li> <li>• If possible (and it is allowable according to safety standards) earthmoving vehicles without warning sounds can be used.</li> <li>• If the noise made by the trucks is above allowable standard, trees can be planted in front of the landowner's house.</li> <li>• All complaints must be logged and addressed immediately.</li> <li>• Vehicles and earthmoving machinery must be serviced regularly.</li> </ul>	During the entire mining and rehabilitation process.





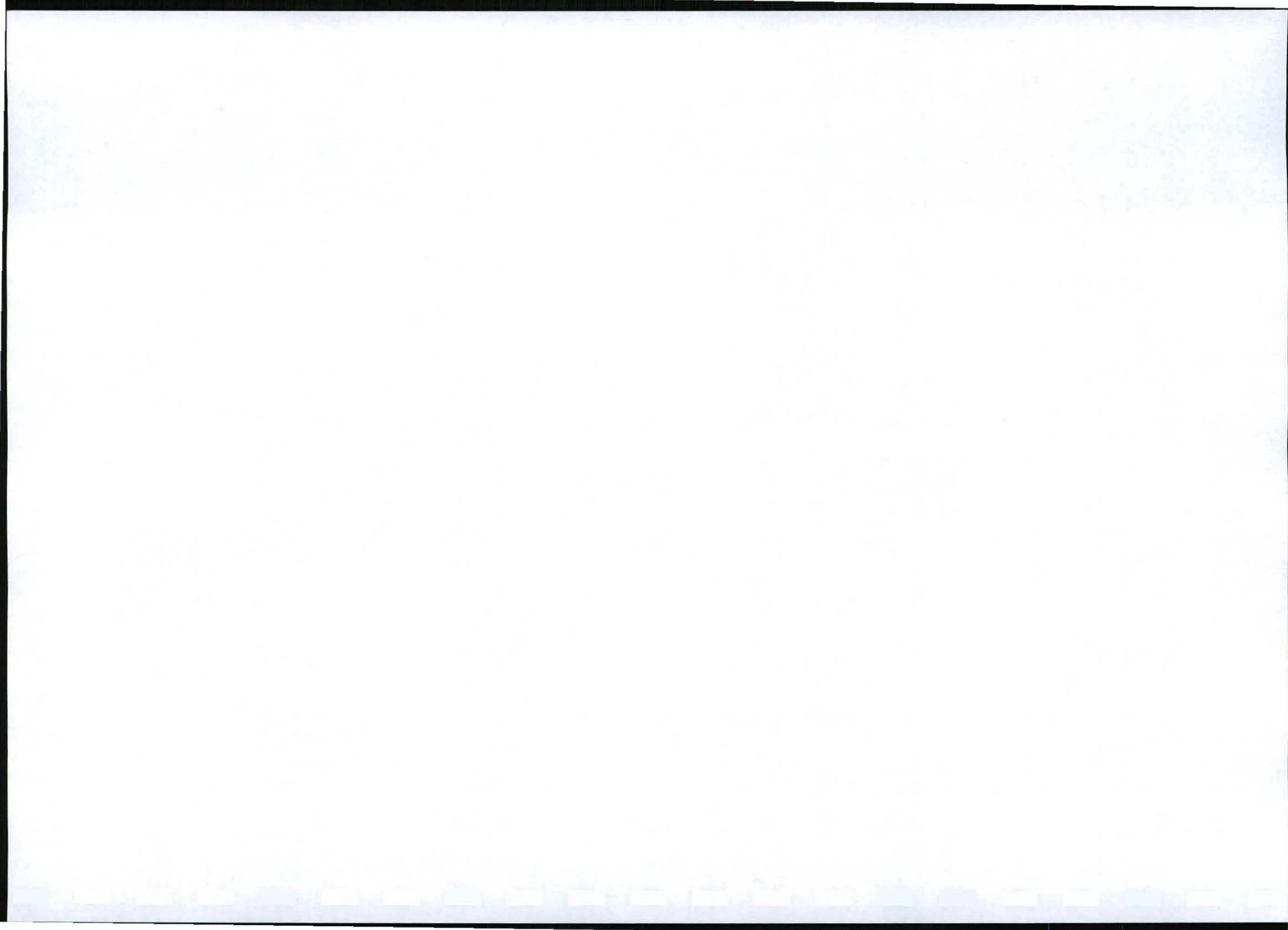
			<ul style="list-style-type: none"> <li>• Ensure that mechanical equipment is in a sound condition to reduce potential noise created as a result of friction of mechanical parts. Mining takes place between 07h00 and 18h00</li> <li>• Mining will not occur over weekends or public holidays unless it occurs in consultation with IAPs.</li> <li>• A forum can be established so that communication with the landowner and affected residents can occur on a continual basis and problems can be addressed.</li> <li>• Provide personal protective equipment (PPE) such as (ear plugs for protection against noise). The PPE must be suitable to effectively protect against any noise on site.</li> <li>• Site workers should be checked to ensure PPE is used.</li> </ul>	
I.	<b>Access roads and Traffic</b>	Requirements for the access roads. To ensure that the access and haul roads are in a good condition.	<ul style="list-style-type: none"> <li>• To prevent accidents and damage to vehicles, ensure that the access and haul roads are in a good condition.</li> <li>• The access roads must be maintained and repaired. Repair potholes by scraping or by backfilling and remove loose resource from the road.</li> <li>• Strengthen the road surface with gravel or calcrete or other suitable road material. No building rubble to strengthen the roads unless approval is obtained from the DME or servitude rights holders.</li> <li>• All gates on private roads are to be closed and left open if found open.</li> <li>• Driving on private roads not designated as site access roads is to be prohibited, unless prior permission has been obtained from the landowner.</li> </ul>	<ul style="list-style-type: none"> <li>• During site establishment and as the mining activity proceeds.</li> </ul>
		Safety on the roads must be adhered to prevent accidents from occurring	<ul style="list-style-type: none"> <li>• Ensure that the access roads that are used on site are wide enough to ensure the safety of the trucks onto and from the mine site. The roads must be wide enough for two trucks to pass each other or alternatively there must be an entrance and an exit road (circle route).</li> <li>• Ensure that the mine access road onto a public road is safe and according to requirements of the relevant authorities (provincial or local authorities and the DME)</li> <li>• Place boards warning oncoming traffic that trucks can possibly enter onto a public road (from the access road from the site onto the R346). Two boards must be placed one on either side of the access point and a distance each about 500 m to one kilometer from the access point from the R346.</li> <li>• The access road will not enter the public road on a bend (unless this is the approved municipal access) or behind trees and the access will be clearly visible coming from both sides of the public road.</li> <li>• Where trees or vegetation obscure the view so that oncoming traffic cannot be seen, the trees must be trimmed.</li> <li>• All trucks must have clear (large enough) contactable phone number on the truck.</li> <li>• The trucks do not belong to the applicant but to the builders and contractors. General rules of the road should be adhered to.</li> <li>• If possible and allowed by the local authority, the applicant must erect a fence around the borrow pit to make it safe.</li> <li>• Vehicles must be in a roadworthy and sound mechanical condition. The engine, tyres, brakes, oil leaks, etc.</li> <li>• Where and if required, the maintenance and the repairs of the public roads used by the applicant must be discussed with the local authority to assist them.</li> </ul>	For the duration of mining.
J.	<b>Yaps</b>	<ul style="list-style-type: none"> <li>• Ongoing communication</li> </ul>	<ul style="list-style-type: none"> <li>• Land use agreement such be in place</li> </ul>	For the duration of mining





EMPLAN COMPILED FOR MINING ON PORTION 1 OF FARM 800, GONUBIE. EAST LONDON

		with Yaps.	<ul style="list-style-type: none"> <li>• A forum can be established to lodge complaints, discuss and investigate possible solutions.</li> <li>• All complaints are to be recorded in the incident log.</li> <li>• Complaint form and/or contact details of the responsible person on the mine must be made available.</li> <li>• At all cost, and where practicable manage and control all aspects causing a nuisance or disturbance to affected parties</li> </ul>	
K.	<b>Legal requirements</b>	<ul style="list-style-type: none"> <li>• Ensure that all legal requirements are adhered to</li> </ul>	<ul style="list-style-type: none"> <li>• Adhere to instructions from the DME and the specialists.</li> <li>• Do not mine in the areas excluded by the relevant authorities or specialists.</li> <li>• Mark sensitive areas that were excluded before mining begins.</li> </ul> <p>Mine according to legal requirements          If archaeological sites are found during the excavation of the resource they must be reported to the relevant authorities:          *Graves – SAP; SAHRA          *Archaeological or Heritage sites – Heritage authorities for Eastern Cape</p> <ul style="list-style-type: none"> <li>• Legislation of the local authority</li> </ul>	For the duration of mining and until closure of the mine



**C.8 FINANCIAL PROVISION: (REGULATION 54)**

The amount that is necessary for the rehabilitation of damage caused by the operation, both sudden closure during the normal operation of the project and at final, planned closure will be estimated by the regional office of the DME, based on the information supplied in this document. This amount will reflect how much it will cost the Department to rehabilitate the area disturbed in case of liquidation or ascendance.

Enter the amount of financial provision required here: **R160 000.00**

What method will be used to furnish DME with this financial provision?

Cash deposit	
Bank guarantee	X
Trust Fund	
Other: (specify) (Note: other methods must be approved by the Minister)	

The standard formats for each of these types of guarantees are available from your regional office of the DME.

*Calculations are per one hectare to maximum of 1.5 ha should it not be rehabilitated concurrently (mining in windrows) i.e. if one entire hectare area is disturbed. With concurrent mining, the excavator is used to replace the topsoil, and leveling will occur with the farming equipment. If the entire area were left undisturbed, a bulldozer would most likely be used. The worst-case scenario is anticipated.*

Unit NO	DETAILS	UNIT RATE /hr	NUMBER OF UNITS	VOLUMES m <sup>3</sup>	AMOUNT
1	Machinery/Equipment				
	Farming: plough, rip, etc	200			
	Front-end loader				
	Bulldozer	500			
	Excavator	450			
2	Transportation/establishment of all equipment				2 000
3	Size of the excavation (width x length x depth) 1.5 Ha and about 20 m deep				
	Cost of decommissioning of the plant and associated infrastructure	Plant, chemical toilet removal if necessary			
5	Removal of plant infrastructure	250	40		10000.00
6	Cost of profiling disturbed areas	500	80		40000.00
7	Cost of replacing topsoil (2500 m <sup>3</sup> )	500	36		18000.00
8	Cost of surface preparation (leveling, ripping, ploughing, etc)	250	24		6000.00
9	Cost of re-vegetation				
	Initial annual crop to bind and stabilize soil or legumes (to enrich the soil).	@R70/ha	2	70	140.00
	Plants) along with seeds from the indigenous vegetation/grass seeds from the area – if required for rehabilitation	@R700/ha	2	700	1400.00
	Seeds (@R700/ha (700 – 1500 per ha)				
	Hydro seed (add surface preparation if it is included in the price) – not practical in this area and too costly.				
	Machine				
	Hand sown				
10	Trenches, ditches, berms	250	16		4000.00
	Cost of interim storm water control				0.00





**C.9 MONITORING AND PERFORMANCE****C.9.1 Monitoring and performance assessment.**

Regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) clearly describes the process and procedure as well as requirements for monitoring and auditing of the performance of this plan to adequately address environmental impacts resulting from the operation. The following information must be provided:

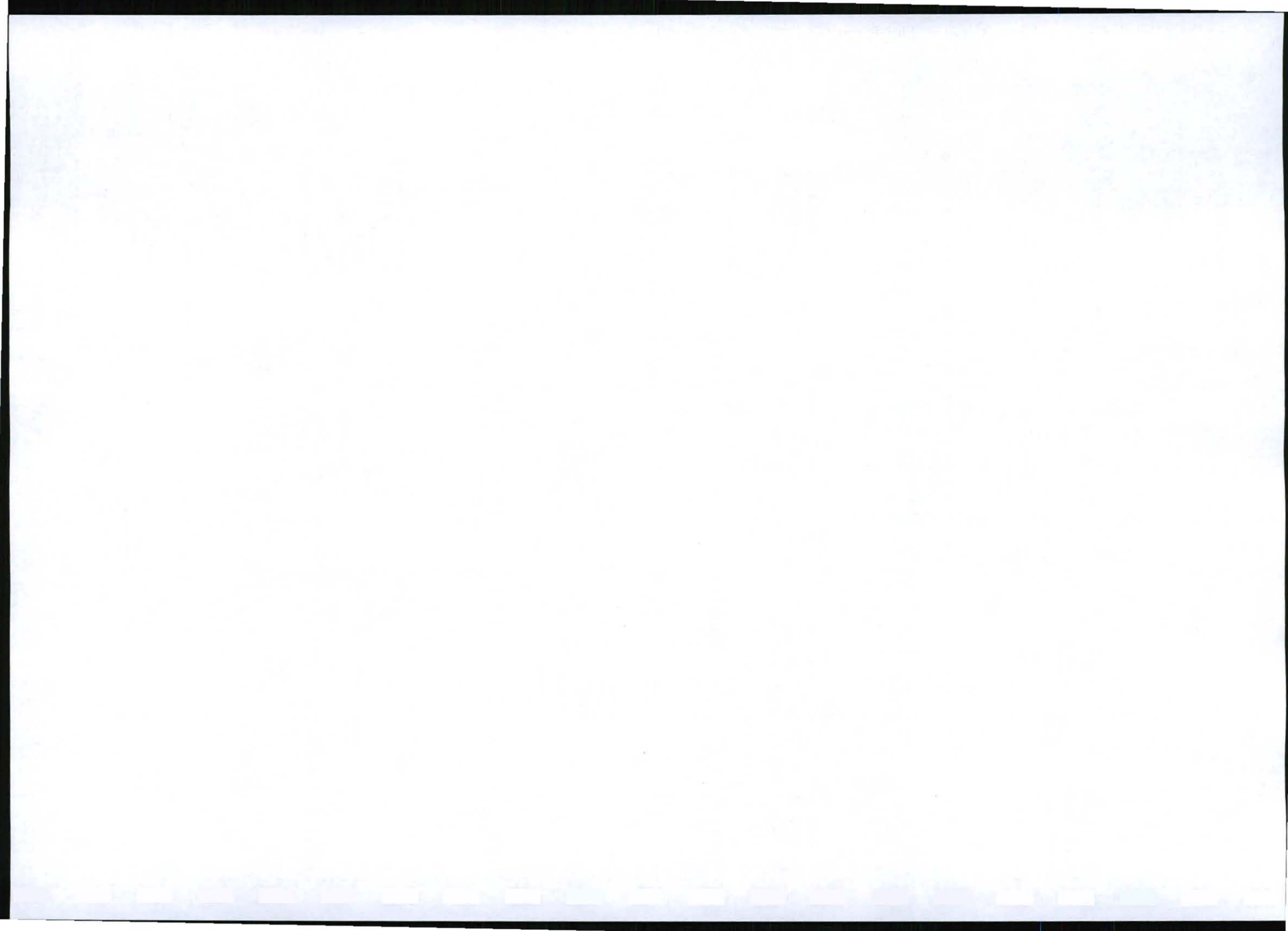
*Performance Assessment Report of the mining activity must be provided to the DME at least every two years – (biennially) as stipulated in Regulation 55 of the Mineral and Petroleum Resource Development Act 2002, No. 28 of 2002. However, the DME can stipulate if a report should be handed in more regularly. (Biennial: recurring every two years and bi-annual: twice a year)*

Description	Limit	Measure	Time (Report)
Mining will be approved for a designated area	Mining may not extend beyond the border of the mine	<ul style="list-style-type: none"> <li>Demarcate mine area before mining commences according to the approved coordinates.</li> <li>Check coordinate continuously, especially if mining along the borders of the mine</li> </ul>	Layout map and Biennial Report
Mine areas open Areas where topsoil is removed or where mining is taking place.	One block (0.5 ha) over the entire mine area.	<ul style="list-style-type: none"> <li>Size of areas</li> <li>GPS coordinates of areas</li> </ul>	Continuous visual checking, readings Biennial Report and layout map
Areas where mining has been completed (Indicate area(s) on the layout map)	As per the EMP plan and schedule.	<ul style="list-style-type: none"> <li>Area mined</li> <li>Amount of resource removed from area that was mined.</li> <li>Rate of mining</li> </ul>	Continuous checking Indicate area(s) on Layout map. Biennial Report
Area Rehabilitated (Indicate area(s) on layout map)	One block (0.5 ha) over the entire mine area are mined at a time. Rest of the site must be rehabilitated (topsoil replaced and contoured, where possible – seeding depends on the rain season).	<ul style="list-style-type: none"> <li>Size of area rehabilitated.</li> <li>Profile holes every 50 m intervals to indicated depth of topsoil replaced</li> <li>Indicate areas with vegetation</li> <li>Indicate areas without vegetation.</li> </ul>	Continuous checking Indicate area(s) on Layout map. Biennial Report
Area(s) still to be mined	Total mined area	<ul style="list-style-type: none"> <li>How much must still be mined.</li> <li>Adjusted production rates and mine schedule.</li> </ul>	Indicate area(s) on Layout map. Biennial Report
Topsoil stockpiles	Along each phase.	<ul style="list-style-type: none"> <li>Position of stockpile and where possible:</li> <li>Length of stockpile</li> <li>Width of stockpile</li> <li>Height of stockpile</li> <li>Estimated reserves</li> </ul>	Indicate area(s) on Layout map. Biennial Report
Depth of topsoil replacement	After replacement of topsoil, before sowing of seeds, Make profile holes to determine depth of topsoil over the rehabilitated areas ( $\pm 50$	Recorded after replacement over each block	Measure after topsoil has been replaced on each block. Biennial Report





Description	Limit	Measure	Time (Report)
	m)		
Maintain correct slope as per the natural contours of the site	Maintain existing gradient.	<ul style="list-style-type: none"> <li>• Determine before mining and continue to maintain as mining proceeds.</li> <li>• Check slope gradient before and after replacement of topsoil over each block</li> </ul>	Prior to ripping of each block. Biennial Report
Maintain correct bench formation or sloping of faces	Maintain existing gradient.	<ul style="list-style-type: none"> <li>• Benches must have the correct width and height according to safety requirements (see description and illustrations)</li> <li>• Where benches are not used, the slope may not exceed 1:2.5 (1:3 is preferred) to ensure optimal re-vegetation success.</li> </ul>	Prior to ripping of each block. Biennial Report
Depressions on the mine floor or rehabilitated areas	There may be no depressions	<ul style="list-style-type: none"> <li>• Remove all depressions from the mine floor before and after replacing topsoil to prevent water from collecting in these depressions.</li> </ul>	Prior to replacing topsoil and after replacing topsoil. Biennial Report
Depressions for collection of water at the bottom of the borrow pit	Their must be proper management of the collection area and drainage from the borrow pit so the entire bottom of the borrow pit is not flooded	<ul style="list-style-type: none"> <li>• See that collection sump works effective and does not leak silty water into streams or watercourses.</li> <li>• Pump water out if it gets too high</li> </ul>	Check continuously Biennial Report
Access roads and haul roads	Roads must be repaired and maintained. All access roads not in use must be ripped and the topsoil replaced.	<ul style="list-style-type: none"> <li>• Position of roads</li> <li>• Condition of roads</li> <li>• Change in planning</li> <li>• Repairs done to the roads must be noted</li> <li>• Strengthening of existing roads</li> <li>• Ensure proper drainage along access roads so the roads do not wash away and are stable.</li> </ul>	Check continuously Biennial Report
Visibility of Surface water	No surface water may be dammed up.	<ul style="list-style-type: none"> <li>▪ Determine the position of surface water and describe steps for mitigation.</li> <li>▪ Indicate the places where erosion occurred</li> </ul>	Continuous checking, especially before and after replacement of topsoil. Biennial Report
Noise	SABS standards. Measured at the closest homestead	<ul style="list-style-type: none"> <li>• Measure at nearest homestead and/or periphery of the mine nearest</li> <li>• Or measure periphery of the mine nearest</li> </ul>	Continuous measuring. Biennial Report Noise levels not significant, but should it be requested, it must be done)
Dust	Acceptable according to SABS standards.	<ul style="list-style-type: none"> <li>• Measure at nearest homestead and/or periphery of the mine nearest</li> <li>• Or measure periphery of the mine nearest</li> </ul>	Base-line data is obtained initially and then over a period determined by the specialist. Biennial Report
Invasive plants	100% removal from mined area.	<ul style="list-style-type: none"> <li>• Determine the amount of invasive species (brush and trees) present on</li> </ul>	Continuous checking and removal.





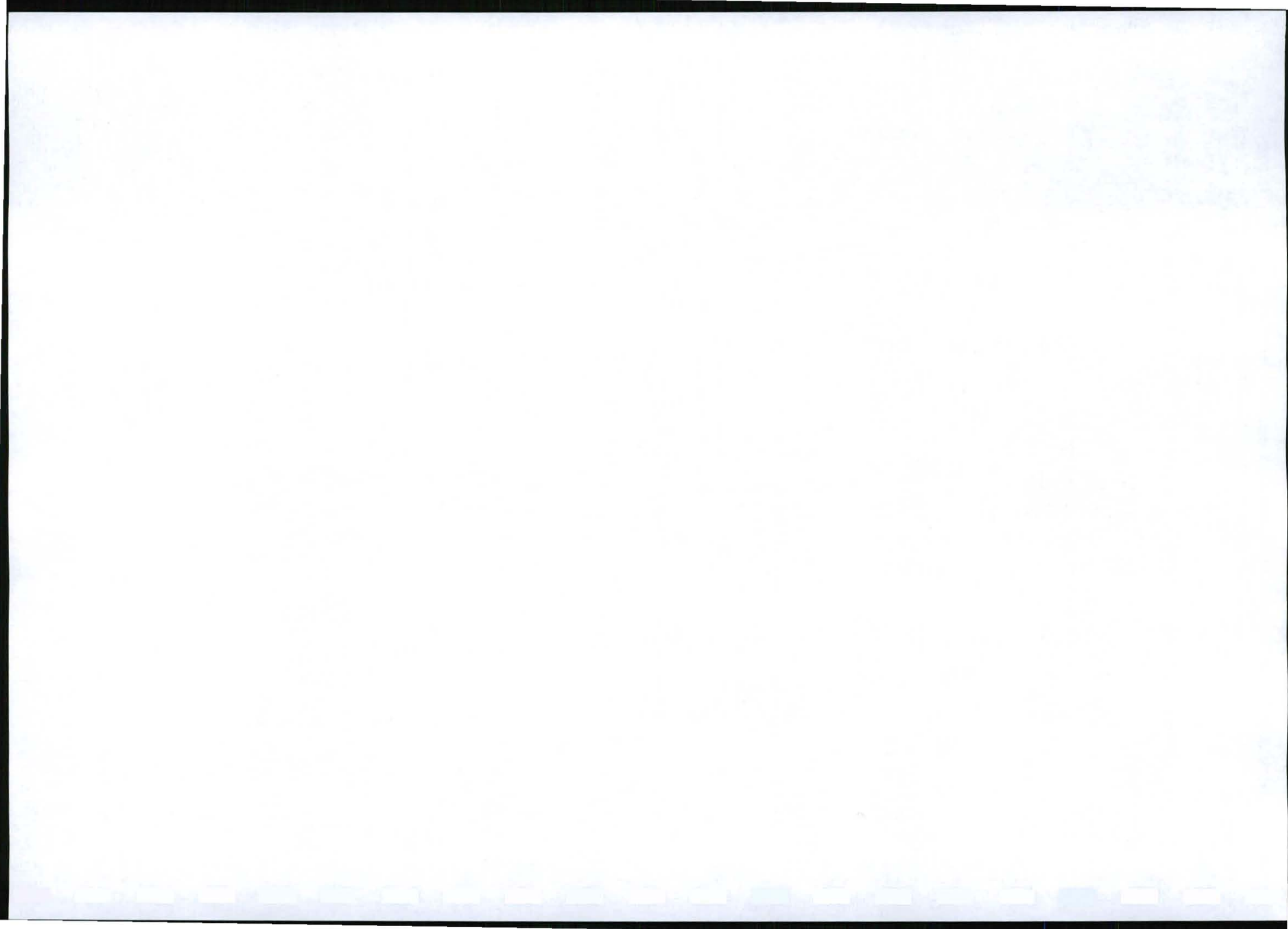
Description	Limit	Measure	Time (Report)
		the mined out area if they are present and not removed. <ul style="list-style-type: none"> <li>Remove invasive trees and bushes from the site.</li> </ul>	Biennial Report
Waste removal	Prevention of waste disposal/removal once a week	Inspect site for dumping of waste and any domestic waste due to the mining process	Continuous checking and removal (weekly) removal. Biennial Report
Interested and Affected Parties		<ul style="list-style-type: none"> <li>List complaints received.</li> <li>List response to complaints and issues arising.</li> </ul>	Address continuously as soon as possible Biennial Report
Erosion	No erosion may be visible	<ul style="list-style-type: none"> <li>Identify and indicate position of areas where erosion occurred.</li> <li>List mitigation steps taken.</li> <li>Fix erosion</li> <li>Repair erosion control measures</li> </ul>	Continuous checking and repairs. Biennial Report
Contours	All contours must be stable and work effectively	<ul style="list-style-type: none"> <li>Check the functioning and stability of the contours</li> </ul>	Continuous checking and construction of contours where necessary. Biennial Report
Diversion of collection ditches or trenches	These must be constructed properly and must be stable	Construction must be wide and shallow (and planted) rather than deep and narrow	Continuous checking, repairs and maintenance. Biennial Report
Vegetation growth	At least 70 - 80% coverage	Determine the percentage growth over the area. Re-seed /plant where necessary.	Continuous checking on rehabilitated areas, but mostly after the rain season. Biennial Report
Signage	Signs must be legible and in place	Check all sign boards – repair or replace if necessary	Continuous checking, repairs and maintenance. Biennial Report
<b>Progress Report</b>	March of the second year		<b>Biennial Report</b>

**C.9.2 Please describe how the adequacy of this programme will be assessed and how any inadequacies will be addressed. (Regulations 55(1) and 52(2)(e))**

*Example: I will, on a bi-monthly basis, check every aspect of my operation against the prescriptions given in Section F of this document and, if I find that certain aspects are not addressed or impacts on the environment are not mitigated properly, I will rectify the identified inadequacies immediately.*

The table above addresses the way in which the project will be monitored. Due to the nature and the scale of the operation, quarterly checks should be adequate. Though regular checks (such as monthly) will help to observe problems sooner and the cost of repairs can be reduced. The table above can be used, but all aspects of the EMP must be adhered to. Section F of the document can also assist in ensuring the operation is conducted in an acceptable manner. The mitigation and management measures given in C6.8 are evaluated at this stage to determine if they are still appropriate and if they effectively prevent or minimize impacts associated with the activity. All inadequacies must be addressed immediately and if adjustments to the EMPlan are required, this must be indicated in the report. Permission for changes must be applied for at the DME.





**C.10 CLOSURE****C.10.1 Closure and Environmental objectives: (Regulation 52(2)(f))****Clearly state the intended end use for the area prospected/mined after closing of operations**

Agricultural activities will continue on the farm and the excavated areas will be sloped where possible to an angle of 1:2.5 (1:3 is preferred) or the faces will be benched to ensure the site is safe.

The slopes will:

- Be levelled to remove all the depressions that can result in water damming up,
- The sharp edges on the slope will be rounded and the excavated areas landscaped so that the mined area will as far as practicable blend in with the unmined areas.
- The topsoil will be replaced over the mined areas
- The topsoil layer ripped or scarified to loosen the soil so that water and roots can penetrate,
- Contours will be constructed on the slopes at 25 – 50 m offset depending on the requirements of the site
- Storm water management systems will be in place at the top of the slope and draining along the side of the slopes to divert or at least control runoff water so that the topsoil is not washed away and erosion does not occur.
- Vegetation would be established on the mined areas.
- All scrap metal will be removed
- Any buildings or plant equipment erected for mining purposes would be removed
- There will be no pollution on site either from solid waste or spills of oil, fuel or lubricants
- The intended land use of the area remains agriculture on the slopes where planting or crop cultivation is possible.
- The site must at best blend in with the surrounding area.

**Benches.**

- Topsoil is replaced over the horizontal surface of the benches and vegetation must be reinstated on the benches to reduce the visual effect and prevent erosion of the benches as far as possible.
- The top of the benches must be rounded off to blend in with the surrounding area.
- Fix all the fences, buildings and gates (or other infrastructure damaged as result of mining).
- Lift and rehabilitate access and haul roads made by the applicant if they are no longer going to be used by the landowner.
- Repair all roads that remain

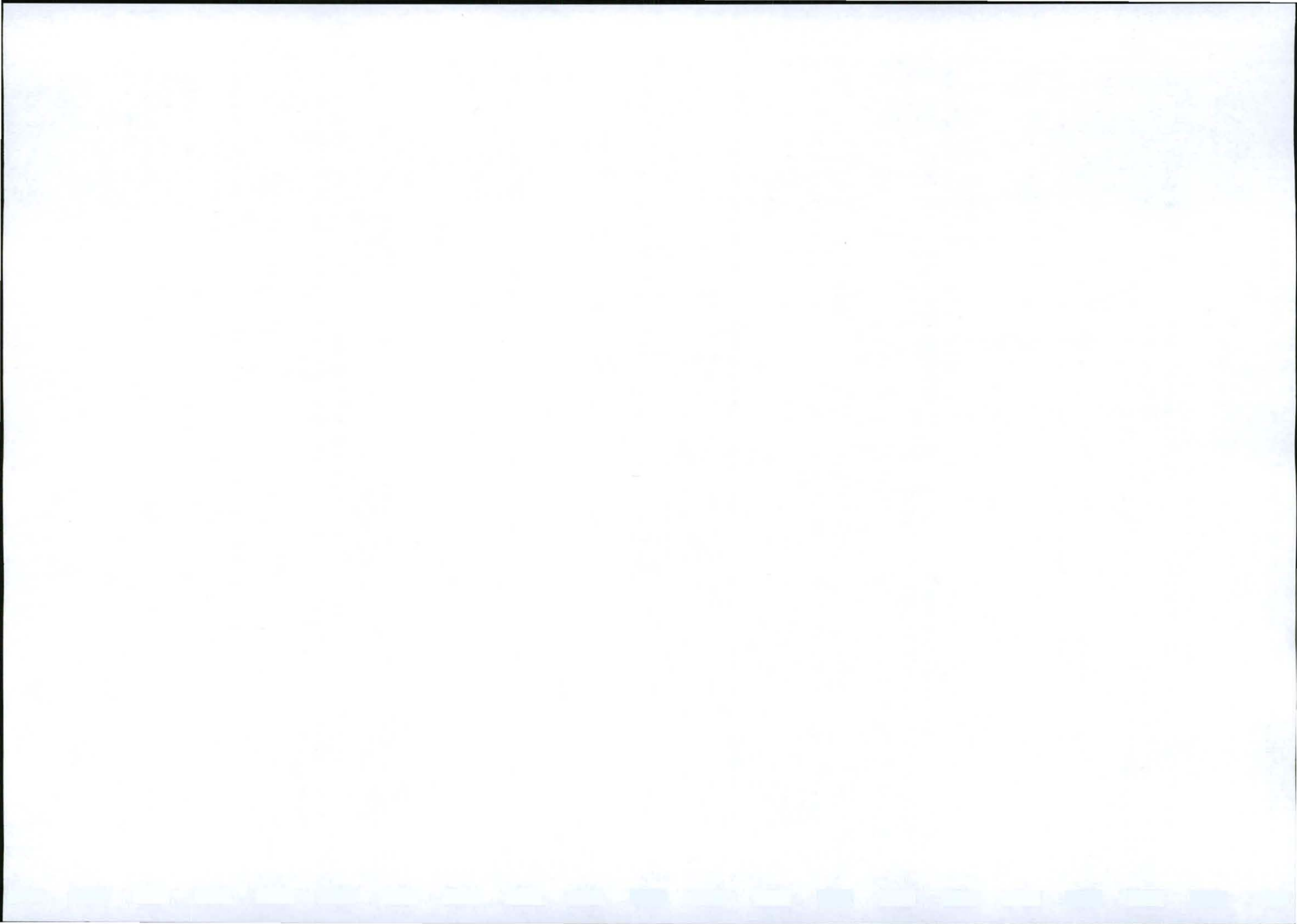
**Future land use or capability:**

(Provide broad future land use objective(s) for the site)

- The land is zoned agriculture and the area must be rehabilitated so that the area will be suitable for agricultural use where at all practicable. All fissures, rifts or clefts that occurred during mining will have been rehabilitated. The landowner intends to blend Site A into the water feature he is currently building adjacent to the proposed site, but that would not form part of the rehabilitation at this stage.

**C.10.2 Describe, in brief terms, what the environment will look like after a closure certificate has been obtained.****A. Status of the environment after closure: Site specific**

- At closure (after completion of prospecting) the entire mine area would have been levelled.
- All the depressions on the mined area will have been removed either by scraping them level with the surrounding area or by backfilling.
- All the topsoil that was removed and stored prior to mining commencing will be replaced and evenly spread over the mined area.
- The topsoil layer will also have been levelled and all the depressions removed. If the topsoil layer has become compressed during the replacement and levelling activities, the surface would be ripped, graded or scarified to loosen the soil. This would have allowed optimum root penetration and water absorption and movement of water through the soil.
- All faces formed between mined and unmined areas will be sloped to a gradient that does not exceed 1:3 and all the sharp edges formed between the mined and unmined areas would be rounded and shaped to, as far as is practicable, blend in with the surrounding area.
- At closure vegetation would have been reinstated. Initially the area would be covered with an annual crop to bind





and stabilized the soil. This is agricultural land and the land will be used for the planting of annual crops (for animal feed) and/or grassed to be used for grazing as with the surrounding land.

- There will be no domestic or other solid waste on the site, and this includes no scrap metal.
- Any buildings or plant equipment would have been removed.
- Any infrastructure removed or damaged as a result of mining would have been repaired or replaced (fences, gates, buildings, etc.).
- All access and haul roads made by the applicant will be removed if they are no longer going to be used by the applicant.
- All the roads that will remain will be repaired and will be in a good condition
- The chemical toilet would have been removed.
- There must be no signs of spillage of hydrocarbons.
- After the reinstatement of the vegetation, the ideal situation would be that the site would blend in with the surrounding environment.
- Informal tracks should not be visible (unless they are required by the landowner).
- There will be no alien vegetation on the site at the time of closure.
- There will be no signs of erosion on the site.
- Contours must be in place where required and must be constructed in such a way as to have as little as possible visual impact (e.g. round off sharp edges).
- Where necessary, diversion or collection ditches or trenches must be in place to divert runoff water where necessary to prevent erosion.

#### **B. Legal requirements of closure and procedures and per the MPRDA and EMPlan proforma document**

Regulations 56 to 62 outlines the entire process of mine closure, and these are copied in Section F of this document, both as a guide to applicants on the process to be followed for mine closure, and also to address the legal responsibility of the applicant with regard to the proper closure of his operation. In terms of Section 37 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), the holder of a right or permit is liable for any and all environmental damage or degradation emanating from his/her operation, until a closure certificate is issued in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

As this is a working document to be used by the applicant and is, therefore, also compiled to assist the applicant to mines in accordance with the requirements of the MPRDA, the closure requirements and procedures are given below.

#### **Decommissioning phase and closure**

(Regulation 52(2)(f)) & Regulation 52(2)(g).

The primary objective is to obtain a closure certificate at the end of the life of the operation. To realise this objective a closure report will be compiled as prescribed in the MPRDA 2002 (Act no 28 of 2002). The application will be accompanied by the following documents:

Closure objectives form part of this EMPlan and must include the following-

#### **➤ Key objectives for closure:**

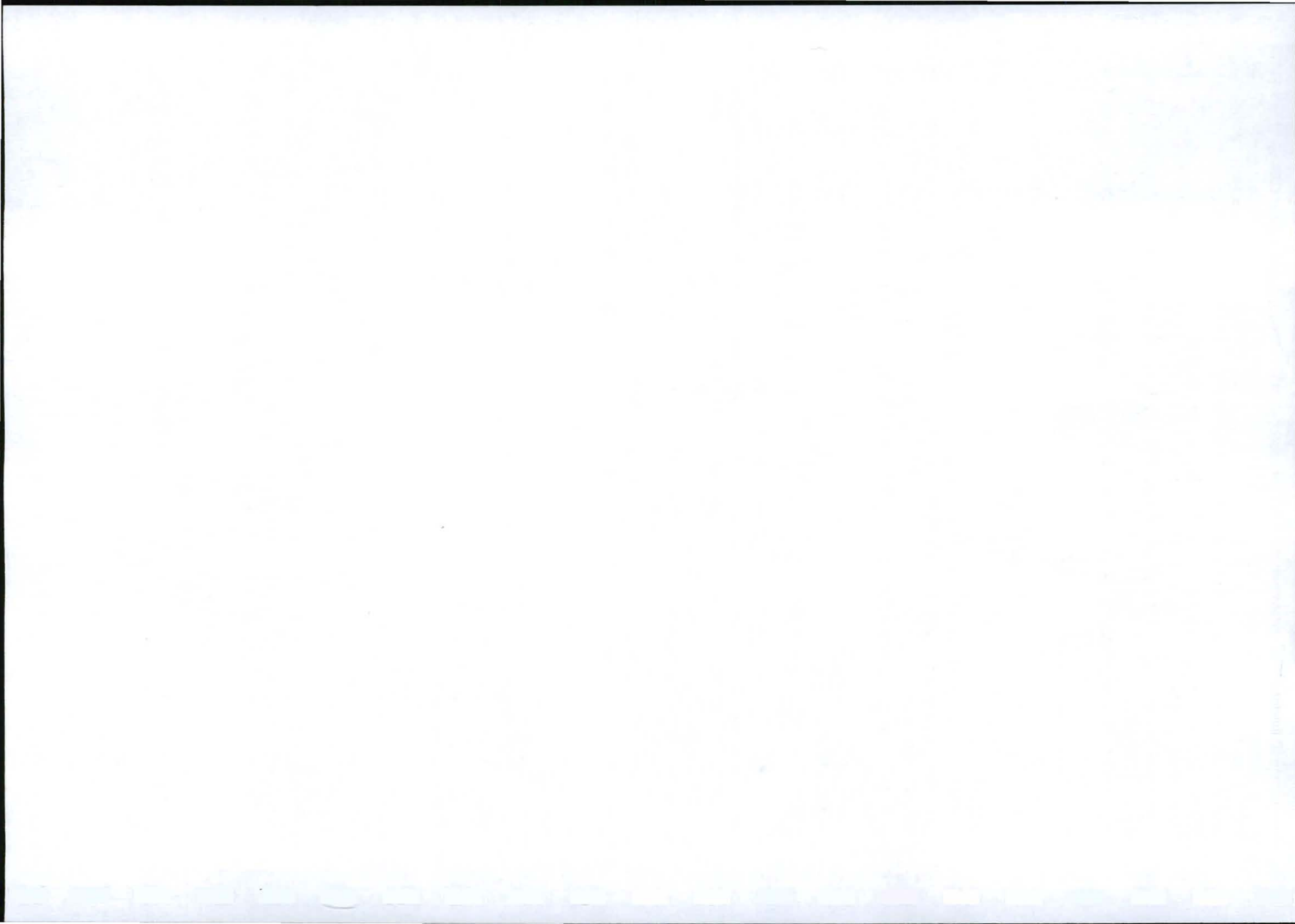
Identify the key objectives for mine closure to guide the project design, development and management of environmental objectives;

#### **(i) Final rehabilitation:**

- To conduct final rehabilitation to the extent that all environmental objectives have been reached (replacement of topsoil, ripping, levelling of the area, re-vegetation, waste removal, alien vegetation removal, etc.).
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

#### **(ii) Decommissioning of the mining activity and reaching environmental objectives: General requirements for closure to be considered (see site specific details above for comparison)**

- All rehabilitation as described in the EMPlan will have been completed. All the mining areas would have been rehabilitated as discussed in the rehabilitation plan and as listed in A above.
- The entire area will be levelled to remove depressions to prevent water from being collected.
- Backfilling should occur. Disturbance on slopes should be rehabilitated so that drainage will continue as was





and stabilized the soil. This is agricultural land and the land will be used for the planting of annual crops (for animal feed) and/or grassed to be used for grazing as with the surrounding land.

- There will be no domestic or other solid waste on the site, and this includes no scrap metal.
- Any buildings or plant equipment would have been removed.
- Any infrastructure removed or damaged as a result of mining would have been repaired or replaced (fences, gates, buildings, etc.).
- All access and haul roads made by the applicant will be removed if they are no longer going to be used by the applicant.
- All the roads that will remain will be repaired and will be in a good condition
- The chemical toilet would have been removed.
- There must be no signs of spillage of hydrocarbons.
- After the reinstatement of the vegetation, the ideal situation would be that the site would blend in with the surrounding environment.
- Informal tracks should not be visible (unless they are required by the landowner).
- There will be no alien vegetation on the site at the time of closure.
- There will be no signs of erosion on the site.
- Contours must be in place where required and must be constructed in such a way as to have as little as possible visual impact (e.g. round off sharp edges).
- Where necessary, diversion or collection ditches or trenches must be in place to divert runoff water where necessary to prevent erosion.

**B. Legal requirements of closure and procedures and per the MPRDA and EMPlan proforma document**

Regulations 56 to 62 outlines the entire process of mine closure, and these are copied in Section F of this document, both as a guide to applicants on the process to be followed for mine closure, and also to address the legal responsibility of the applicant with regard to the proper closure of his operation. In terms of Section 37 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), the holder of a right or permit is liable for any and all environmental damage or degradation emanating from his/her operation, until a closure certificate is issued in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

As this is a working document to be used by the applicant and is, therefore, also compiled to assist the applicant to mines in accordance with the requirements of the MPRDA, the closure requirements and procedures are given below.

**Decommissioning phase and closure**

(Regulation 52(2)(f) & Regulation 52(2)(g).

The primary objective is to obtain a closure certificate at the end of the life of the operation. To realise this objective a closure report will be compiled as prescribed in the MPRDA 2002 (Act no 28 of 2002). The application will be accompanied by the following documents:

Closure objectives form part of this EMPlan and must include the following-

➤ **Key objectives for closure:**

Identify the key objectives for mine closure to guide the project design, development and management of environmental objectives;

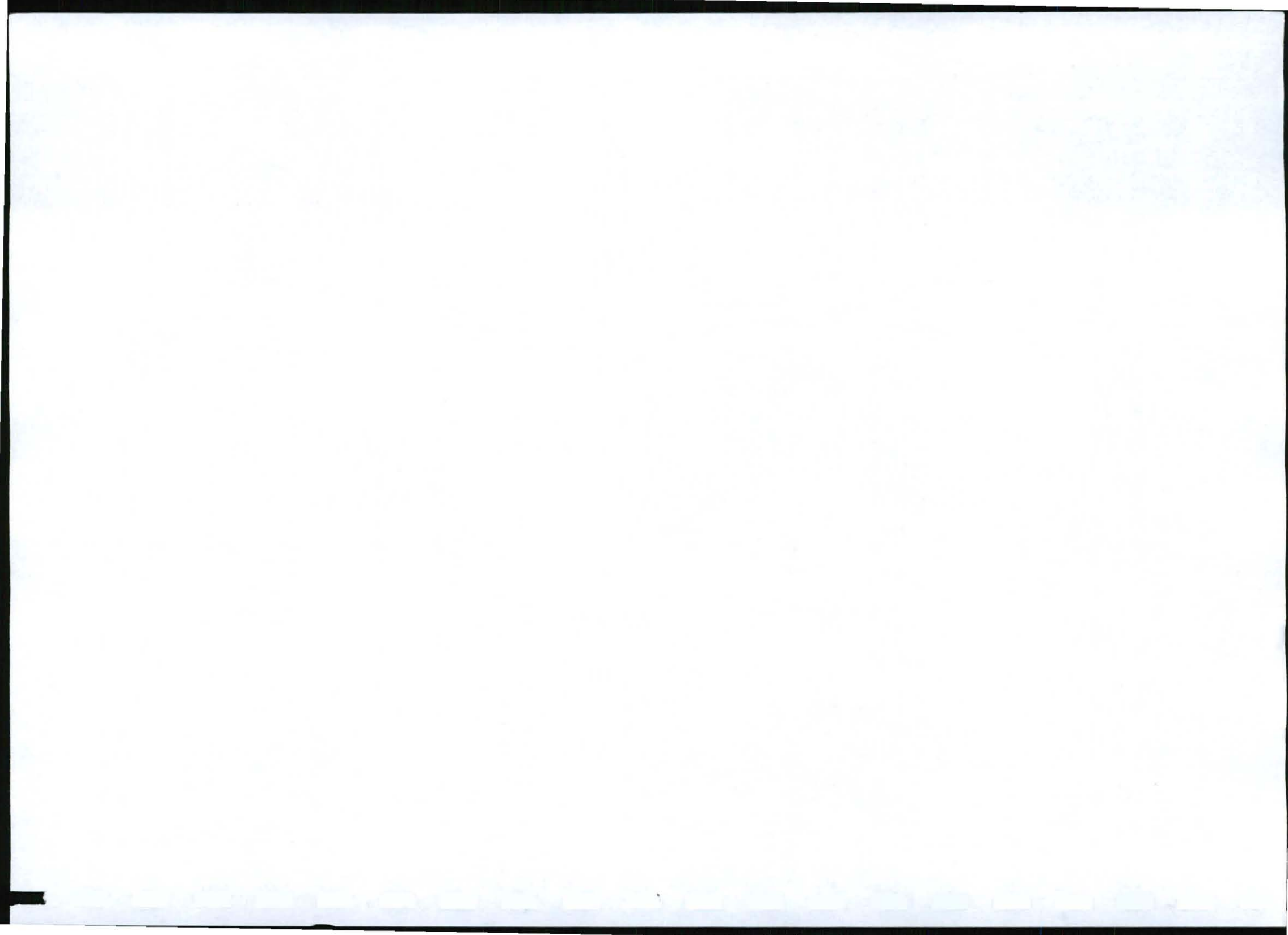
**(i) Final rehabilitation:**

- To conduct final rehabilitation to the extent that all environmental objectives have been reached (replacement of topsoil, ripping, levelling of the area, re-vegetation, waste removal, alien vegetation removal, etc.).
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

**(ii) Decommissioning of the mining activity and reaching environmental objectives: General requirements for closure to be considered (see site specific details above for comparison)**

- All rehabilitation as described in the EMPlan will have been completed. All the mining areas would have been rehabilitated as discussed in the rehabilitation plan and as listed in A above.
- The entire area will be levelled to remove depressions to prevent water from being collected.
- Backfilling should occur. Disturbance on slopes should be rehabilitated so that drainage will continue as was





prior to the prospecting activity. The disturbances after backfilling must be covered with topsoil.

- The disturbed area will be landscaped to blend in with the surrounding undisturbed areas.
- All infrastructure, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA)
- Waste material of any description, including receptacles/waste containers, scrap metal, general rubble and tyres as a result of the prospecting activity, will be removed entirely from the prospecting area and disposed of at a recognized landfill facility.
- Any oils, fuel or lubricants that were stored on site, will be removed. The area where the storage took place will be rehabilitated and re-vegetated.
- No toxic waste will be visible on site (remove all spillage to depth of penetration from the site)- as a result of mining (if damaged or temporarily removed). All spills would have been removed or the soil would have been ameliorated.
- The mobile chemical toilet will be removed.
- All roads (temporary tracks or access roads no longer required by the landowner) made on the site by the applicant will be lifted/ripped/loosened with topsoil in place.
- All invasive vegetation is removed so that no invasive vegetation will be present on the disturbed areas site after the activity occurred.
- Any damage to infrastructure (fences, gates, etc.) would be repaired.
- Any infrastructure that was removed during mining would be replaced.
- There will be no erosion on site that resulted from mining. All fissures, rifts or clefts that occurred during mining will have been rehabilitated.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

⇒ **Proposed closure cost:**

The financial provision provided in the document is adequate to rehabilitation the area that was excavated.

⇒ **Closure Report**

The primary objective is to obtain a closure certificate at the end of the life of the prospecting area/mine. To realise this objective a closure report will be compiled as prescribed in the MPRDA 2002 (Act no 28 of 2002). The application for closure will be accompanied by the following documents:

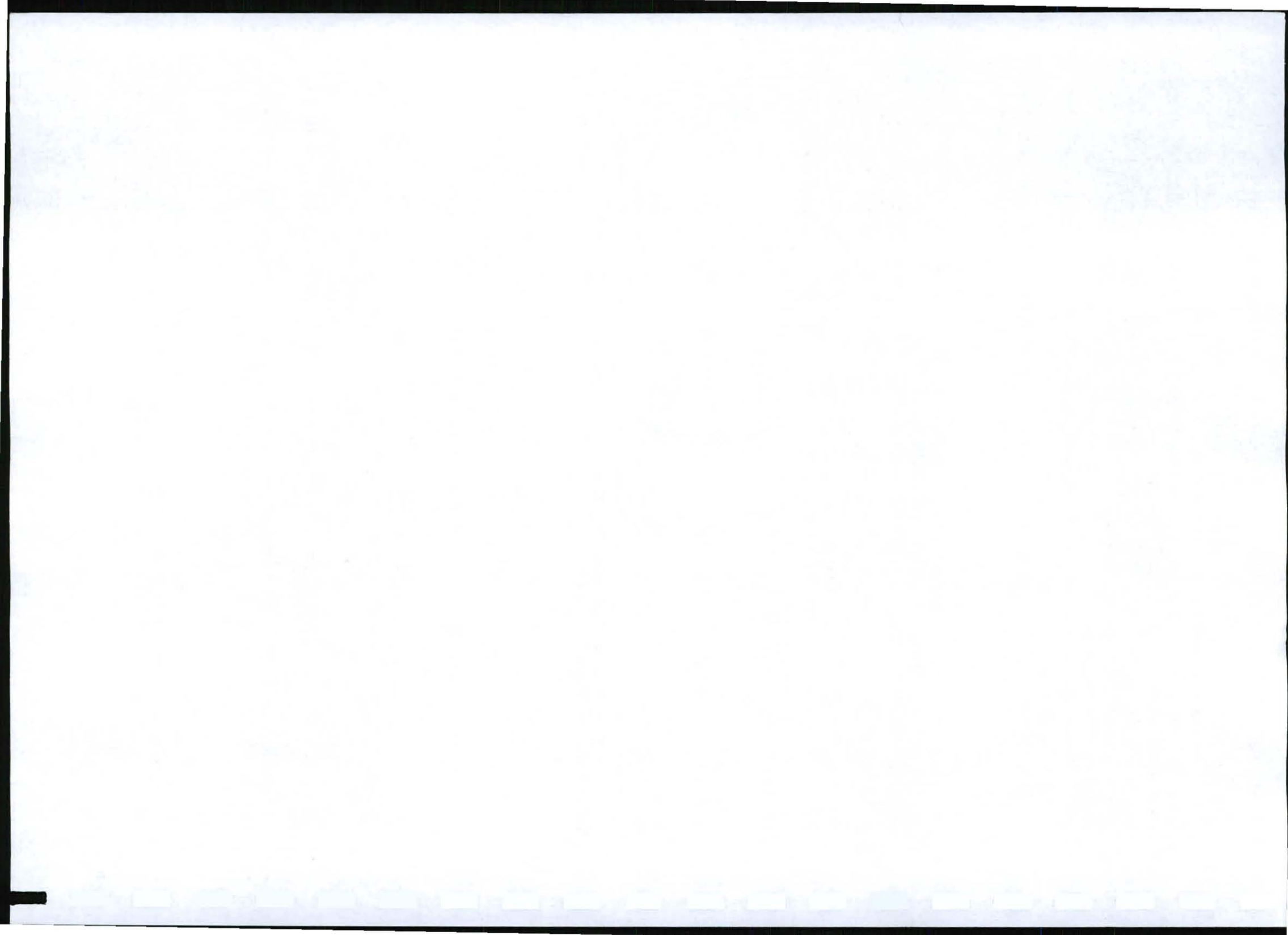
The closure report will include the following

- (i) Closure plan
- (ii) Final Performance Assessment Report
- (iii) Environmental Risk Report

**(i) Closure plan**

A final layout plan must be submitted at closure of the prospecting area or when operations have ceased along with a closure plan addressing the following:

- Identify and describe the closure objectives in relation to the:
  - Project design (Mine operation) and project development
  - Management of Environmental objectives and where the prospecting area is located
  - Social setting;
- A plan contemplated in Regulation 2(2), coordinated according to generally accepted standards, showing the land or area under closure;
- A summary of the regulatory requirements and conditions for closure (in relation to the MPRDA) negotiated and documented in the environmental management plan (this document).
- A summary of the results of the environmental risk report and details of identified residual and latent impacts;
- A summary of the results of progressive rehabilitation undertaken;
- A description of the methods to decommission the mining component and the mitigation or management strategy proposed to avoid, minimize and manage residual or latent impacts;
- Details of any long-term management and maintenance expected;
- Details of financial provision for monitoring, maintenance and post closure management, if required;
- A plan or sketch at an appropriate scale describing the final land use proposal and arrangements for the site;





- A record of interested and affected persons consulted; and
- Technical appendices, if any.
- Description and details for closure and post closure management; Residual impacts, monitoring and requirements to obtain closure in terms of the Act.
- Decommissioning, closure and after care:

The decommissioning, closure and post closure management will be addressed in the closure plan, which will contain the following –

- A final layout plan will be submitted at closure of the mine or when operations have ceased.
- the environmental classification, including assumptions on which the classification were based;
- the closure objectives, final land use or capability;
- conceptual description and details for closure and post closure management;
- cost estimates and financial provision for closure and post-closure management; and
- residual impacts, monitoring and requirements to obtain closure in terms of the Act.

#### (ii) Final Performance Assessment Report

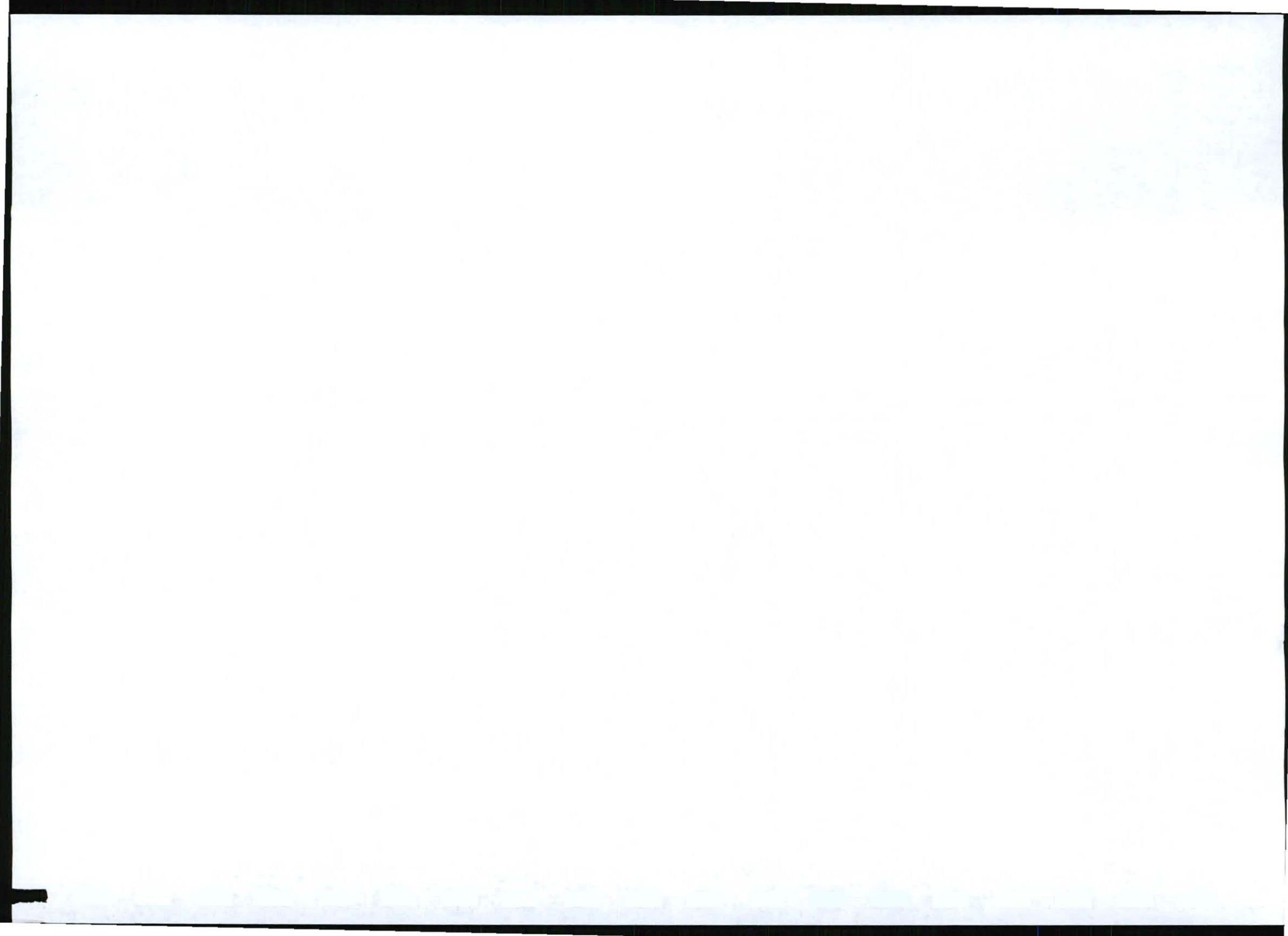
A final performance assessment will be conducted and a report submitted to the Minister to ensure that –

- The requirements of the relevant legislation have been complied with;
- The closure objectives as described in the EMPlan have been met; and
- All residual environmental impacts resulting from the holder's operations have been identified and the risks of latent impacts, which may occur, have been identified, quantified and arrangements for the management thereof have been assessed.
- The final performance assessment report will either precede or accompany the application for a closure certificate in terms of the Act.
- This report will contain information on the following:
  - Areas mined
  - Areas rehabilitated
  - Depth of topsoil on rehabilitated areas
  - Areas not mined
  - Areas not rehabilitated
  - Areas under cultivation
  - Gradient of the slopes
  - Success of rehabilitation and re-vegetation
  - Include a layout plan indicating the above in the report.
  - Removal of any infrastructure and equipment from the site (digger loader) and improving the condition of the access roads to the mine.
  - Removal of waste from the site.
  - Letter of satisfaction regarding rehabilitation from the landowner and input from Authorities.
  - Also see progress report and monitoring.
  - Photographic-evidence if possible for record purposes

#### (iii) Environmental Risk Report

An application for a closure certificate must be accompanied by an environmental risk report which must include-

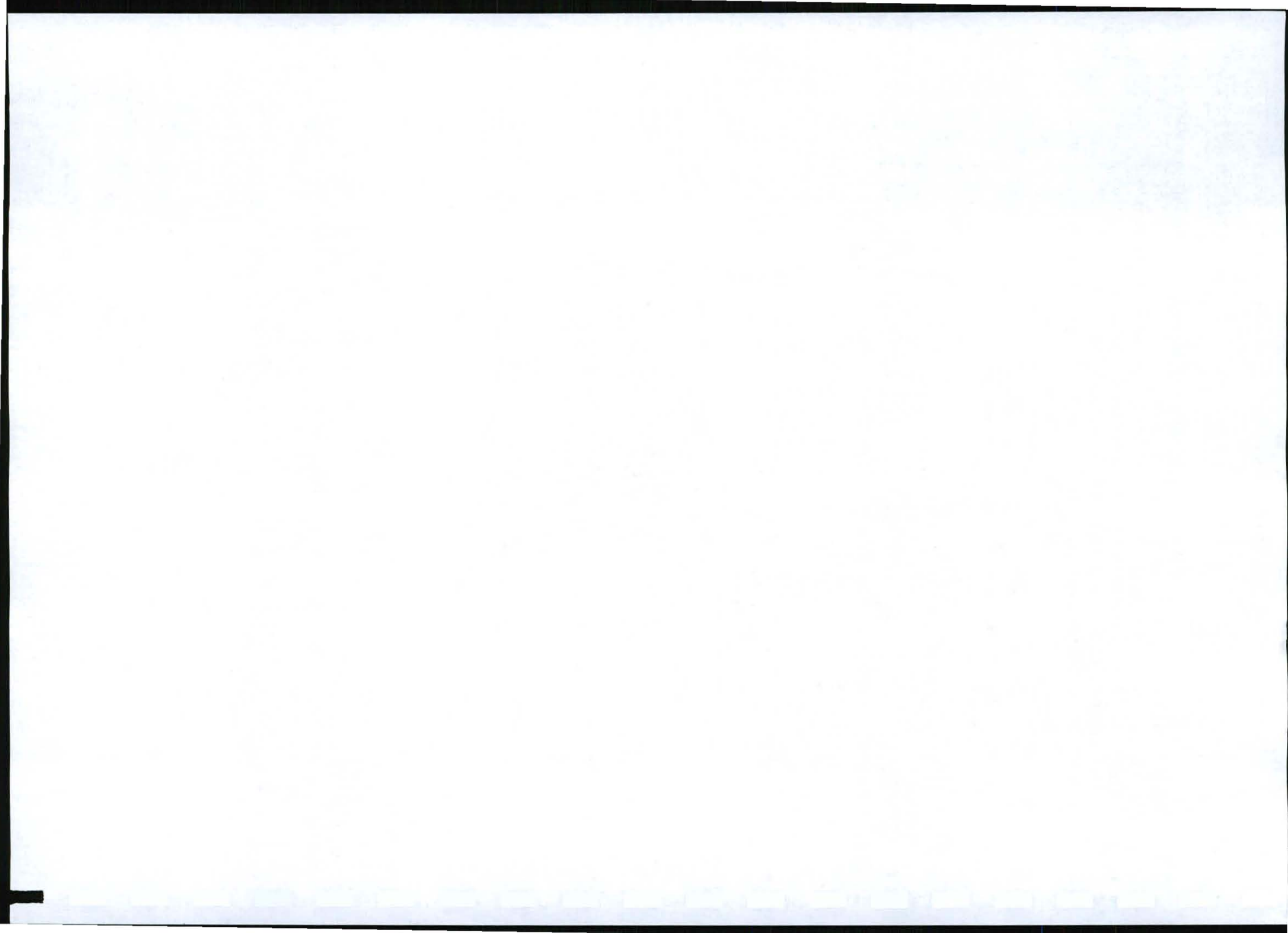
- The undertaking of a screening level environmental risk assessment where-
  - all possible environmental risks are identified, including those which appear to be insignificant;
  - the process is based on the input from existing data;
  - the issues that are considered are qualitatively ranked as –
    - ◆ a potential significant risk; and/or
    - ◆ an uncertain risk; and/or
    - ◆ an insignificant risk.
- The undertaking of a second level risk assessment on issues classified as potential significant risks where-
  - appropriate sampling, data collection and monitoring be carried out;
  - more realistic assumptions and actual measurements be made; and
  - a more quantitative risk assessment is undertaken, again classifying issues as posing a potential significant risk or insignificant risk.



- Assessing whether issues classified as posing potential significant risks are acceptable without further mitigation;
- Issues classified as uncertain risks be re-evaluated and re-classified as either posing potential significant risks or insignificant risks;
- documenting the status of insignificant risks and agreement with interested and affected persons;
- identifying alternative risk prevention or management strategies for potential significant risks which have been identified, quantified and qualified in the second level risk assessment;
- agreeing on management measures to be implemented for the potential significant risks which must include-
  - a description of the management measures to be applied;
  - a predicted long-term result of the applied management measures;
  - the residual and latent impact after successful implementation of the management measures;
  - time frames and schedule for the implementation of the management measures;
  - responsibilities for implementation and long-term maintenance of the management measures;
  - financial provision for long-term maintenance; and
  - monitoring programmes to be implemented."

Note: The proposed end-state of your area must be consulted with interested and affected parties in terms of Regulation 52(2)(g). Details of the acceptability of the end-state must appear in the section below.





## C.11 PUBLIC PARTICIPATION (Regulation 52(2)(g))

In terms of the above regulation consultation with interested and affected persons or person must take place prior to the approval of the environmental management plan. This regulation is quoted below for ease of reference.

### *"a record of the public participation undertaken and the results thereof"*

- C.11.1** Any comments lodged by an interested and affected person or persons in terms of section 10(1)(b) of the Act, must be in writing and addressed to the relevant Regional Manager.
- C.11.2** Any objections lodged by an interested and affected person or persons against the application for a right or permit in terms of the Act, must set out clearly and concisely the facts upon which it is based and must be addressed to the relevant Regional Manager in writing.
- C.11.3** The Regional Manager must make known by way of publication in a local newspaper or at the office of the Regional Manager, that an application for a right or permit in terms of the Act has been received.

## C 11.4 METHODOLOGY APPLIED TO CONDUCT PUBLIC PARTICIPATION

### C.11.4.1 General objectives of the public participation report

- (a) To facilitate the involvement of IAPs in the identification of the issues of concern which need to be addressed in the EMPlan. Valuable information is sometimes obtained from IAPs that can assist in making the EIA process more meaningful and contribute to the compilation of a better EMPlan. The ultimate aim is the protection of the environment and personal comments aimed at causing damage or harm to the applicant should have no place unless it specifically deals with environmental issues that can help to determine whether the activity will cause unacceptable pollution and/or degradation to the environment. The environment includes the harm to people and their property that is unacceptable according to the MPRDA (which is compiled in consideration of the principles of NEMA).
- (b) To provide IAPs an opportunity to raise issues, comment or object.

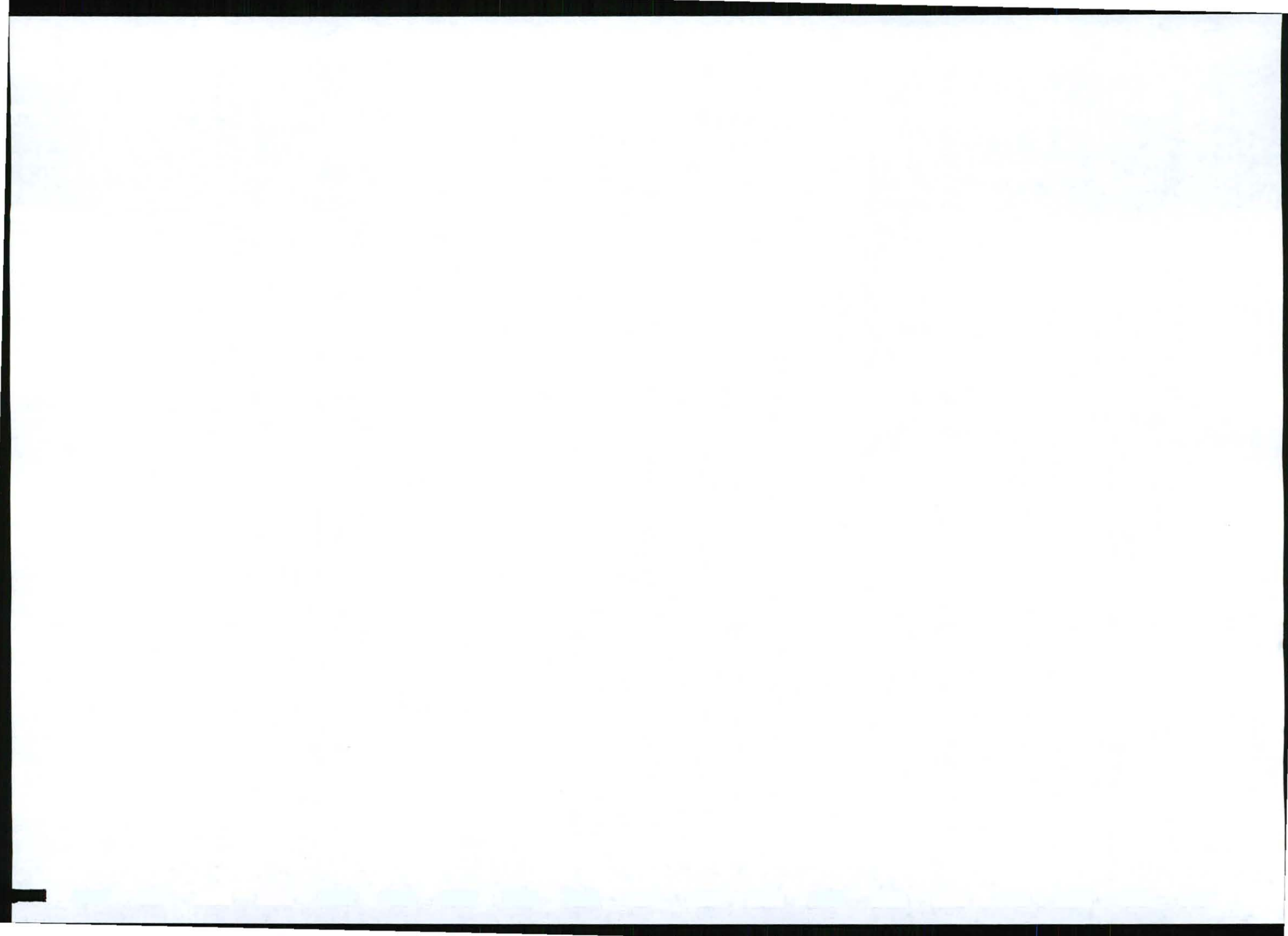
### C.11.4.2 Public Consultation/Public participation process

Engagement with Interested and Affected Parties (IAPs) forms an integral component of the EIA process. IAPs will have an opportunity at various stages throughout the EIA process to gain more knowledge about the proposed project and to provide input.

The proposed project was advertised in the local and regional newspapers to alert as many people as possible about the project and associated EIA process. This was done to elicit comment from - and register IAPs from as broad a spectrum of the public as possible. Apart from involving the GOs and NGOs, the Public Participation Process (PPP) will focus mainly on registered IAPs and the local communities.

In addition to the advertising, a public meeting was held in Gonubie to introduce the proposed project to the community and discuss any comments, questions or issues of concern. Responses received thus far have been noted and after all feedback has been received, the issues raised will be addressed in the EIA/EMP report. Gonubie was selected as the complaints received were related to mining on Portion 1 the Farm 800, Gonubie rather than Portion 3 of the Farm 860, East London area.

The process followed so far:





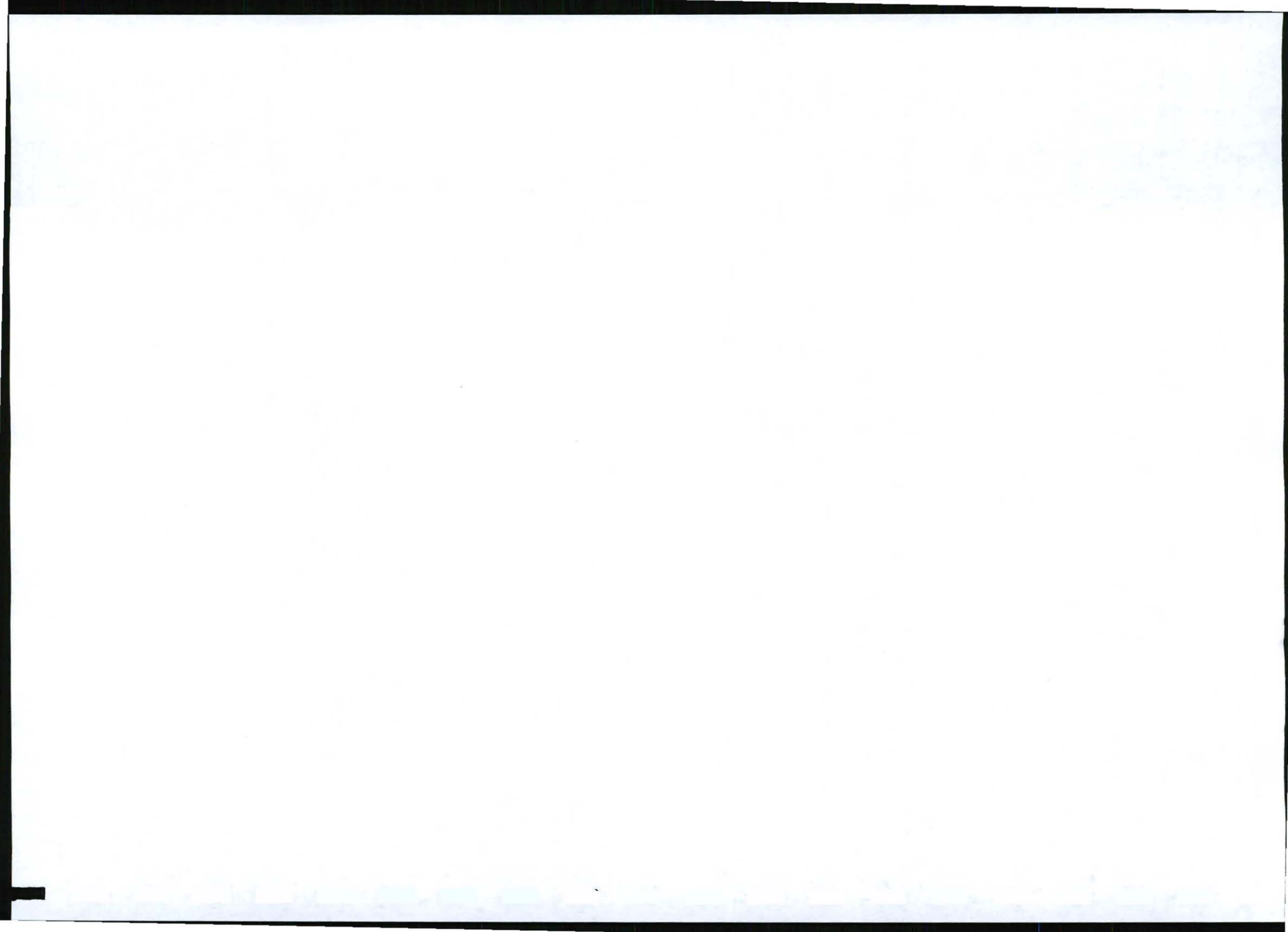
- (a) The application was lodged with the DME for the proposed site on in mid June 2009. The application documentation was handed in together with a Mining Work Programme and as Social and Labour Plan, none of which forms part of the MPRDA EIA requirements and the documents are, therefore, not attached.
- (b) Advertisements were placed in The Gonubie Bugle and The Daily Dispatch (see Annexure A) to inform IAPs of the proposed operation (Annexure A).
- (c) Two notice boards informing road users that an application was submitted was placed on the perimeter fence at the entrance to the farm from Main Road as well as at the proposed mine in Mount Coke.
- (d) Notice boards were also placed at shops in the informal and formal settlements bordering the farm and at the municipal office.
- (e) Residents of neighbouring farms and the landowner were informed of the proposed activity via registered mail. A Background Information Document (BID) was included.
- (f) Registered letters with background information were also sent to the relevant GOs & NGOs.
- (g) Relevant GOs identified by the Department of Minerals and Energy (DME) will receive a copy of the documents from the DME (Section 40(i) of the MPRDA).
- (h) The Public Participation Report will be submitted to the DME in August 2008.
- (i) To allow the IAPs access to the scoping - as well as the EIA/EMP report, a copy of the documents will be placed in the library or other public places.
- (j) Proof of the public participation process can be found in the Annexures at the back of this document and will also be included in the EIA/EMP report.
- (k) The applicant must complete the public participation exercise within 60 days and the result of the public participation process will then be included in the EIA/EMP report.
- (l) The EMPlan Report will be made available to GOs, NGOs and IAPs about a week after the 60 days from the acceptance of the application by the DME. The date for the submission of the EMP will not be later than 28 September 2009.
- (m) The DME will distribute copies of the EIA/EMP report to the relevant Government Departments identified by the DME.

#### C.11.4.3 Registered as IAPs

Details of all persons and organizations that were contacted or who received the BID are included in the IAP database. All IAPs were asked to register if they felt inclined to do so. Those who returned the response sheet were automatically registered as IAPs and will be kept updated as to the progress of the application. Responses to the newspaper advertisement as well as the e-mails were also included. Details are included in the Annexures.

**Table 17: List of Annexures included in the document**

Annexure A	Advertisement	Placed in Daily Dispatch and Gonubie Bugle
Annexure B	Notice board	Placed at the access point to the farm from the Main Road; at the shops in the informal and formal settlements and municipality
Annexure C	Communication with the neighbouring IAPs	Registered Mail; Fax; E-mail
Annexure D	Communication with the NGOs and GOs	Registered Mail; Fax; E-mail
Annexure E	Response from IAPs	Comments and issues raised by IAPs received at this stage are included
Annexure F	Response from NGOs & GOs	Comments and issues raised by NGOs & GOs received at this stage are included
Annexure G	Community Meeting	A public meeting is scheduled for September 22, 2009. All IAPs were notified either by registered mail or e-mail, notices were put up in the settlement near the farm and at the municipality and community notices were sent to the Gonubie Bugle and Daily Dispatch
Annexure H	Comments Register	Response to the comments will be provided once all the relevant information and data had been gathered.
Annexure I		





Annexure J	Communication with the Landowner	Direct communications as well as registered letter to the landowner
Annexure K	Archaeological Report	

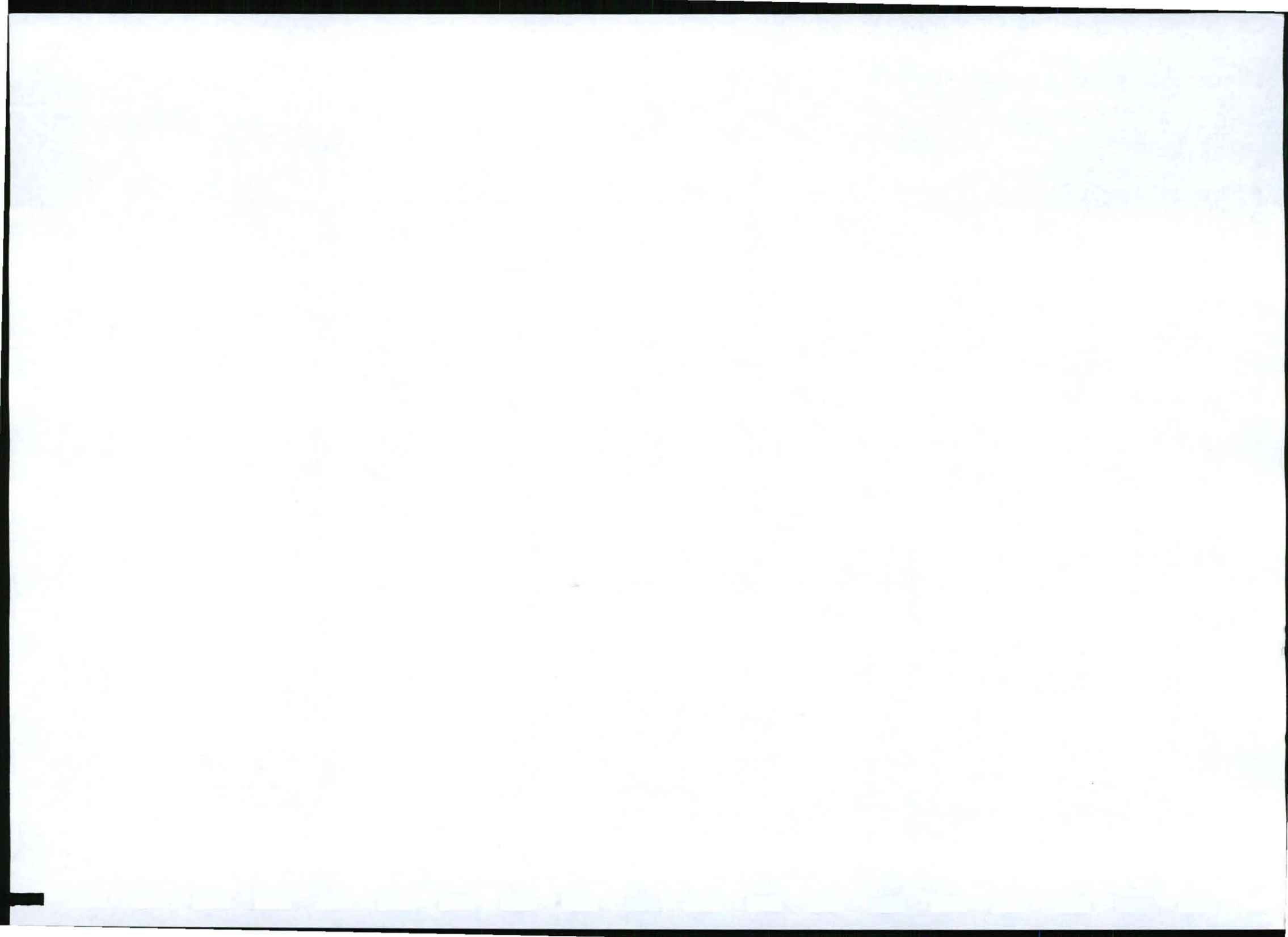
Public participation commenced when the application was accepted by the DME. The applicant must provide proof of the public participation to the DME within 30 days. A further 30 days will be given to IAPs after the EIA&EMP has been made available to them. Registered IAPs will be informed when and where the EIA/EMP, will be available (expected dates are provided above). Providing specific dates and places are often problematic for two reasons:

- Reports must be handed in within a specific time frame (deadlines). Often the information required for the reports is outstanding by the time the report is due. The applicant must then re-apply and previous dates quoted are no longer relevant. This confuses IAPs.
- Registered IAPs often request that the document be placed at locations more convenient to them; information that only becomes available as the process continues.

**Table 18. Government organizations**

Institution	Address	Contact Details
The Department of Land Affairs ATTN: MR MABUTHI HLOPHEKAZI	P.O. Box 1952 EAST LONDON 5200	Fax: 043 722 1788
Department of Land Affairs State Land Unit ATTN: MS BAHLEKILE KIKELANA	P.O. Box 1958 EAST LONDON 5200	Fax: 043 743 4786
The Municipal Manager Buffalo City Municipality ATTN: MS AMANDA MGWENTSHU	P.O. Box 134 EAST LONDON 5200	Fax: 043 743 8568
The Regional Manager Department of Minerals and Energy: Eastern Cape	Private Bag X 6076 PORT ELIZABETH 6000	
The Superintendent General Department of Agriculture and Rural Development Eastern Cape ATTN: ADV AMON NYONDO	Dukumbana Building Private Bag X 040 BISHO 5605	Fax: 040 635 1222
Department of Transport Roads Infrastructure ATTN: MR UNATHI TELE	Private Bag X 0023 BISHO 5605	Fax: 043 642 4407
The Superintendent General Department of Local Government and Traditional Affairs Eastern Cape ATTN: MR STANLEY KHANYILE	Private Bag X 0035 BISHO 5605	Fax: 040 639 2163
The Acting HOD Department of Economic Development and Environmental Affairs Eastern Cape ATTN: MS MENDO DUKAKA	Private Bag X 0054 BISHO 5605	Fax: 040 609 3219
The Manager ESKOM Southern Region	Private Bag X 1 BEACON BAY 5205 EAST LONDON	Fax: 043 703 2929
WILDLIFE AND ENVIRONMENTAL SOCIETY OF SA	P.O. BOX 30145 TOKAI 7966	
BOTANICAL SOCIETY OF SA	PRIVATE BAG X 10	





	CLAREMONT 7735	
The Regional Manager: Environmental Affairs Department of Economic Development and Environmental Affairs	Private Bag X 9060 East London 5200	
Gonubie Ratepayers Association PO BOX 540 GONUBIE 5262  roelf@discoverymail.co.za  ATTN: Roelf Berg		

Within the 60 days the applicant must have completed the public participation and include the comments in the results in the EIA/EMP has been compiled. Comments from the relevant State departments are only available 60 days after the submission of the EIA/EMP.

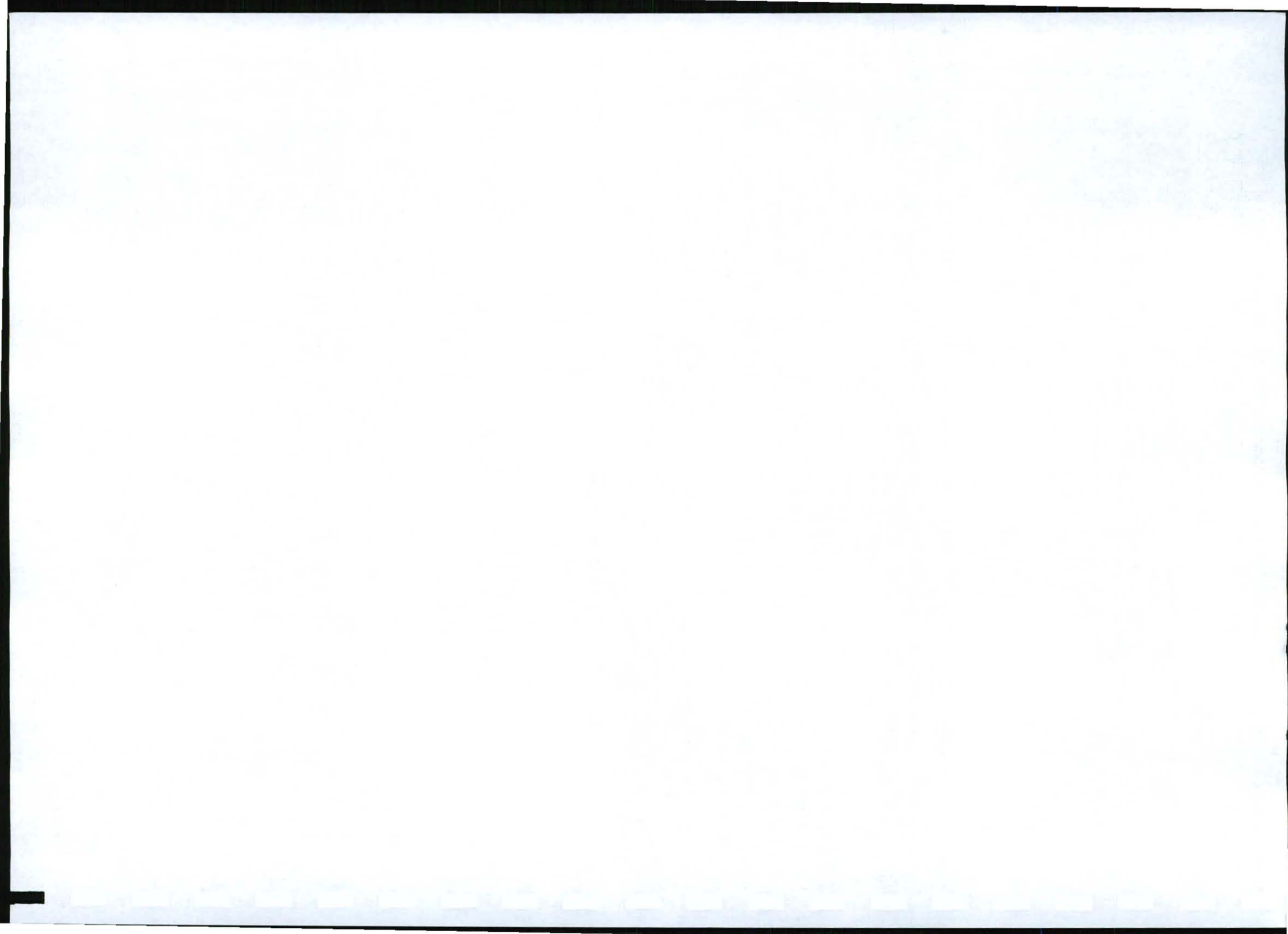
#### C.11.4.4 Interested and Affected Parties

In the table below, please list the names of people or organisations likely to be influenced by the proposed operations (these might include neighbours, other water users, etc.) Kindly indicate how these people were consulted (eg. By letter or by phone) and provide proof of that consultation. What were the main concerns/ objections raised by the interested and affected parties to the proposed operation?

#### Statutory bodies

Table 19. Detail regarding relevant GOs

Government Organization	Address
The Department of Land Affairs ATTN: MR MABUTHI HLOPHEKAZI	P.O. Box 1952 EAST LONDON 5200
Department of Land Affairs State Land Unit ATTN: MS BAHLEKILE KIKELANA	P.O. Box 1958 EAST LONDON 5200
The Municipal Manager Buffalo City Municipality ATTN: MS AMANDA MGWENTSHU	P.O. Box 134 EAST LONDON 5200
The Regional Manager Department of Minerals and Energy Eastern Cape	Private Bag X 6076 PORT ELIZABETH 6000
The Superintendent General Department of Agriculture and Rural Development Eastern Cape ATTN: ADV AMON NYONDO	Dukumbana Building Private Bag X 040 BISHO 5605
Department of Transport Roads Infrastructure ATTN: MR UNATHI TELE	Private Bag X 0023 BISHO 5605
The Superintendent General Department of Local Government and Traditional Affairs Eastern Cape	Private Bag X 0035 BISHO



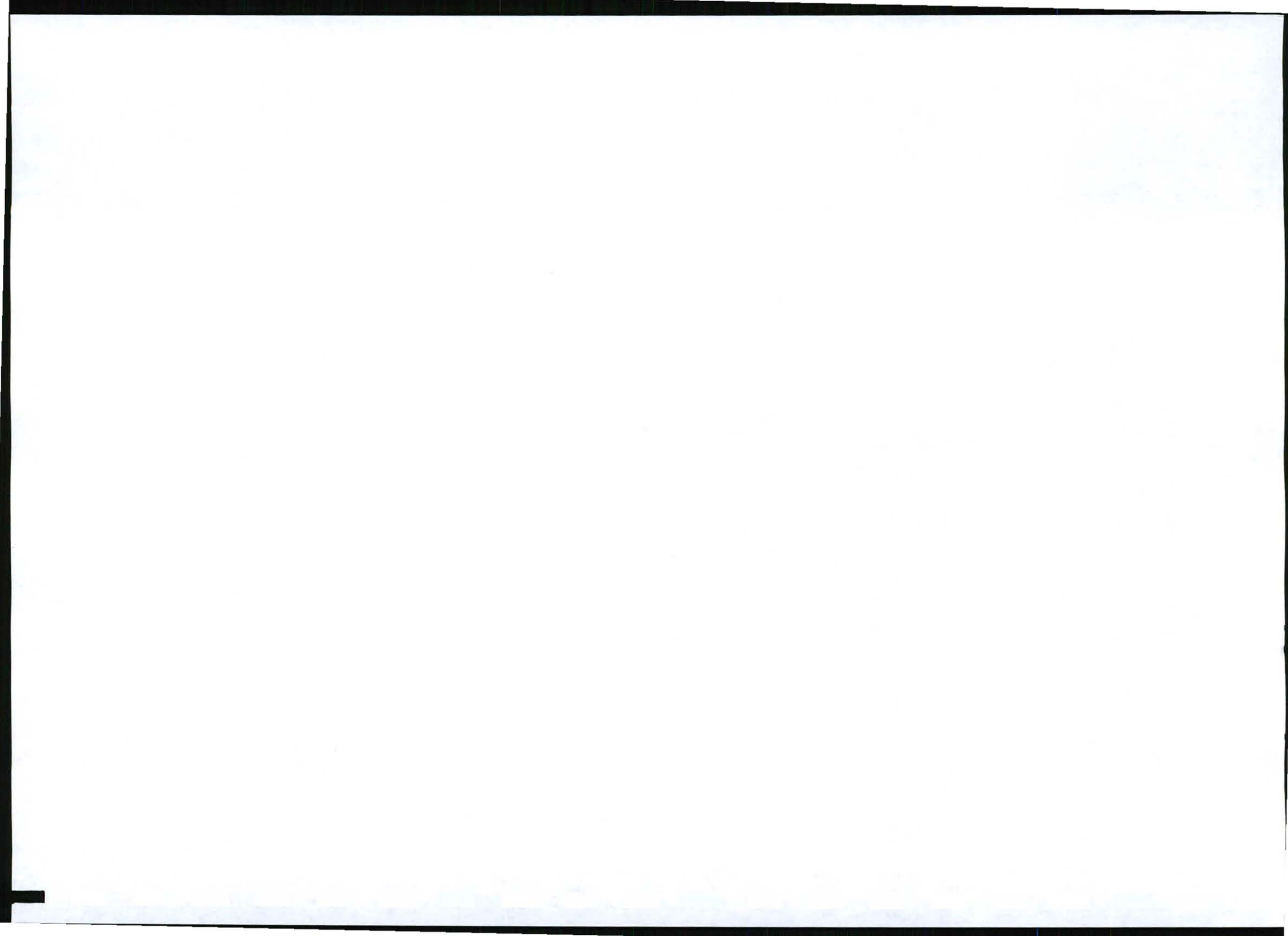


ATTN: MR STANLEY KHANYILE	5605
The Acting HOD Department of Economic Development and Environmental Affairs Eastern Cape ATTN: MS MENDO DUKAKA	Private Bag X 0054 BISHO 5605
The Regional Manager: Environmental Affairs Department of Economic Development and Environmental Affairs	Private Bag X 9060 East London 5200

### Detail regarding relevant NGOs

**Table 20. Contact details of organisations, associations and institutes**

Non-Governmental Organization	Address
WILDLIFE AND ENVIRONMENTAL SOCIETY OF SA	P.O. BOX 30145 TOKAI 7966
BOTANICAL SOCIETY OF SA	PRIVATE BAG X 10 CLAREMONT 7735
East Cape Environmental Network ATTN: Ingela Richardson	10 Bowers Street GONUBIE 5257
Gonubie Ratepayers Association ATTN: Roelf Berg	PO BOX 540 GONUBIE 5262

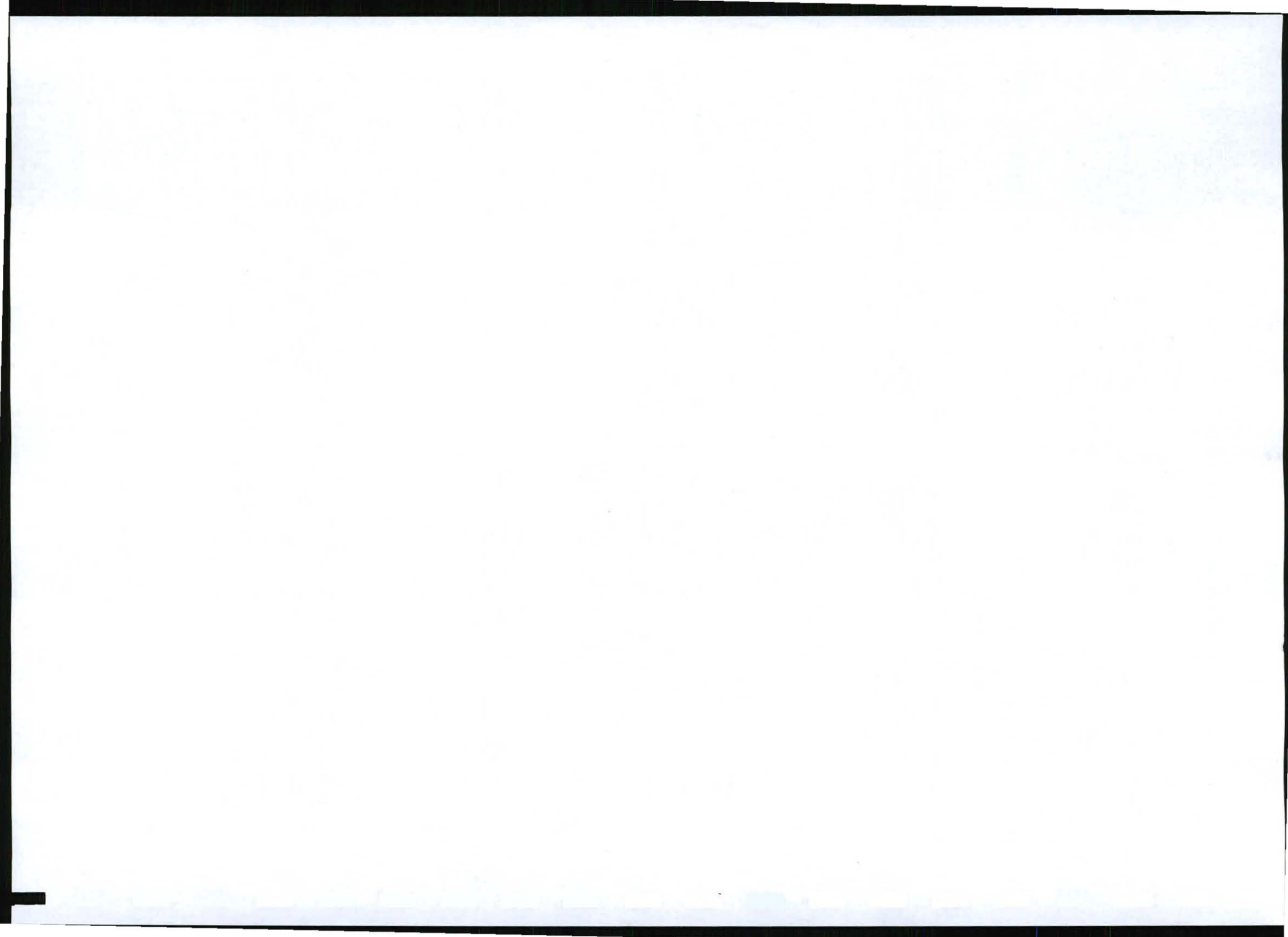


IAPs

Table 21. Registered Interested and affected Parties

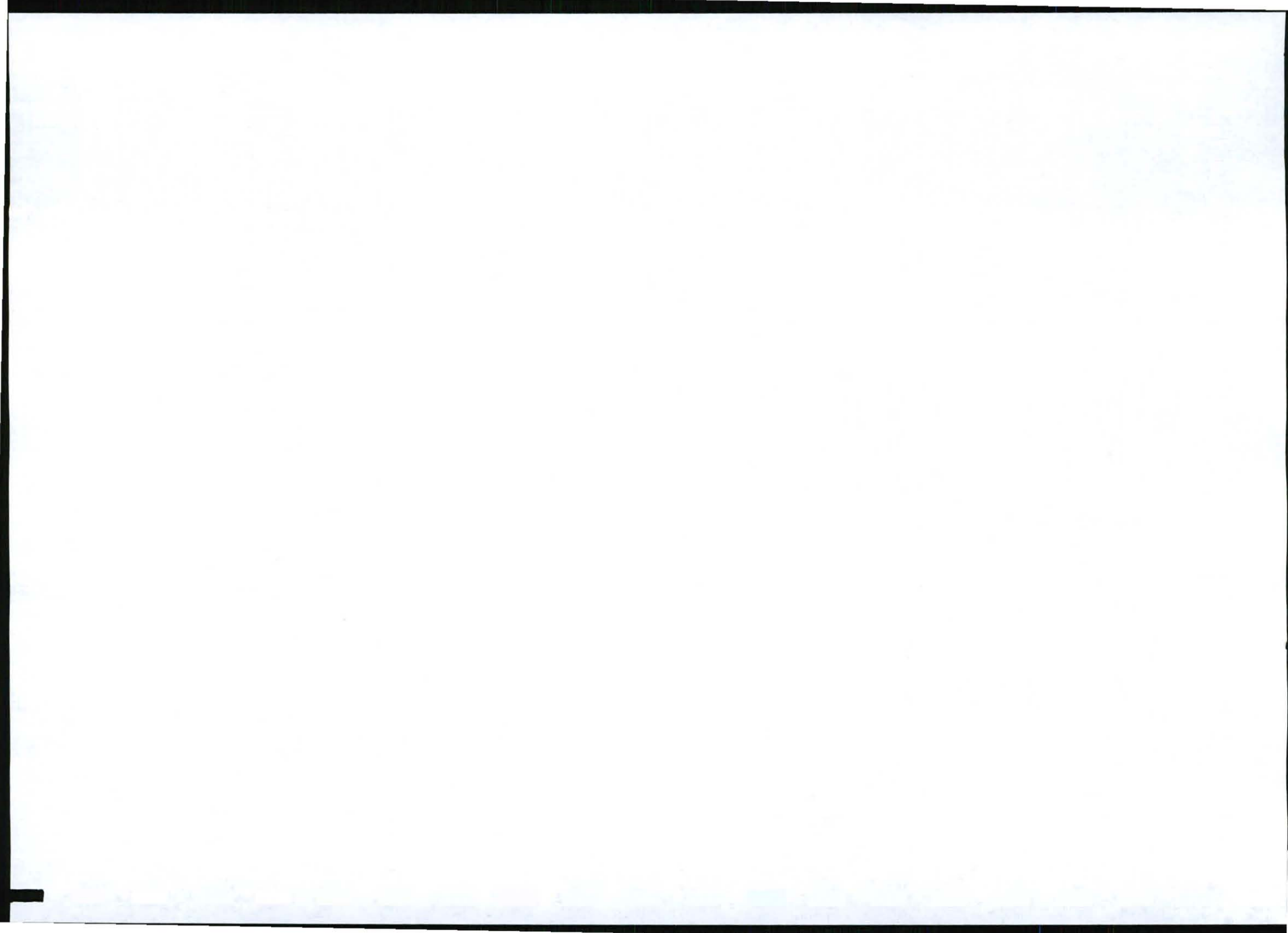
Name	Address	Summary of issues raised	
Attenborough, RK	17 Second Street Gonubie East London 5259	<ul style="list-style-type: none"> <li>• Health risk</li> <li>• Waste disposal site</li> <li>• Impact on property values</li> <li>• Impact on school</li> </ul>	<ul style="list-style-type: none"> <li>• Dust, noise discussed in C.6.1, C.6.3</li> <li>• NA to this site</li> <li>• NA to this site</li> <li>• NA to this site</li> </ul>
Bottcher, Brendon	16 Lourie Lane Gonubie 5256	<ul style="list-style-type: none"> <li>• Traffic safety</li> <li>• Damage to road</li> <li>• Dust</li> </ul>	<ul style="list-style-type: none"> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> </ul>
Burmeister, Michael	6A Dikkop Road Gonubie	<ul style="list-style-type: none"> <li>• Air pollution (dust, smoke)</li> <li>• Rehabilitation</li> <li>• Waste disposal site</li> <li>• Noise</li> <li>• Water</li> <li>• Rehabilitation</li> <li>• Impact on roads</li> <li>• Traffic safety</li> </ul>	<ul style="list-style-type: none"> <li>• Dust, noise discussed in C.6.1, C.6.3</li> <li>• Section B.3</li> <li>• NA for this site</li> <li>• See C.6.8</li> <li>• See C2.4 – C 2.13, C.6.6.2,C.6.6.3, C.6.8, C.7</li> <li>• See B.3</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> </ul>
Deysel, GJ	PO Box 13487 Vincent	<ul style="list-style-type: none"> <li>• Map incorrect</li> <li>• Too close to houses and school</li> <li>• Impact on environment</li> <li>• Damage to roads</li> <li>• Impact on traffic safety</li> <li>• Waste disposal site</li> <li>• Mining impact negative on development</li> <li>• Negative impact on property values</li> </ul>	<ul style="list-style-type: none"> <li>• Maps proven to be correct during public meeting – also NA to this application</li> <li>• NA to this application but mining is close to landowners house. Permission has been granted</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Waste disposal: NA to this site</li> <li>• NA to this application</li> <li>• NA to this application</li> </ul>
Eardley, Ron	17 First Street Gonubie East London 5256	<ul style="list-style-type: none"> <li>• Insufficient information</li> <li>• Maps incorrect</li> <li>• Impact on traffic</li> <li>• Dust</li> <li>• Waste disposal site</li> <li>• Legality of current mining operation</li> <li>• Fit in with municipal planning?</li> </ul>	<ul style="list-style-type: none"> <li>• Background information document (BID) is to introduce application – not to provide details</li> <li>• Maps proven to be correct during public meeting – also NA to this application</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• This is a new application in process</li> <li>• NA to this application</li> </ul>
Field, Ian	16 Heidia Street Gonubie 5257	<ul style="list-style-type: none"> <li>• Map incorrect</li> <li>• Query about application process</li> <li>• Waste disposal site (impact thereof)</li> <li>• Rehabilitation query</li> </ul>	<ul style="list-style-type: none"> <li>• Maps proven to be correct during public meeting – also NA to this application</li> <li>• Process explained during public meeting and BID</li> <li>• See B.3</li> </ul>
Grobbelaar, Nadia	26 Gullsway Gonubie East London 5257	<ul style="list-style-type: none"> <li>• Map incorrect</li> <li>• Dust</li> <li>• Impact on school</li> <li>• Damage to road</li> </ul>	<ul style="list-style-type: none"> <li>• Maps proven to be correct during public meeting – also NA to this application</li> <li>• Dust, noise discussed in C.6.1, C.6.3. See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• NA to this application</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading)</li> </ul>





Vaduba Investments CC Environmental Management Plan for a Permit Application for Portion 3 of Farm 860, EAST LONDON

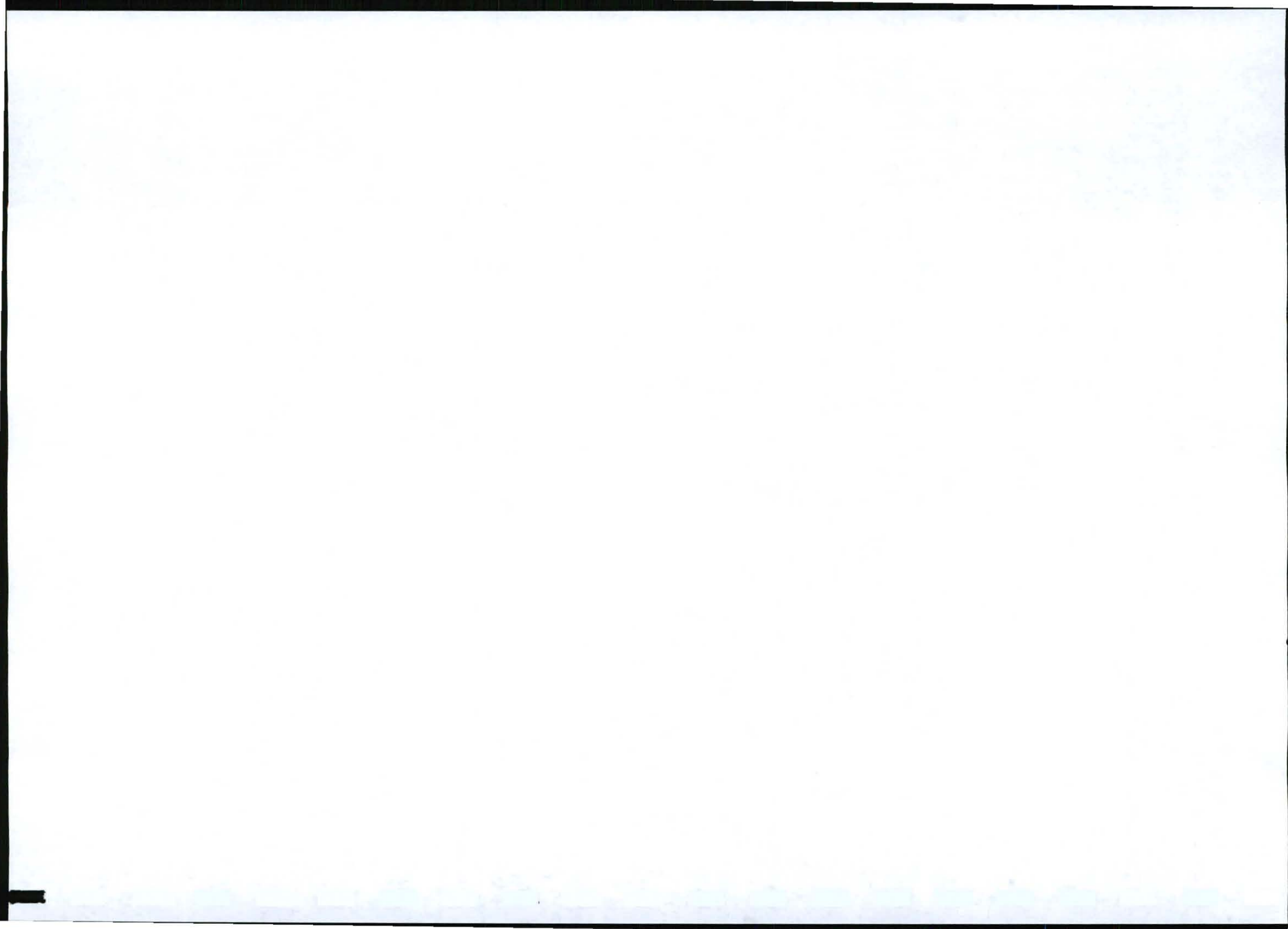
			heading) and C.7 (under relevant heading) •
Haig, June	121 Eleventh Ave Gonubie	<ul style="list-style-type: none"> <li>• Too close to town</li> <li>• Dust and resource – health risk</li> <li>• Damage to road</li> <li>• Impact on traffic safety</li> <li>• Negative impact on bird and animal life</li> </ul>	<ul style="list-style-type: none"> <li>• NA to this application</li> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• See C.1.2 under relevant heading</li> </ul>
Hannah, Joan	20 Gonubie Glen Dikkop Ave Gonubie 5257	<ul style="list-style-type: none"> <li>• Smoke from burning of vegetation</li> <li>• Dust</li> <li>• Traffic safety</li> </ul>	<ul style="list-style-type: none"> <li>• NA to this application</li> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>•</li> </ul>
Jones, Keith & Maureen	124 Eleventh Ave Gonubie 5257	<ul style="list-style-type: none"> <li>• Environment</li> <li>• Impact on property values</li> <li>• Dust</li> <li>• Noise</li> </ul>	<ul style="list-style-type: none"> <li>• See C section</li> <li>• NA to this application</li> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>•</li> </ul>
Jordaan, H	111 Thirteenth Ave Gonubie	<ul style="list-style-type: none"> <li>• Visual impact</li> <li>• Too close to houses</li> <li>• Mining operation boundary not believable</li> </ul>	<ul style="list-style-type: none"> <li>• Visual See C.4.12</li> <li>• NA to this application</li> <li>• Boundary according to Surveyor General Coordinates</li> </ul>
Le Roux, Dirk	20 Kalinka Gardens Cnr Heide and Main Roads Gonubie	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Visual impact</li> <li>• Damage to roads</li> <li>• Traffic safety</li> </ul>	<ul style="list-style-type: none"> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>• Visual See .4.12</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> </ul>
Le Roux, Jeanette	20 Kalinka Gardens Cnr Heide and Main Roads Gonubie	<ul style="list-style-type: none"> <li>• Health hazard (allergies)</li> <li>• Dust</li> <li>• Visual impact</li> <li>• Impact on property value</li> <li>• Structural damage to properties</li> <li>• Damage to roads</li> <li>• Impact on tourism</li> </ul>	<ul style="list-style-type: none"> <li>• NA to this application</li> <li>• Dust, noise discussed in C.6.1, C.6.3.</li> <li>• Visual See C.4.12</li> <li>• NA to this application</li> <li>• NA to this application, but structural damage has been addressed. See</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Not relevant to this application – not on tourist route</li> </ul>
Naude, Wayne	5 Estuary Drive Lourie Heights Gonubie 5257	<ul style="list-style-type: none"> <li>• Dust and resource</li> <li>• No benefit to the community</li> <li>• Proximity of mine to town</li> <li>• Waste disposal site</li> <li>• Impact on tourism</li> <li>• Character of town in danger</li> </ul>	<ul style="list-style-type: none"> <li>• Dust, noise discussed in C.6.1, C.6.3 and C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Explained benefit during the public meeting</li> <li>• NA to this application</li> <li>• Not applicable to this application</li> <li>• NA to this application</li> <li>• NA to this application – not near to town.</li> </ul>
Phungula, Sikhumbuzo	4 Jasmine Place Double Delight Crescent Gonubie 5256		

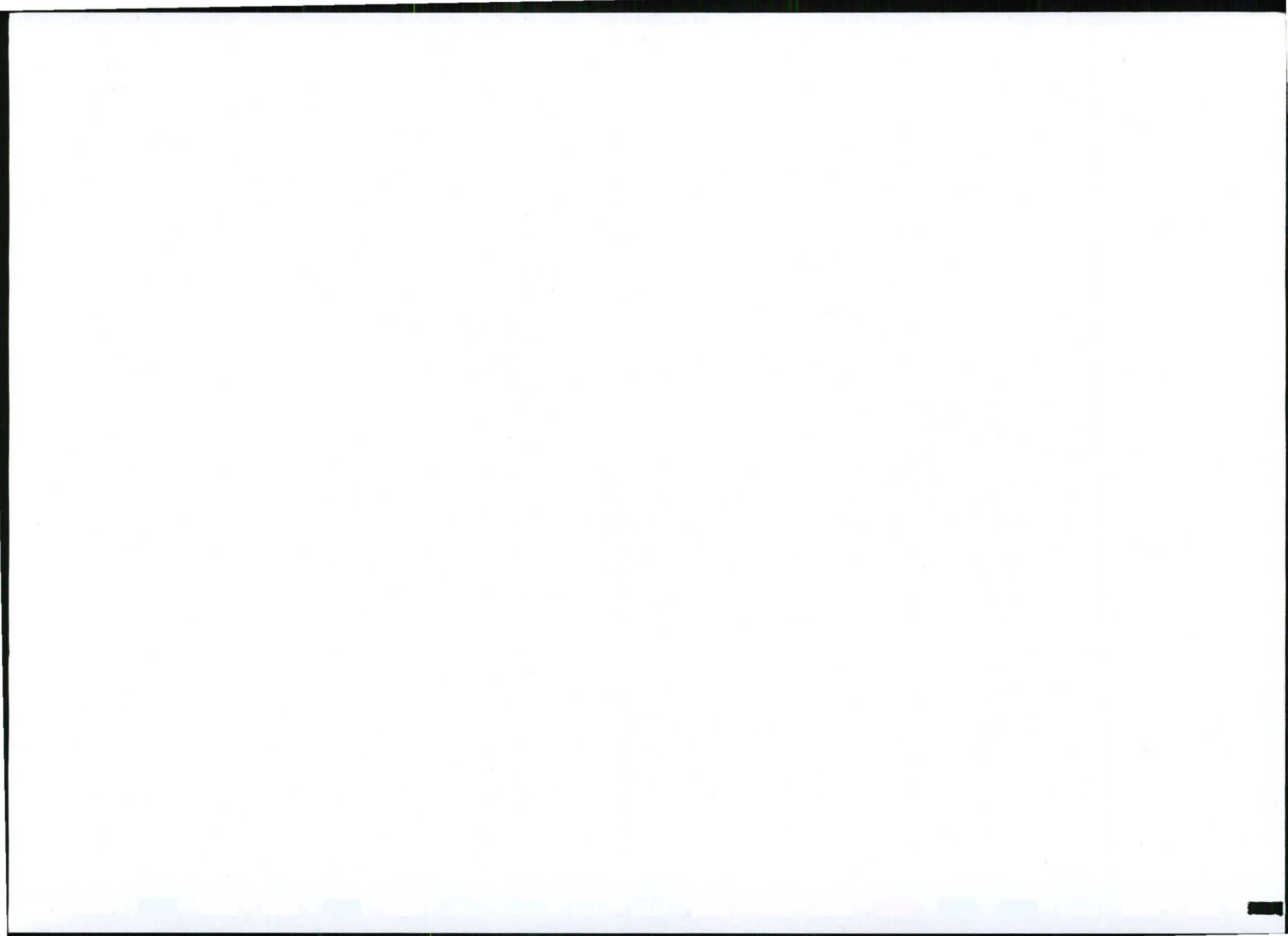




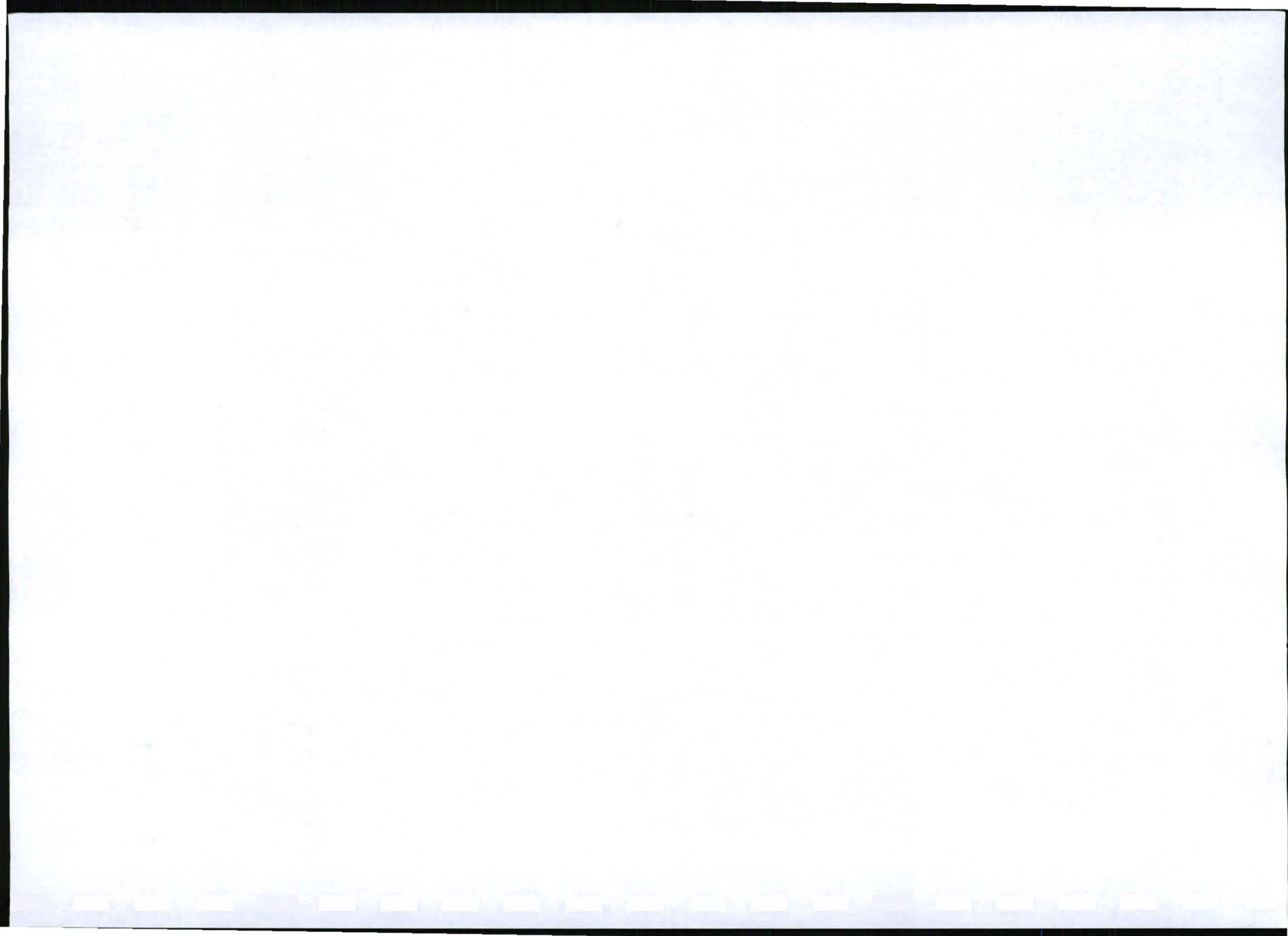
Vaduba Investments CC Environmental Management Plan for a Permit Application for Portion 3 of Farm 860, EAST LONDON

Stutt Quarries (RW Schroeder)	PO Box 197 Stutterheim 4930	<ul style="list-style-type: none"> <li>• Legality of current operation</li> </ul>	<ul style="list-style-type: none"> <li>• Legality explained during public meeting and in Scoping Report</li> </ul>
Wood, W	51 Oceanway Gonubie 5257	<ul style="list-style-type: none"> <li>• Traffic volume</li> <li>• Damage to road</li> <li>• Dust</li> <li>• Noise</li> <li>• Ground water</li> <li>• Visual impact</li> <li>• Rehabilitation monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Dust, noise discussed in C.6.1, C.6.3 and C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Dust, noise discussed in C.6.1, C.6.3 and C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>• Visual See C.4.12</li> <li>• See B.3</li> </ul>
The Superintendent General Department of Agriculture Eastern Cape Dukumbana Building	Private Bag X 040 BISHO 5605	<ul style="list-style-type: none"> <li>• In favour of application</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
The Superintendent General Department of Local Government and Traditional Affairs Eastern Cape	Private Bag X 0035 BISHO 5605		
The Acting HOD Department of Economic Development and Environmental Affairs Eastern Cape	Private Bag X 0054 BISHO 5605		





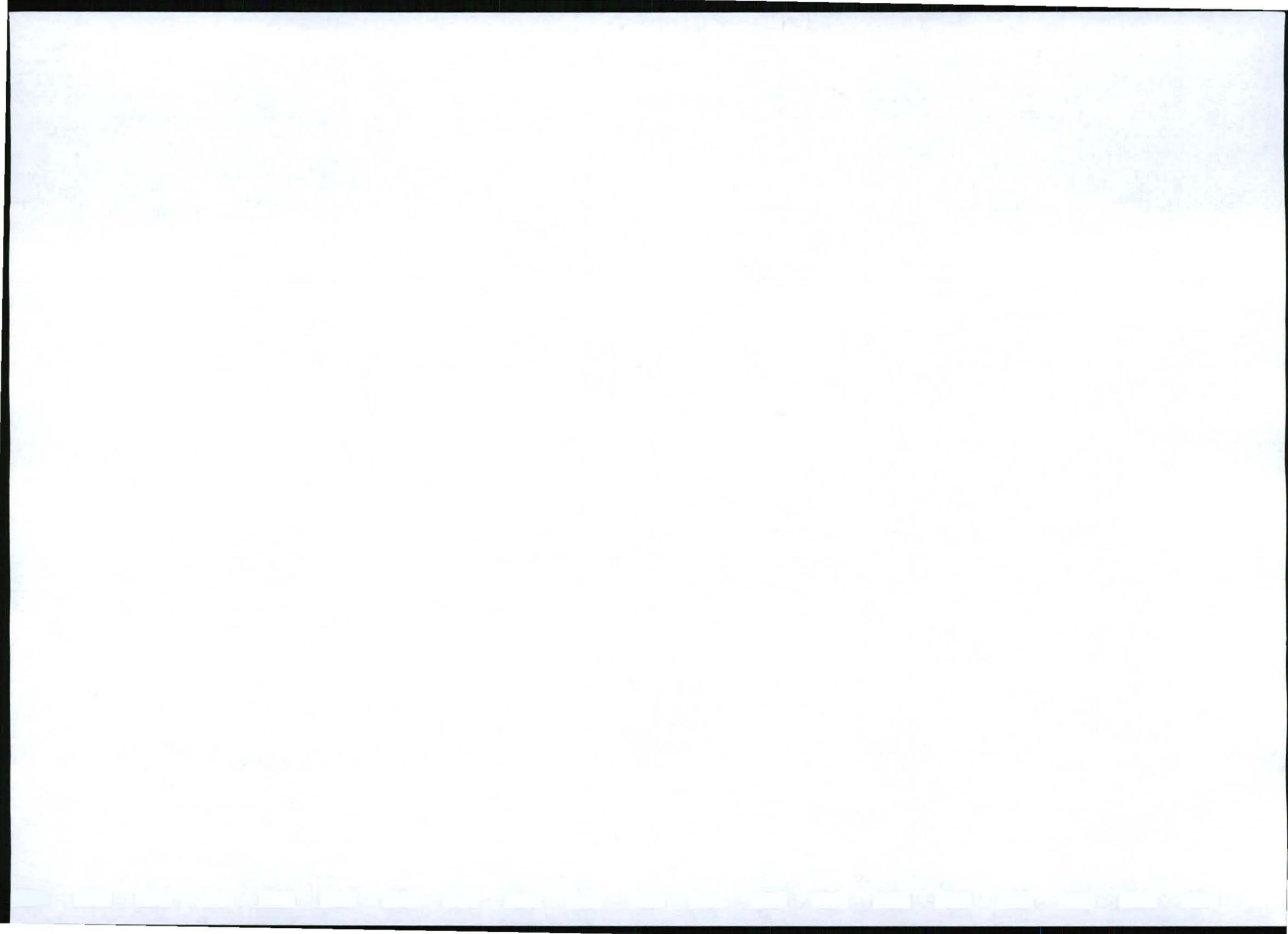




Other interested and affected parties

Table 22. Interested and affected parties and use of adjacent land or land in the vicinity

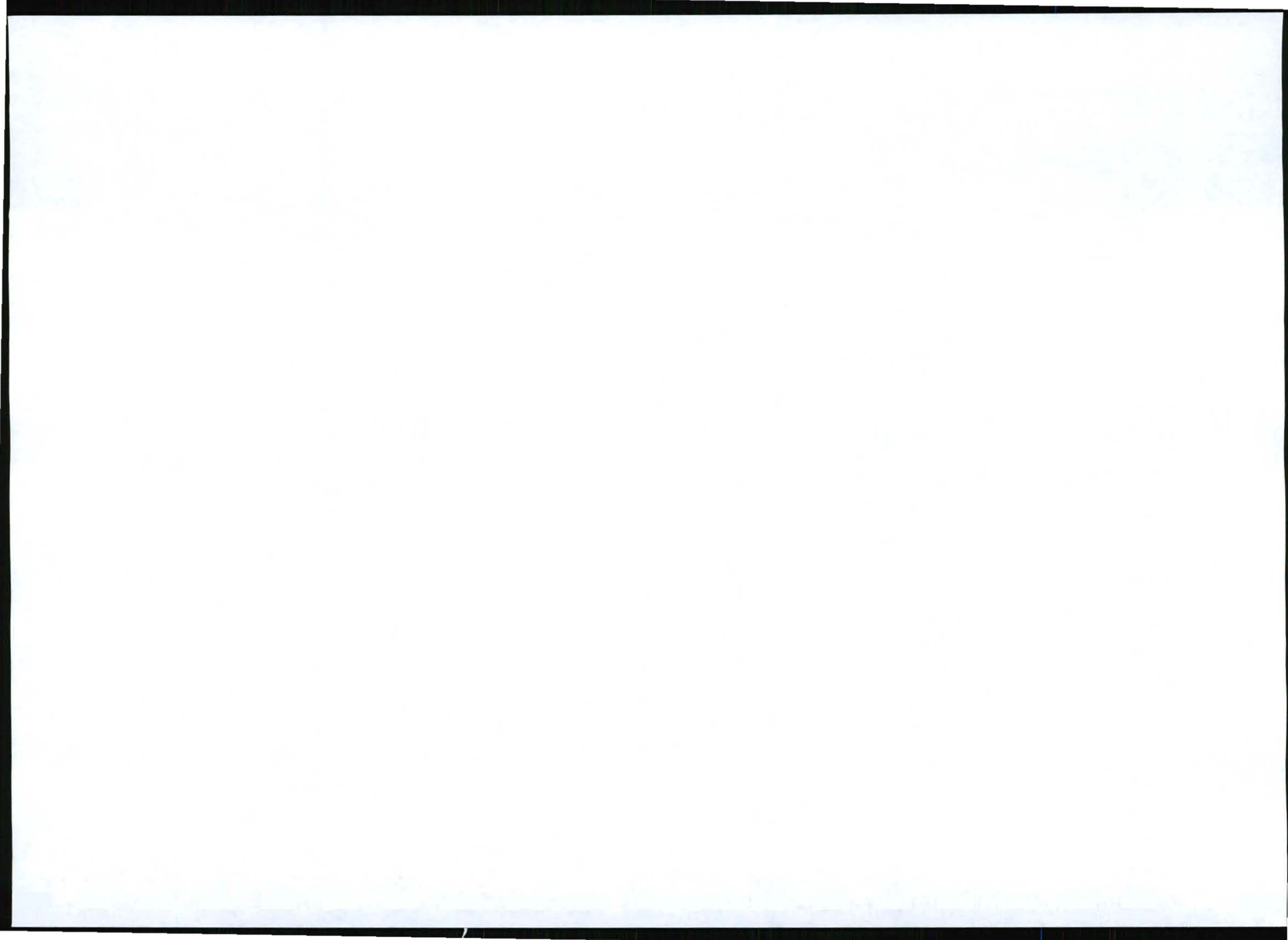
Neighbouring Farm	Name of Interested/affected party	Contact details: Address	How did consultation take place?	Current use of property	What was his/her main concern about the operation?	Response
POR 47 of FARM 799 KALIN FARM	Wegner, Kathy	PO Box 758 GONUBIE 5256	Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle; E-mail	Agriculture	<ul style="list-style-type: none"> <li>Impact on road</li> <li>Traffic Safety</li> <li>Dust</li> </ul>	<ul style="list-style-type: none"> <li>See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>Dust, noise discussed in C.6.1, C.6.3.</li> </ul>
Por 18 of Farm 799, GONUBIE	Pacific Coast Investments 97/ Bopa lesedi	2 Rosalee Gardens 11 Stanmore Rd Nahoon	Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle; E-mail	Development	<ul style="list-style-type: none"> <li>Proximity</li> <li>Visual impact</li> <li>Impact on road</li> <li>Traffic safety</li> <li>Dust</li> <li>Erosion</li> <li>Waste</li> <li>Health threat - silicosis</li> </ul>	<ul style="list-style-type: none"> <li>NA to this application</li> <li>Visual see C.2.14</li> <li>See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>Dust, noise discussed in C.6.1, C.6.3.</li> <li>Erosion see C.6.6.2 and C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>Waste See C.6.5</li> <li>NA to this application (waste disposal site)</li> </ul>
Portion 20 of Farm 799	Wheatly, Malcolm	PO Box 128 Gonubie 5256	Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle; E-mail	Agriculture	<ul style="list-style-type: none"> <li>Environment</li> <li>Negative impact on aesthetic value of town</li> <li>Impact on main road</li> <li>Waste disposal site</li> <li>Farm boundary bulldozed</li> </ul>	<ul style="list-style-type: none"> <li>See section C</li> <li>Visual see C.2.14</li> <li>See C.214, C.3.1, C 6.8 (under relevant heading) and C.7 (under relevant heading)</li> <li>NA to this application</li> <li>Disputed by applicant. No proof provided</li> </ul>
Por 28 and 34 of Farm 807	Buffalo City Municipality	P.O. Box 134 EAST LONDON 5200	Registered Letter; Notice board placed at site; Posters; Advertisement in The		<ul style="list-style-type: none"> <li>Land to be rezoned</li> </ul>	<ul style="list-style-type: none"> <li>Issue to be taken up with DME and Local Authority</li> </ul>





Vaduba Investments CC Environmental Management Plan for a Permit Application for Portion 3 of Farm 860, EAST LONDON

			Daily Dispatch & Gonubie Bugle			
Por 9 of Farm 800	ESKOM Southern Region	Private Bag X 1 BEACON BAY 5205 EAST LONDON	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle			
Por 12 of Farm 800	H KINGON	PO BOX 226 GONUBIE 5256	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle			
Por 41 of Farm 799	WENGARY	P O BOX 759 EAST LONDON 5200	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle			
Erf 4732	VISION HOMES	PTY LTD P O BOX 1470 HILLCREST 3650	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle	Residential		
Por 2 of Farm 809	THARRATT AND FREITAG	P O BOX 19710 TECOMA EAST LONDON 5214	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle	Mining		
Por 30 of Farm 807	MR W GAUSS	PO BOX 18242 QUIGNEY 5211	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle			
Por 55 of Farm 807	RODCHER INVESTMENTS CC	P O BOX 13606 VINCENT 5217	Registered Letter; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle	Residential		
Por 31 of Farm 807	ED JOHNSON		E-mail; Notice board placed at site; Posters; Advertisement in The Daily Dispatch & Gonubie Bugle	Residential		



**EASTERN CAPE**

Dept of Economic Affairs, Environment and Tourism

Private bag X                      The Business Village C5

Bisho                                      Bisho

5605                                      5605

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Permit officer:    Noluthando Bam 040 609 4706

Enforcement Officer:    Jaap Pienaar – 082 853 1844 tel. office 040 609 4706;

[jaap.pienaar@deaet.ecape.gov.za](mailto:jaap.pienaar@deaet.ecape.gov.za)

**SOUTH AFRICAN NATIONAL PARKS**

Mike Knight – 041 508 5412

Website : [Department of Agriculture and Land Affairs](#)

**Agriculture & Land Affairs**

Private Bag X0040

Bhisho 5605





## C.11.5 SITE EMERGENCY PROCEDURES AND CONTINGENCY PLANS

### C.11.5.1 Overall objective of the plan

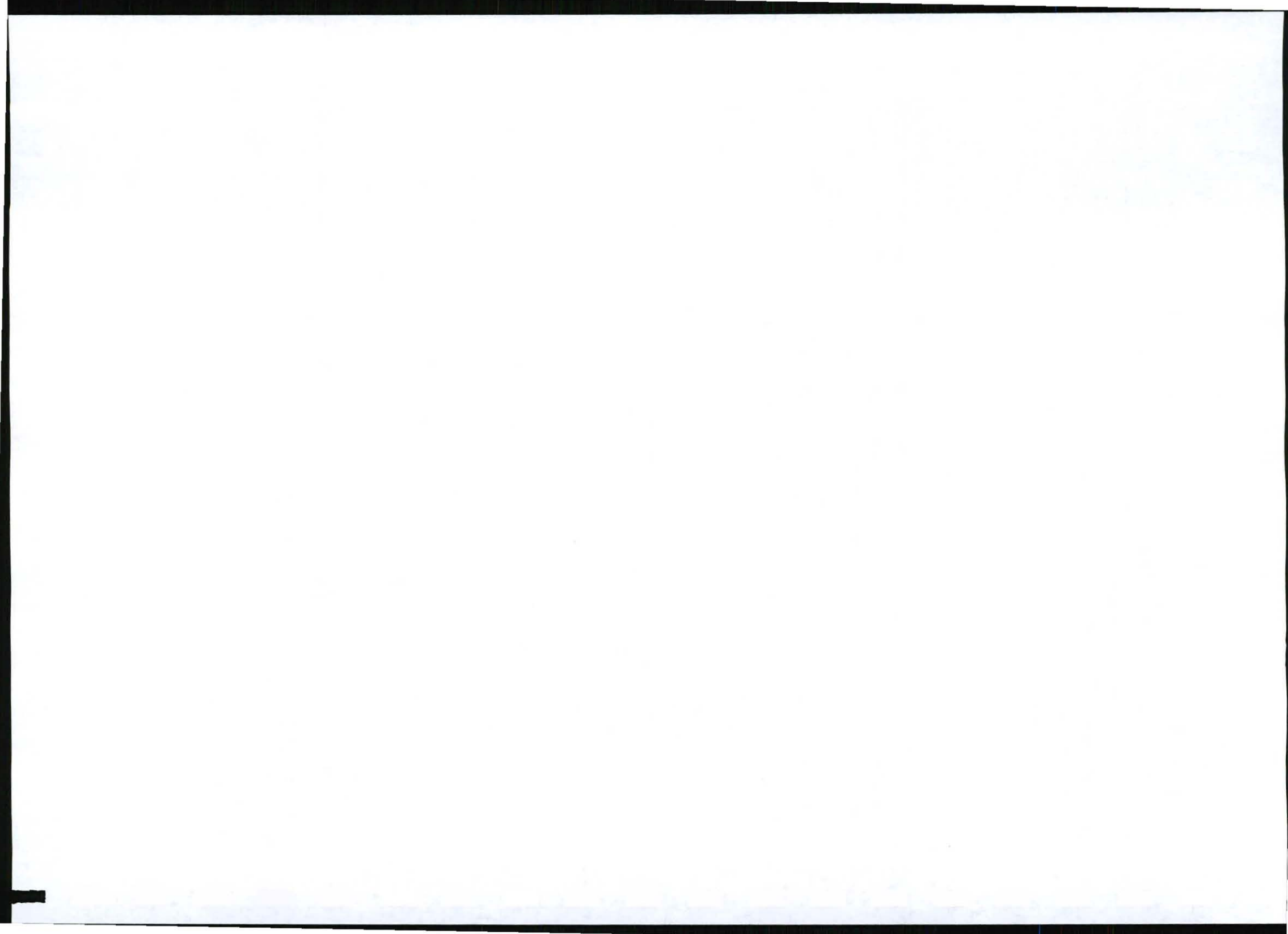
- Prevent fatalities and injuries;
- Reducing damage to buildings, stock, equipment, etc.
- Accelerating the resumption of normal operations

### C.11.5.2 Developing the plan

- **Make a list of the possible hazards** that (fire, explosion, building collapse, accidents with vehicles and equipment on site, spills of flammable liquid, accidental release of toxic substances, deliberate release of hazardous biological agents, terrorist or criminal activities (dangerous areas), exposure to ionising radiation, loss of electrical power, loss of water supply, loss of communication, environmental agencies). These hazards are man-made or associated with technology and are flammable, explosive or chemical of nature. Natural hazards should also be investigated. Possible natural hazards include floods, earthquakes, tornadoes, severe windstorms, snow or ice storms, severe or extremes in temperatures (cold or hot) and pandemic diseases like influenza
- **Vulnerability assessment.** This means to determine whether a potential hazard is a possible threat or poses a threat in the specific situation that is analysed.
  - How likely is it that the situation will occur
  - What means are available to stop or prevent the situation
  - What is necessary for the situation
- **Elements of an emergency plan includes**
  - All possible emergencies, consequences, required actions, procedures on how to perform the actions and the resources available.
  - Detailed list of the personnel including home telephones, duties and responsibilities.
  - Floor plans
  - Large-scale map showing evacuation routes and services such as gas and water lines as well as where the different emergency equipment is located.
  - At least one person should be trained and made responsible for emergency procedure (an emergency coordinator) with a back-up coordinator. Specific duties, responsibilities, authorities and resources must be defined.

### C.11.5.3 Emergency plan sequence of events

- Report the emergency/declare an emergency
- Activate the emergency plan
- Assume overall demand
- Establishing communication
- Alerting staff/sound the alarm
- Order evacuation /and initiate rescue operations





- ☞ Confirm evacuation complete
- ☞ Alerting outside population of possible risk
- ☞ Requesting external aid \*\*
- ☞ Coordinate activities of various groups/persons
- ☞ Advising relatives of casualties

### **C.11.6 Hazards, emergencies, procedures and contingency plans**

There needs to be a clear evidence of an emergency procedure that must be adhered to. In addition to the drafting of such a procedure each "building/housing structure" must have a floor plan clearly posted in that building, indicating emergency exits, fire extinguishers and assembly points. There must be a way in which all persons on site can be accounted for during an emergency. After drafting of such a plan, regular emergency drills should be undertaken.

On site where there are no floor plans but emergency procedures as well contingencies plan must be clearly understood and must be reinforced on a regular basis and checks must be carried out to see that the procedures and plans are understood.

The following are possible risks that could occur on site and which would require an emergency response. These considerations are relevant to all operations. Emergency procedures and a contingency plan for some of the emergencies that can occur are given below:

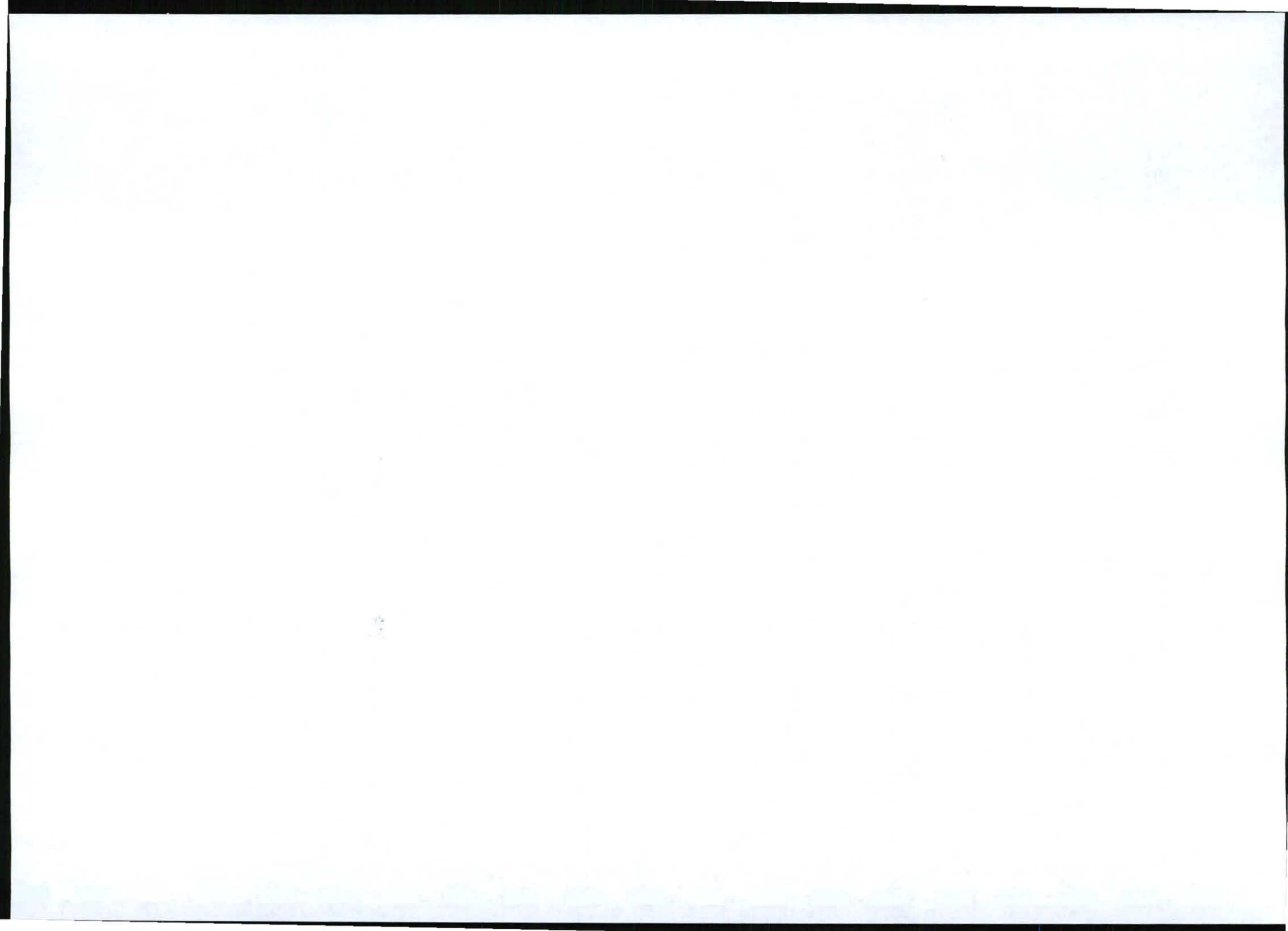
#### **C.11.6.1 Fires**

##### **Emergency Procedures**

- a) If the fire is small, use a fire extinguisher and if available, water, to contain the fire.
- b) Use water or foam according to the required situation. Fuel and oil fires are best doused with foam since foam is lighter than the accelerant.
- c) In the event of a fire that is too big to contain, or is spreading too fast, the fire brigade, police and ambulance – if there are any casualties – must be called immediately.
- d) Immediately evacuate personnel and livestock from the site.
- e) Warn all residents in the area.
- f) Call the mine owner and/or manager if they are not on or near the site.
- g) Contact the traffic department if smoke causes a hazard on the road.

##### **Contingency Plan**

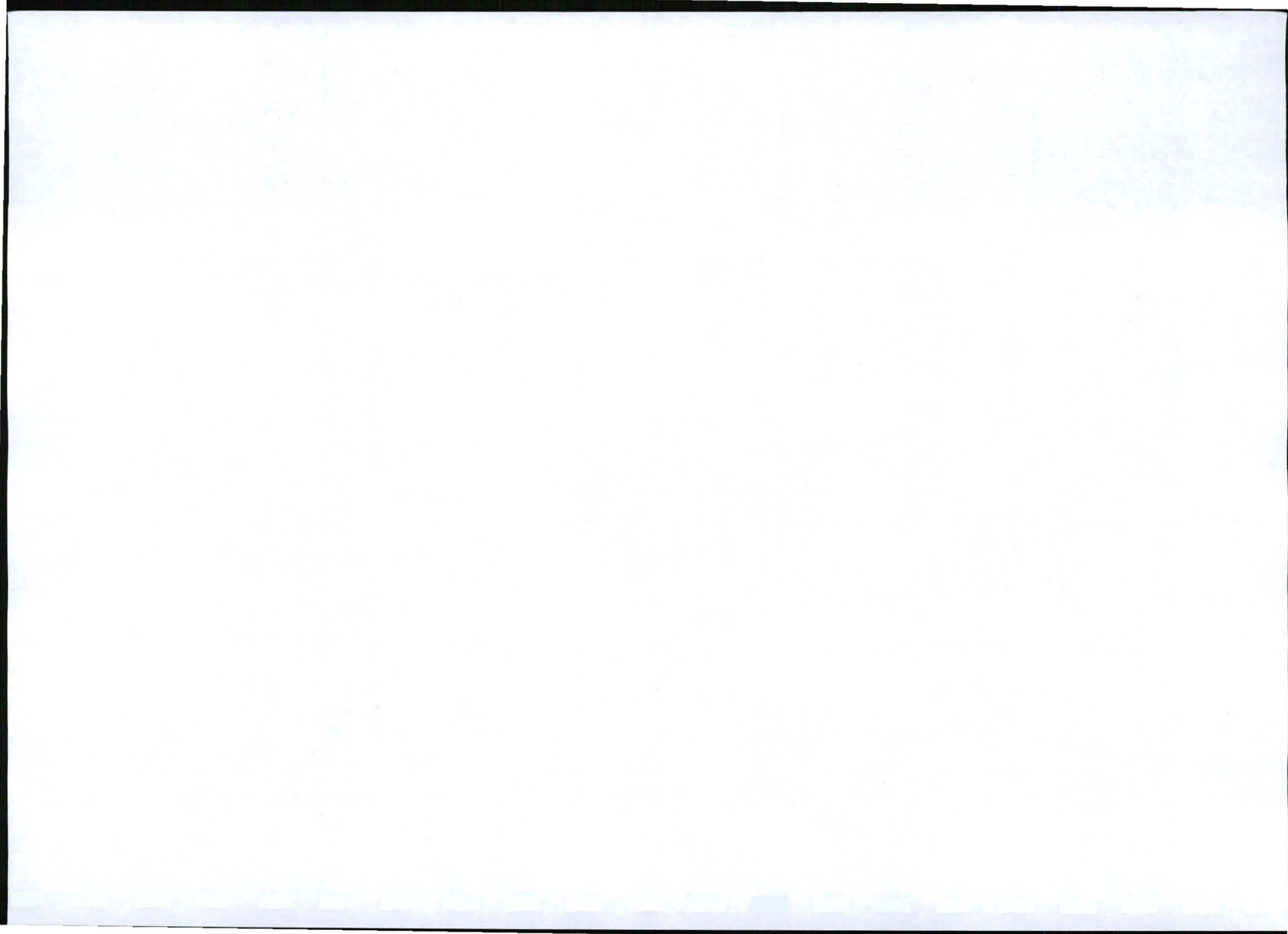
- a) A list of procedures and contact numbers must be available in the earthmoving vehicle.
- b) At least one fire extinguisher must be available on site, in this case in the earthmoving vehicle. The equipment should be placed in a mounted clamp or other secure structure so that it does not roll around and become damaged or cause a distraction. If a temporary site office is required, an extinguisher must also be placed in the site office.





- c) The equipment should also not be placed in the sun or left in the vehicle parked in the sun, but should be removed or placed in a cool place.
- d) All staff on site must be trained to use the fire extinguisher.
- e) In buildings on the mine site, one fire extinguisher should be mounted for every 25 square meters of a structure / building. These fire extinguishers need to be mounted as least 1 meter above the ground as this prevents the extinguishers from rolling around and becoming a hazard and prevents their bases from rusting. In addition, a "fire extinguisher" sign should be displayed above all fire extinguishers.
- f) Fire Extinguishers need to be inspected on a regular basis depending on their service intervals.
- g) Other emergency equipment must be checked regularly in accordance with Health and Safety Regulations.
- h) The telephone numbers of the fire brigade, police and ambulance must be clearly visible in the earthmoving vehicle and at the office.
- i) At least one cell phone or pager must be available on site to allow the workers to contact the responsible persons and emergency services. On this site the residences are close enough that the worker can run to the house to phone as well as warn the residents and proprietors.
- j) Basic environmental and safety knowledge must be provided. Training is addressed in the Social and Labour plan, but awareness of dangerous and hazardous situations and how to control such events must be habituated with regular awareness training exercises.
- k) Fires should preferably not be made on site but if necessary fires for cooking and heating must only be made in a suitable, safe, designated area. For example, use a fire drum in safe, designated area. Such areas must be away from buildings fuel storage areas and vegetation (green or dry).
- l) Construct a firebreak around the site to prevent accidental fire spreading to the adjacent vegetation. Mining involves clearing the vegetation, which also functions as a firebreak. A firebreak can be made on the inside or around the mine border to further prevent damage as a result of accidental fires.
- m) The removal of vegetation will reduce the possibility of hot burning fires especially where alien vegetation is plentiful.
- n) Do not make any fires or smoke near flammable liquid and that includes smoking when refuelling or working with oils or other flammable hydrocarbons.
- o) If fires are made, they must not be left smouldering when leaving the site. All cinders and coal must be doused with water and covered with resource.
- p) For general housekeeping, clean the fireplace regularly.
- q) Store flammable material in a lockable and secure place and do not store with other chemicals.
- r) Do not discard any cigarette butts or other flame source near flammable liquid, dry branches or in the trees. Cigarettes must be distinguished in the containers provided. Butts may not be discarded on the site, but must be placed in special containers provided.
- s) If fires are needed (not expected on this site) water must be available (e.g. in a water cart) and a fire extinguisher (appropriate type and size).
- t) Do not store liquid and gas in the same area.
- u) Do not store chemicals and fuels under trees.
- v) No smoking within at least 3 m from any fuel or chemical storage areas.





### **C.11.6.2 Accidents**

#### **Emergency Procedures**

- a) In the event of an accident ensure that the police, traffic department and if necessary, the ambulance is contacted and provide as much detail as possible.
- b) Ensure that the area is made safe from oncoming traffic, etc.
- c) Make the patient comfortable.
- d) If trained in First Aid, provide emergency treatment (stop blood, etc).
- e) Stay with the patient until the ambulance arrives.
- f) If not trained, try to get someone to locate a person with knowledge of First Aid.
- g) Call mine owner/manager if they are not on site.

#### **Contingency Plan**

- a) A list of procedures to follow and contact numbers must be available at the site office and the earthmoving vehicle.
- b) It is best practice to place a first aid station in the work area, allowing unhindered access to the first aid kit, with signage clearly displaying the location of this kit and the relevant First Aider on duty. This said, there should be a first aider on site at all times where possible or the staff should receive first aid training where possible. In the case of small operations where only one or two people work on the site, at least one must be trained to administer First Aid (training schedule should be provided in the Social and Labour Plan). It is better that all personnel on site be trained in first aid since workers on the site are often alone and either one could be hurt.
- c) At least one First Aid kit must be available on site. If there is no building, then the kit must be kept in the earthmoving vehicle.
- d) The emergency equipment and First Aid kit must be checked regularly (according to Health and Safety Regulations) to ensure that the contents are still usable and that the kit contains all the required pieces.
- e) The telephone numbers of the fire brigade, police and ambulance must be clearly visible in the earthmoving vehicle.
- f) At least one cell phone or pager must be available on site to allow the workers to contact the relevant persons. The worker can run to the nearest house or business to call for help.
- g) Trucks must adhere to speed limits set by the users of the haul roads on site, servitude roads and other access roads. Truck must also adhere to the legal speeds limits set for the provincial and municipal roads.
- h) Safety Signage:
  - On approaching working areas, the mandatory safety signage indicating the required PPE should be located at the entrance to this work area.
  - It is also advised that a general disclaimer be displayed at the entrance to the camp area. The disclaimer informs people that they are entering a restricted work area, and that the contractor(s) / project managers will not be held liable for damages/loss etc.
  - Signage can also be included, or displayed separately to warn of special actions required on the site.
  - Warnings, such as speed limits, must also be indicated.
  - Signage should preferably also be available that prohibit the removal of indigenous vegetation as well





as killing animals and the setting of traps and snares.

- Signage must be placed at the entrance from the access road onto the public road or entrance onto the access road from the public road.
- The signage must warn the road users of the access point of the trucks onto the public road.
- A stop sign must be placed at the mine exit for the truckers to observe the oncoming traffic before exiting the site.
- Therefore, the relevant and necessary road signs (in accordance with the National Road Traffic Act) must be displayed.

i) Personal Protective Equipment

PPE is to be utilized where applicable.

- Hard hats are to be used in:

Any area where there is use of heavy machinery or plant equipment

Any area displaying the mandatory hardhat safety sign

Any area where there is a risk of falling

Any area where there are suspended/raised items

- Eye protection is to be used in any area that:
  - displays the mandatory use of eye protection sign
  - may be present the risk of small projectiles entering the eyes
  - may present the risk of any chemical splashes
- Ear protection should be utilized in any area that:
  - presents excessive noise levels
  - displays the mandatory use of hearing protection sign
- Respiratory Protection: Respiratory devices must be used in any area that:
  - has the presence of excessive dust/smoke
  - displays the mandatory use of respiratory devices safety sign
  - In the presence of chemicals
- Hand Protection
  - Gloves and hand protection must be used when:
    - risk of injury to hands exists
    - handling raw/sharp items
    - the mandatory use of gloves sign is displayed

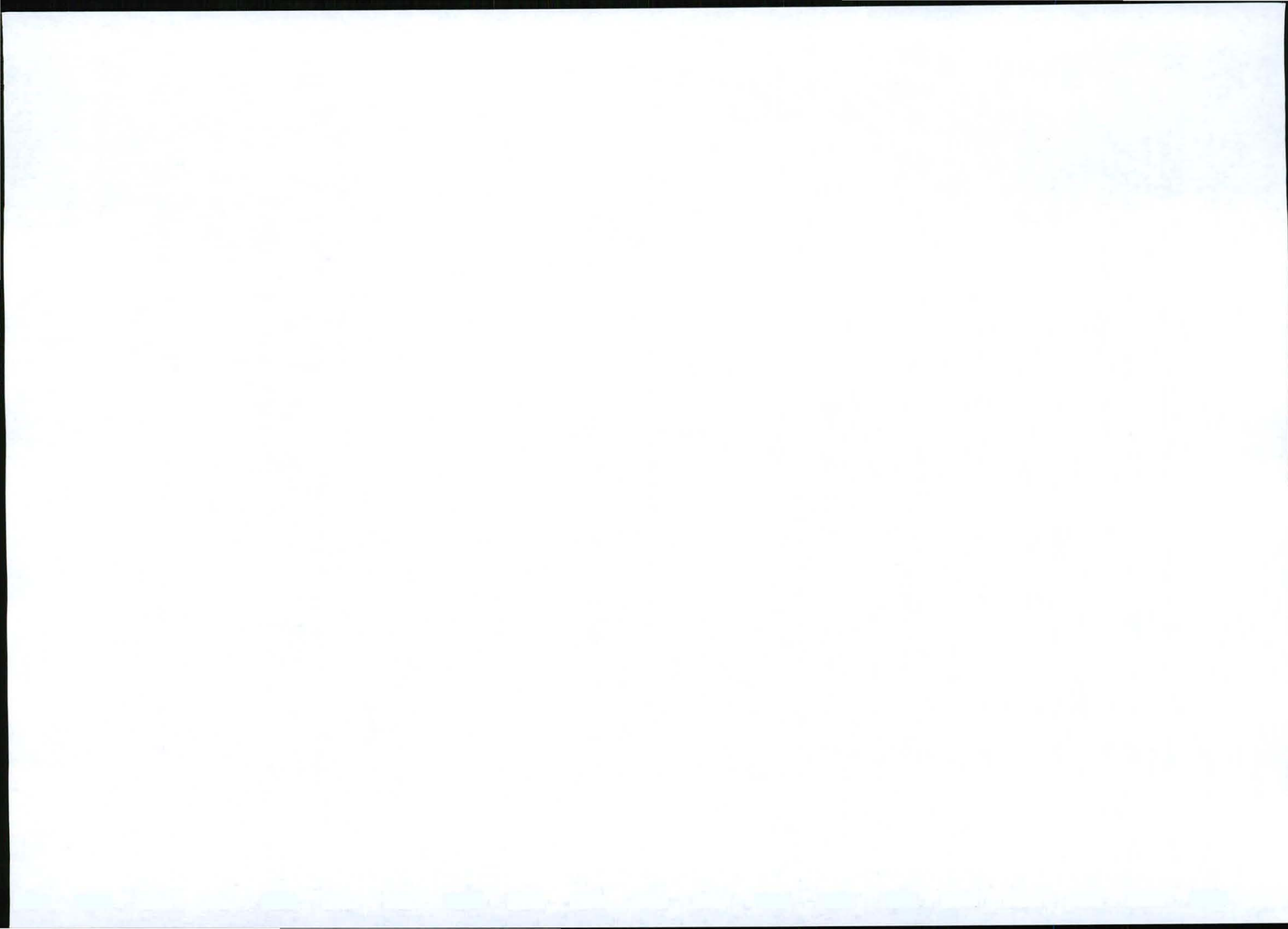
j) Other PPE: Any other required PPE should be outlined and implemented during the risk assessment phase. Examples may include use of: steel toecap boots/gumboots, aprons, fall/arresting devices, gloves, etc.

k) Basic environmental and safety knowledge must be provided to all personnel on site.

l) Vegetation (alien vegetation) must be removed if the view at intersections is obscured, other vegetation can be trimmed.

m) Unauthorized persons on site are strictly forbidden and any such incidences must be immediately reported to the site supervisor/manager.

n) Roads and grounds within mine areas should be of a satisfactory standard allowing safe movement of vehicles and pedestrians. Roads must also be, repaired and maintained regularly to prevent accidents.



Parking areas should be demarcated and marked accordingly. Personnel are to pay special attention and give way to animals and pedestrians when crossing roads, particularly at night or in adverse weather conditions.

- o) Vehicles should also be in a good condition and serviced regularly. For example, prevent blow-outs (tyres are not in a good condition), exhaust smoke obscuring the view, sudden stoppage or parking (emergency) in the road, etc.

#### **C.11.7 Managing Accidental Toxic Waste Spillage**

The principles of any clean-up operation are:

- a) Contain the spill and stop it from spreading.
- b) Remove the source of the polluting substance – i.e. close any taps or valves where necessary and replace leaking taps.
- c) Clean up by removing the contaminated soil to the depth of penetration.
- d) Rehabilitate the area.
- e) Avoid the use of chemicals to absorb/emulsify oil, but making use of natural material (e.g. peat or pine needles) to absorb the waste is acceptable.

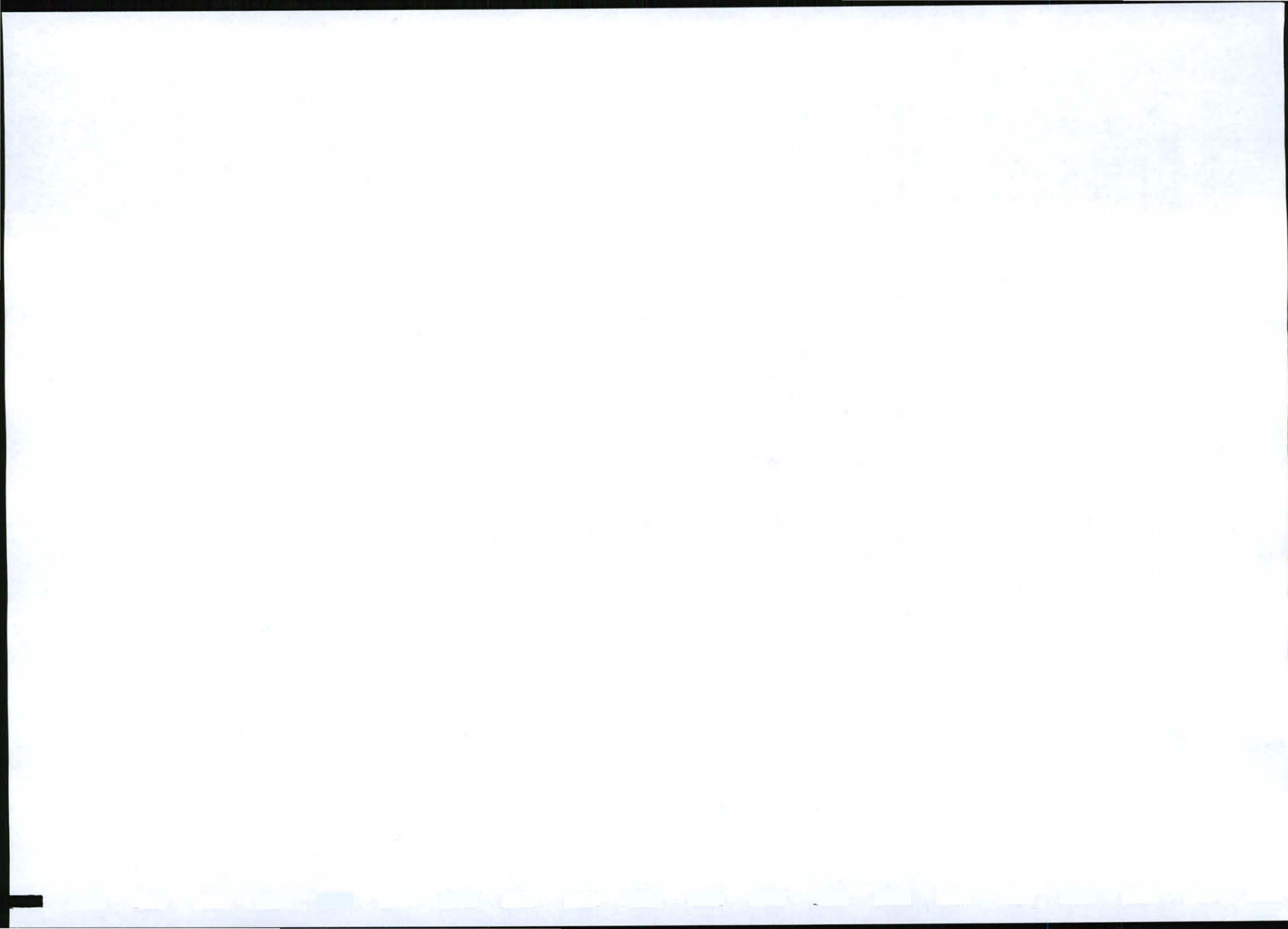
#### **Recovering contaminated soil**

- a) Place any excess oil, diesel, chemicals and contaminated soil in a drum and label the container.
- b) Add the bioremediation agent. The addition of soil to the contaminants will ensure that the microbes in the soil also aid in the break down process. Use a bioremediation agent (e.g. Enretech 1 or Spillsorb) containing "oil/diesel eating bacteria" (microbes).
- c) Bacteria are anaerobic, and need not be aerated. It is however, necessary to keep the mixture slightly moist to sustain the bacteria.

#### **Procedure**

- a) Any oil, diesel, petrol or hazardous chemical spill must be reported to the mine manager.
- b) The responsible person must take steps to prevent the spill from spreading and immediately begin with clean up procedures.
- c) Personal protective equipment (PPE) must be worn when handling oil, diesel, solvents or other chemicals.
- d) *In the case of large spills i.e. more than 100 litres of diesel, oil, acid or any other hazardous substance:*
- e) This would be deemed an emergency.
- f) Report spill immediately to the responsible person who must contact a Pollution Control Specialist in the area.
- g) The number of the Pollution Control Specialist must be posted on the mine and be available to the person(s) responsible for working with the oil, fuel and lubricants.
- h) Pump/scoop excess material or fluid into 210 liter drums immediately. Place any contaminated soil or material into drums labeled for that purpose.





- i) Chemicals and fuels should only be stored once the necessary permits and documents have been obtained from the local municipal authority and the storage of the chemicals/fuels needs to be done in accordance with the aforementioned permits and by-laws.
- j) In addition to this, all Occupational Health and Safety guidelines need to be followed with regards to fire extinguishers, safety signage (incl. UN boards) and instructions for emergency handling of these chemicals/fuels. The applicable MSDA's (Material Safety Data Sheets) should be readily available. In addition products required to safely and efficiently contain any accidental spillages as per the material safety data sheet must be on site. Your staff needs to do a study of the material safety data sheet; so that they are efficiently informed and trained as to how one would contain and mop up any spill.
- k) The area allocated to store fuel/chemicals needs to be clearly sign posted (no flames, no smoking etc). The bunding wall around this area needs to be high enough to contain one and a half times the volume of fuels to be kept.

### **C.11.8 Safety, Health and Environmental Policy (SHE)**

#### **C.11.8.1 SHE policy induction program needs to undertaken (provided as a guideline)**

- The Policy then needs to be understood by all and measures need to put into place to ensure this. To Regular checks must be made of the site and the operating procedures on the site. A competent person must make the checks. A checklist or dates of checking can be planned to ensure regular checks although random checks can also be made.
- Standard Operating Procedures (SOP') need to be written and adhered to. Because this is a site with no permanent structures, the procedures should preferably be available in the earthmoving equipment and if a temporary site office (site office) will be established, it must also be placed at this office.
- A responsible person needs to be formally appointed. The responsible person should check the site on a regular basis.
- All incidents and accidents need to be thoroughly investigated by the site or mine manager.

#### **C.11.8.2 Emergency procedure records for safety, health and environment (SHE):**

- A file should preferable be kept on site containing documents and checklists relevant to HSE. These include daily checklists for PPE (Personal Protective Equipment), site layout and compliance, ablutions, vehicle checklists etc. In addition to this, a record of daily "tool-box talk" can occur and should be documented and filed. This is a must for ISO compliance, but not necessarily practical on the smaller mines. Checks on whether PPE are available, whether the equipment is suitable, effective - in a good condition and whether personnel actually wear the equipment.
- Personal register needs to be kept on site, and need to be kept up to date as per personnel changes.
- In the case of truck drivers and persons visiting the site, it would be advisable that they sign an entry register to indicate when they entered and left the site. This will indicate whether truckers had remained on site longer than required as well as to check that all personnel or visitors to the site had actually left the premises.

#### **C.11.8.3 Work permits and access**

- Identification of the personnel should be clearly displayed by all personnel where possible or at least on their

