



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT
(PART B)
for
BUILDING SAND AN GREYWACKE MINING PERMIT
On
PORTION 4 OF FARM DOORNFONTEIN 814
MALMESBURY, WESTERN CAPE**

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: Dyck Advisory Pty (Ltd)

CONTACT PERSON: Mr D O'Driscoll

TEL NO: 084 899 4841

POSTAL ADDRESS: PO Box 845, Velddrif, 7365

E-MAIL: info@caninsesolutions.co.za

DMR Ref NR: WC 30/5/1/3/2/12 MP

DATE OF REPORT: 17 September 2026

	PAGE
PART B – ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT	
a) Details of the EAP	4
b) Description of the aspects of the activity	5
c) Composite map	5
d) Description of the impact management objectives including management statements	5
e) Impact management outcomes	26
f) Impact management actions	47
g) Financial provision	67
h) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon	73
i) Frequency of the submission of the performance assessment/environmental audit report	75
j) Environmental awareness plan	75
k) Specific information require by the competent authority	77
l) Site specific storm water management measures to be implemented during the proposed mining activities	77
m) General environmental management guidelines to be implemented during the proposed mining activities	77

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME

COMPLIANCE OF THIS EMPr WITH THE REQUIREMENTS OUTLINED IN SECTION 24N(2) & (3) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998 AS AMENDED):

(2) The environmental management programme must contain-

(a) information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified in a report contemplated in subsection 24(1A), including environmental impacts or objectives in respect of-

- (i) planning and design;
- (ii) pre-construction and construction activities;
- (iii) the operation or undertaking of the activity in question;
- (iv) the rehabilitation of the environment; and
- (v) closure, if applicable;

Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases

(b) details of-

- (i) the person who prepared the environmental management programme; and
(Refer to Chapter 1 of the EMPr)
- (ii) the expertise of that person to prepare an environmental management programme;
(Refer to Chapter 1 of the EMPr)

Refer to Part B: EMP 1) a) Details of the EAP

(c) a detailed description of the aspects of the activity that are covered by the environmental management programme;

Refer to Part B: EMP 1) b) Description of the Aspects of the Activity

(d) information identifying the persons who will be responsible for the implementation of the measures contemplated in paragraph (a);

Refer to Part B: EMP 1) p) General Environmental Management Guidelines to be implemented during the Proposed Mining Activities

(e) information in respect of the mechanisms proposed for monitoring compliance with the environmental management programme and for reporting on the compliance;

Refer to Part B: EMP 1) g)- l) Mechanisms for monitoring compliance with and performance

assessment against the environmental management programme and reporting thereon, including

- (f) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and

Refer to Appendix F: Closure/Rehabilitation Plan of the BAR as attached

- (g) a description of the manner in which it intends to-

- (i) modify, remedy, control or stop any action, activity or process that causes pollution or environmental degradation;

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases*

- (ii) remedy the cause of pollution or degradation and migration of pollutants; and

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases*

- (iii) comply with any prescribed environmental management standards or practices.

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases*

- (3) The environmental management programme must, where appropriate-

- (a) set out time periods within which the measures contemplated in the environmental management programme must be implemented;

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases*

- (b) contain measures regulating responsibilities for any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of mining or mining operations or related mining activities which may occur inside and outside the boundaries of the mining area or mining area in question; and

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases*

- (c) develop an environmental awareness plan describing the manner in which-

- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and

- Refer to Part B: EMP 1) m) Environmental Awareness Plan*

- (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment.

- Refer to Part B: EMP 1) d) Table iv) Impacts to be mitigated in their respective phases and p) General Environmental Management Guidelines to be implemented during the Proposed Mining Activities*

a) Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 3 a) herein as required).

It is confirmed that the details and expertise of the EAP are already provided under Part A: BAR, Section 3 a).

b) Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section 3 h) herein as required).

It is confirmed that the requirements to describe the aspects of the activity that are covered by the EMP are already provided under Part A: BAR section 3 h).

c) Composite Map

(Provide a map (Attached as an Appendix) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

Please refer to **Appendix B** of the BAR as attached.

d) Description of Impact management objectives including management statements

i) Determination of closure objectives.

(ensure that the closure objectives are informed by the type of environment described)

The proposed property, Farm Doornfontein RE/4/814 size 200.82ha is located approximately ±7km to the south of Malmesbury, within the municipal jurisdiction of Swartland Municipality. The property can be accessed via Main Road 174 (R302) which connects to the N1.

The predominant land use in the surrounding area is agriculture and includes cultivated land used for grain production and vineyards.

The property is used as an agricultural unit and is developed with infrastructure such as a farmhouse or labourer cottages. The site of the proposed 5ha sand mine has significantly been impacted upon by agricultural activities. The site has previously been ploughed and is currently used for production of oats. The soils down the slope have previously been mined and are now utilised for oats in the same way as the rest of the land. The nearest non-perennial watercourse is located approximately 250m to the west of the proposed mine.

The applicant, Dyck Advisory Group (Pty) Ltd, seeks permission to establish a dry-pit sand and gravel mine on the property. The proposed mining area in total is 5ha in extent.

Mine area coordinates:

COORDINATES			
C1	Lat	33°32'4.51"S	-33.534585°
	Long	18°43'48.76"E	18.730212°
C2	Lat	33°32'4.49"S	-33.534582°
	Long	18°43'56.83"E	18.732454°
C3	Lat	33°32'12.33"S	-33.536758°
	Long	18°43'56.92"E	18.732478°
C4	Lat	33°32'12.20"S	-33.536724°
	Long	18°43'48.81"E	18.730224°

The average depth of mine-able sand spread over the mine area (5ha) is ± 30 cm deep and the average depth of gravel, ± 50 cm (this excludes the 50cm topsoil proposed to be removed for rehabilitation purposes). The total volume of mine-able sand on the mining area is conservatively estimated to be $\pm 15\,000\text{m}^3$ and gravel $\pm 25\,000\text{m}^3$ with an expected maximum depth of 2.5m to be mined. The mine will be operated in such a way that once sand and gravel resources are removed and the mine is closed, the site can be used for agricultural activities as currently the case.

The mining operator will first remove the topsoil layer (50cm) from block 1 and stockpile it on the to be mined block 2. The mineable sand and gravel will then be removed from block 1 by a front-end loader and loaded onto tip-trucks. When all mineable sand and gravel is removed from block 1, the stockpiled topsoil on block 2 is removed and immediately placed on block 1, leaving 500mm topsoil above the gravel / clay layer. Removal of topsoil from block 2 commences and is stockpiled on block 3, where after mining on block 3 commence. Concurrent mining and rehabilitation continue until the sand resource on the 6 mining blocks is removed. The mining process reduced the depth of the sand but, following the recommended rehabilitation measures, will leave a minimum of 500 mm of topsoil. After mining the area will be used for ongoing cultivation and livestock grazing as per previous status quo.

Rehabilitation

Main closure/rehabilitation objective is to rehabilitate the proposed 5Ha mining activities area to its previous status quo of successful agricultural cropping land.

This will be achieved by implementing the following progressive rehabilitation measures:

- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur.
- The upper 50 cm of soil, even if it contains gravel, must first be stripped and stockpiled before mining.
- Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan should be such that topsoil is stockpiled for the minimum possible time by rehabilitating different mining blocks progressively as the mining process continues.

- Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.
- To ensure that soil drainage is sufficiently maintained, it is important that the mining excavation, including along its bottom edge, remains free draining after rehabilitation and does not form a depression.
- After mining, any steep slopes, along the edges of the mining excavation or within it, must be reduced to a minimum and profiled to blend with the surrounding topography.
- The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface.
- A cover crop must be planted and established immediately after spreading of topsoil, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum growth, and any soil chemical deficiencies should be corrected, based on a chemical analysis of the re-spread soil. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established.
- The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.
- On-going alien vegetation control must keep the area free of alien vegetation after mining.
- All waste, structures, stockpiles, fuel and water tanks, machinery, equipment, signs, demarcations and vehicles forming part of the mining activities must be removed from the site and these impacted areas must also be rehabilitated.
- Should any additional topsoil be required for rehabilitation purposes, it must be from neighbouring properties or alternatively sterilized accordingly. This is to ensure that any imported topsoil is free from soil pathogens, to prevent introduction of new pathogens to the region.

The site must be monitored regularly (at least 6 monthly and after heavy rains) for at least two years after rehabilitation and all signs of erosion immediately rectified and alien vegetation removed to prevent potential siltation, erosion and alien encroachment.

Mine management must be held accountable for well managed and effective implementation of all the recommended rehabilitation steps above. The specific, measurable rehabilitation outcomes against which the effectiveness of completed rehabilitation must be measured are:

- that the topography and surface has been sufficiently smoothed without steep excavation edges to allow for cultivation;
- that topsoil has been spread on the surface;
- that there is a potential rooting depth of at least 50 cm of soil that is suitable for root growth above any existing depth limitation, across the entire mining area;
- that there are no non free-draining depressions across the surface and that the depth of mining has not created an effective sub-surface dam, that is lower than the low point for drainage out of the mining area, and therefore, that no ponding of water occurs on the surface of the mined area; 5. that there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
- that a successful cover crop has been established across the entire area.
- that there is no invasive alien vegetation within the mining area.

When no evidence of erosion and alien vegetation encroachment are visible and successful establishment of the cover crop is observed the rehabilitated areas can be considered as successfully rehabilitated. If successful rehabilitation of the site is not achieved the appointed Environmental Control Officer must provide recommendations on additional rehabilitation methods to be implemented.

The mine permit holder must commit to post-closure maintenance during rehabilitation of the site until the time of receipt of a closure certificate for all or parts of the impacted mining areas.

ii) Volumes and rate of water use required for the operation.

None required.

iii) Has a water use licence been applied for?

None required.

iv) Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(E.g. For mining - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc. E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	(of operation in which activity will take place. State; Planning and design, Pre-Mining' Mining, Operational, Rehabilitation, Closure, Post closure).	(volumes, tonnages and hectares or m²)	(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond mining as the case may be.
Excavations, loading, hauling, transport, roads and stockpiles	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Increased dust levels • Reduce drop height of material to a minimum. • Area will be mined in phases to reduce the barren areas. • Temporarily halt material handling in extreme windy conditions. • Use non-potable water to dampen bare soil areas if required to mitigate windblown dust. • A speed limit of	National Environmental Management: Air Quality Act, 39 of 2004 [NEMAQA] and Relevant Regulations. The dust generated and fallout will be monitored against the requirements described below and the activity will cease and mitigation measures implemented to ensure that the dust generated as a result of the activity meets the regulatory requirements. The National	Operational phase

			30km/hour will be displayed and enforced through a fining system. • All vehicle drivers entering the site will be informed of the speed limit. • Materials are crushed with water at the crushing plant to avoid excessive dust produced at crushing plant. • The requirement of additional dust suppression measures to be implemented must be determined through a dust monitoring programme or fugitive dust control plan to limit the emission of particulate matter. • The proposed mining operation will practice dust fall out monitoring and management programme to ensure that potential health issues as a result of dust fall out are detected and immediately corrected.	Dust Control Regulations regulates the following: No person may conduct any activity in such a way as to give rise to dust in such quantities and concentrations that the dust or dust fallout has a detrimental effect on the environment, including health, social, economic, ecological or cultural heritage conditions or has contributed to the degradation of the ambient air quality beyond the premises where it originates from; or that the dust remains visible in the ambient air beyond the premises where it originates from; or if the dust fall at the boundary or beyond the boundary of the premises where it originates exceeds: – 1200 mg/m²/day averaged over 30 days, measured in accordance with reference method ASTM D1739 (Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter)). It is important to note that people experience dust deposition as a nuisance effect, and that there are no direct	
--	--	--	---	---	--

				human health implications because the dust does not reach the lungs. Indirect effects on human and animal health may result from the deposition of dust containing toxicants onto edible plants. Heavy dust deposition can have detrimental effects on plants if the leaves are smothered to the extent where transpiration and photosynthesis are affected. Particulate Matter). Two dust fallout incidents that exceeds the limit may occur within a year (not sequential months).	
Excavations, loading, hauling, transport and crushing plant.	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Noise Impacts • No activities that may generate noise levels above the legal limit in terms of the Environmental Conservation Act, Western Cape Noise regulations will be conducted. • Machinery and vehicles should be regularly maintained to prevent excessive noise. • All machinery and work activities must adhere to the requirements of the noise regulations.	The standard below will be used to measure noise levels and impacts. Table 2 of SANS 10103:2004 <i>The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication</i> where the daytime, equivalent continuous rating level is given as 45 dBA for Rural Districts.	Operational phase

Removal of topsoil, excavations and road use.	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Soil Erosion • Visually inspect mining area boundaries, exposed surfaces, overburden and topsoil stockpiles for signs of erosion. • If erosion channels are discovered the mine must determine the cause of erosion and implement erosion rectification and prevention measures to rehabilitate eroded areas and prevent future erosion. • Rehabilitate and reinstate engineered constructed contours as soon as a phase is complete. • Undertake mining activities only in identified and specifically demarcated areas as proposed and in phases. Rehabilitating/filling excavations as soon as possible to prevent accumulation of stormwater. • Spoil (top soil and overburden) should be stockpiled in a manner that it does not cause erosion or drain to a	Conservation of Agricultural Resources Act, 43 of 1983 and regulations	Operational and Rehabilitation Phases
---	--	---------------------	--	--	---------------------------------------

			water resource or water course in times of high precipitation. • Runoff from upland areas will be mitigated through the creation of drainage channels and placement of overburden materials along the southern borders of the site to divert stormwater runoff around the quarry areas and into its natural flow path. • Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds; and any storm water runoff from the mining areas and topsoil and overburden storage areas. • Mine area must be rehabilitated and planted with indigenous grass immediately after mine is completed to stabilise the soil. • Monitor the area for signs of erosion during		
--	--	--	--	--	--

			rehabilitation and rectify immediately if detected.		
Mine vehicles/machinery	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Emissions • Vehicles and machinery will be maintained to minimize emissions. A log book will be filled in to keep a record of all maintenance problems encountered and mitigation measures implemented to resolve the problem. • Vehicles and machinery emitting excessive emissions will be stopped immediately and not allowed to operate until the necessary repairs have been done.	Carbon monoxide (CO) is an odourless, colourless, and poisonous gas. Most CO is formed as a result of incomplete combustion of organic materials used as fuel. CO emissions are highest during incomplete combustion e.g. during idling and low speed mobile source operations, such as vehicle idle. CO enters the bloodstream and reduces oxygen delivery to the body's organs and tissues. Its most serious effects occur at high concentrations, and therefore it tends to be a localized problem. CO may produce adverse health effects such as headaches, work capacity impairment, learning ability impairment, dizziness, weakness, nausea, vomiting, loss of muscular control, increasing and decreasing respiratory rates, collapse, unconsciousness, or death. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals also can be affected, but only at higher concentrations. It is	Operational and Rehabilitation phases

				not anticipated that the CO emissions levels that is generated will cause the above effects. The occupational exposure limit of CO is 50 parts per million for a 40 hour work week. It is highly unlikely that this level will be reached in the general environment.	
All activities associated with proposed mining	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Impact on water resources/hydrology • Undertake mining activities only in identified and specifically demarcated areas as proposed. • Storm water and erosion control as per an Environmental Management Programme (EMP) must be conducted. • No disturbance should be allowed within any natural wetlands or drainage lines. This includes no dumping of fill, no roads, and all forms of temporary disturbance. • No drainage line or wetland areas edges may be disturbed or impacted upon by the proposed activities.	National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations	Operational and Rehabilitation phases

			• If any groundwater is reached during the proposed mining activities on site, mining of that area must immediately be ceased, the Environmental Control Officer must be informed and the area must be rehabilitated to prevent any potential detrimental impact on the groundwater resource. • All measures should be put in place to ensure proper post-mining rehabilitation of affected areas, to as close to the original condition as possible. • No pollution of surface water or ground water resources may occur due to activities on the property. Oil spillages from vehicles on site must be controlled to prevent pollution of water resources. • All storm water falling outside the mine property must be diverted around the mine into its natural flow course. • No stormwater may be		
--	--	--	--	--	--

			trapped/dammed on the mining site. If damming of water occurs within the quarry areas this water must be pumped out to the lower lying areas along its natural flow course, without causing erosion.		
Vegetation removal, excavations, vehicle movement.	Operational, Decommissioning/Closure/Rehabilitation	5Ha (Alternative 1)	Impact on terrestrial biodiversity, plants and fauna - Mining activities must be limited to identified and specifically demarcated 5ha area. - Remove and conserve topsoil layer and overburden material for rehabilitation after mining activities have ceased - Invasive vegetation to be removed during mining activities to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation. - No disturbance should be allowed within the remaining indigenous vegetation areas outside of the proposed 5ha area. This includes	National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA] and relevant regulations	Operational and Rehabilitation phases

			no dumping of fill, no new roads, and all forms of temporary disturbance. • No natural vegetation areas edges may be cleared or impacted upon by the proposed mining activities. • Implement erosion and storm water runoff management measures to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds. • Backfill mined areas as soon as possible after mining completion with onsite excavated material. • No trapping, poisoning or removal of any indigenous fauna or avifauna species may be conducted on the property. • Only use topsoil and excavated material as derived and conserved from the proposed mining site to backfill and rehabilitate impacted areas. • Monitor rehabilitated areas for signs of		
--	--	--	--	--	--

			erosion for at least a year after rehabilitation and implement erosion rectification and prevention measures as and if required. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after mining activities have ceased and the site has been rehabilitated This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology.		
Fuel storage areas, mining vehicles, staff smoking	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Fire Control • All employees will be trained on fire safety and on how to reduce the probability of a fire spreading out of control. • Anyone who observes a fire must report it immediately to the fire protection agency/ fire brigade and their supervisor/ mine manager. • Vehicles must be parked in an area with no vegetation if a fire occurs.	Conservation of Agricultural Resources Act, 43 of 1983 and National Veld and Forest Fire Act, 101 of 1998; and regulations	Operational and Rehabilitation phases

			• Firefighting equipment i.e. extinguishers must be readily available at the site, clearly visible and in a good working order. • No smoking will be allowed on site.		
Toilets and litter	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Waste and Sewage Handling • Toilets must be kept clean with no leakages and sewage tanks may not overflow. • If a leak or overflow occurs the correct emergency procedure is to be followed (see EMP). • Domestic litter will be collected and removed from site by the operator on a weekly basis. • Proper secured waste bins must be provided on site for the staff and emptied before full	National Environmental Management: Waste Act (Act No 59 of 2008) and regulations	Operational and Rehabilitation Phases
Mine vehicles/machinery, fuel storage	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Hydrocarbon Spill Handling • Any mine vehicle which is leaking hydrocarbons (e.g. petrol, diesel or oil) must be repaired immediately on an impermeable surface not allowing any fuel or oil to spill unto soil. If it	Hazardous Substances Act, 15 of 1973 and National Environmental Management: Waste Act (Act No 59 of 2008); and regulations	Operational and Rehabilitation Phases

			is not possible to repair the leak immediately, a drip tray will be placed under the leak to trap any spillages. The content of the drip trays will be decanted into an old oil drum for removal from the site to a hazardous waste handling facility. • Hydrocarbon spillages are to be cleaned up immediately. • The mine will also maintain a store of suitable absorbent material, suitable bioremediation substance and a spill kit. All incidences/ spillages are to be recorded in an incident log book. Contaminated soil must go to Vissershok Hazardous Landfill site. • All fuel and hazardous substances must be stored in bunded/impermeable areas		
Topsoil and vegetation disturbance during excavations and transport of materials.	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	Alien and Weed Vegetation Management • Alien invasive and weed vegetation monitoring and removal must be undertaken annually during mining and for at	National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA] and relevant regulations Conservation of Agricultural Resources Act, 43 of 1983	Operational and Rehabilitation Phases

			least a year after mining activities have ceased on disturbed areas or until the landowner starts with the annual cultivation activities on the affected land. This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology depending on the contract agreement that the applicant has with the landowner. All invasive alien species as listed by the Conservation of Agricultural Resources Act (CARA) must be removed during these surveys. Declared weeds and aliens must be removed before annual seeding. • Only use topsoil as derived and conserved from the proposed mining area to be rehabilitated after mining activities have ceased on the property. • Every landowner has a legal obligation in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) and the National		
--	--	--	--	--	--

			Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) to control and eradicate alien invasive vegetation on his/her property.		
All activities associated with proposed mining	Operational, Decommissioning/Closure/ Rehabilitation	5Ha (Alternative 1)	- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur. - The upper 50 cm of soil, even if it contains gravel, must first be stripped and stockpiled before mining. - Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to	Conservation of Agricultural Resources Act, 43 of 1983	Operational and Rehabilitation Phases

			conserve and maintain it throughout the stockpiling and rehabilitation processes. • Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan should be such that topsoil is stockpiled for the minimum possible time by rehabilitating different mining blocks progressively as the mining process continues. • Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high. • To ensure that soil drainage is sufficiently maintained, it is important that the mining excavation,		
--	--	--	---	--	--

			including along its bottom edge, remains free draining after rehabilitation and does not form a depression. • After mining, any steep slopes, along the edges of the mining excavation or within it, must be reduced to a minimum and profiled to blend with the surrounding topography. • The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface. • A cover crop must be planted and established immediately after spreading of topsoil, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum growth, and		
--	--	--	--	--	--

			any soil chemical deficiencies should be corrected, based on a chemical analysis of the re-spread soil. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established. • The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs. • On-going alien vegetation control must keep the area free of alien vegetation after mining.		
--	--	--	--	--	--

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated);

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	MITIGATION TYPE	STANDARD TO BE ACHIEVED
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc....)		(e.g. Mining, commissioning, operational Decommissioning, closure, post-closure)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc.)	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.

				E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation..	
Excavations, loading, hauling, transport, roads and stockpiles	Increased dust levels	Natural environment, road users and nearby residents	Operational, Decommissioning/Closure/ Rehabilitation	• Reduce drop height of material to a minimum. • Area will be mined in phases to reduce the barren areas. • Temporarily halt material handling in extreme windy conditions. • Use non-potable water to dampen bare soil areas if required to mitigate windblown dust. • A speed limit of 30km/hour will be displayed and enforced through a fining system. • All vehicle drivers entering the site will be informed of the speed limit. • The requirement of additional dust suppression measures to be implemented must be determined through a dust monitoring programme or fugitive dust control plan to limit the emission of particulate matter. • The proposed mining operation will practice dust fall out monitoring and management programme to ensure that potential health	The National Dust Control Regulations regulates. Dust fallout may not exceeds 1200 mg/m ² /day averaged over 30 days, measured in accordance with reference method ASTM D1739 (Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter). Two dust fallout incidents that exceed the limit may occur within a year (not sequential months).

				issues as a result of dust fall out are detected and immediately corrected.	
Excavations, loading, hauling, transport and crushing plant.	Noise impacts	Noise due to mining machinery, trucks and people on site	Operational, Decommissioning/Closure/ Rehabilitation	- No activities that may generate noise levels above the legal limit in terms of the Environmental Conservation Act, Western Cape Noise regulations will be conducted. - Machinery and vehicles should be regularly maintained to prevent excessive noise. - All machinery and work activities must adhere to the requirements of the noise regulations.	Noise monitoring if needed to ensure noise levels are below 45 dBA. Table 2 of SANS 10103:2004 <i>The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication</i> where the daytime, equivalent continuous rating level is given as 45 dBA for Rural Districts.
Removal of topsoil, excavations and road use.	Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during mining. Loss of stockpiled topsoil and overburden material.	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	- Visually inspect mining area boundaries, exposed surfaces, overburden and topsoil stockpiles for signs of erosion. - If erosion channels are discovered the mine must determine the cause of erosion and implement erosion rectification and prevention measures to rehabilitate eroded areas and prevent future erosion. - Rehabilitate and reinstate engineered constructed contours as soon as a phase is complete. - Undertake mining activities only in identified and specifically demarcated	Impact avoidance, if detected rectification and prevention.

				areas as proposed and in phases. Rehabilitating/filling excavations as soon as possible to prevent accumulation of stormwater. • Spoil (top soil and overburden) should be stockpiled in a manner that it does not cause erosion or drain to a water resource or water course in times of high precipitation. • Runoff from upland areas will be mitigated through the creation of drainage channels and placement of overburden materials along the southern borders of the site to divert stormwater runoff around the quarry areas and into its natural flow path. • Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds; and any storm water runoff from the mining areas and topsoil and overburden storage	
--	--	--	--	---	--

				areas. • Mine area must be rehabilitated and planted with indigenous grass immediately after mine is completed to stabilise the soil. • Monitor the area for signs of erosion during rehabilitation and rectify immediately if detected.	
Mine vehicles/machinery	Vehicles and machinery on the site will produce tailpipe emissions leading to air pollution	Natural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Vehicles and machinery will be maintained to minimize emissions. • A log book will be filled in to keep a record of all maintenance problems encountered and mitigation measures implemented to resolve the problem. • Vehicles and machinery emitting excessive emissions will be stopped immediately and not allowed to operate until the necessary repairs have been done.	The occupational exposure limit of CO is 50 parts per million for a 40 hour work week. It is highly unlikely whether this level will be reached in the general environment.
Removal of topsoil and excavated areas.	Mining activities can result in increased sediment loads in water resources	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Restrict mining areas only to approved footprint and demarcate the area before mining commences, maintain demarcation throughout operational phase. • Demarcation method to be approved by an Environmental Control Officer (ECO).	Impact avoidance, if detected rectification and prevention.

				- Minimize sediment load in the water by stripping a maximum of 10 meters ahead of the mining face and only moving the material once it needs to be processed or onto the intended topsoil stockpiles on the edge of all current and future mining areas. Monitor for erosion. Should erosion be present, undertake mitigation measures to rectify and prevent further erosion. - All roads need to be maintained and monitored. Visible signs of possible erosion must be immediately rehabilitated. - All storm water falling outside the mine property must be diverted around the mine.	
All activities associated with proposed mining	Mining activities can impact on water resources i.e. groundwater, secondary drainage lines and dams.	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	- Undertake mining activities only in identified and specifically demarcated areas as proposed. - Storm water and erosion control as per an Environmental Management Programme (EMP) must be conducted. - No disturbance should be allowed within any natural wetlands or drainage lines. This includes no dumping of fill, no roads, and all forms	Impact avoidance, if detected rectification and prevention.

				of temporary disturbance. • No drainage line or wetland areas edges may be disturbed or impacted upon by the proposed activities. • If any groundwater is reached during the proposed mining activities on site, mining of that area must immediately be ceased, the Environmental Control Officer must be informed and the area must be rehabilitated to prevent any potential detrimental impact on the groundwater resource. • All measures should be put in place to ensure proper post-mining rehabilitation of affected areas, to as close to the original condition as possible. • No pollution of surface water or ground water resources may occur due to activities on the property. Oil spillages from vehicles on site must be controlled to prevent pollution of water resources.	
Excavations	The trapping of storm water within excavations on the mine area	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	• All storm water falling outside the mine property must be diverted around the mine into its natural flow course. • No stormwater may be trapped/dammed on the	Impact avoidance, if detected rectification and prevention.

				mining site. • If damming of water occurs within the quarry areas this water must be pumped out to the lower lying areas along its natural flow course, without causing erosion.	
Toilets and litter	Pollution and nuisance due to leakage etc.	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Toilets to be provided must be kept clean with no leakages and sewage tanks may not overflow. • If a leak or overflow occurs the correct emergency procedure is to be followed (see EMP). • Domestic litter will be collected and removed from site by the operator on a weekly basis. • Proper secured waste bins must be provided on site for the staff and emptied before full.	Impact avoidance, if detected rectification and prevention.
Mine vehicles/machinery	Ground and/or water pollution and loss of natural and agricultural resources due to a hydrocarbon spillage	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Any mine vehicle which is leaking hydrocarbons (e.g. petrol, diesel or oil) must be repaired immediately on an impermeable surface not allowing any fuel or oil to spill unto soil. If it is not possible to repair the leak immediately, a drip tray will be placed under the leak to trap any spillages. The content of the drip trays will be decanted into an old oil drum for removal from	Impact avoidance, if detected rectification and prevention.

				the site to a hazardous waste handling facility. - Hydrocarbon spillages are to be cleaned up immediately. - The mine will also maintain a store of suitable absorbent material, suitable bioremediation substance and a spill kit. All incidences/ spillages are to be recorded in an incident log book. Contaminated soil must go to Vissershok Hazardous Landfill site.	
Fuel storage areas, mining vehicles, staff smoking	Fire can cause habitat or crop destruction	Natural and agricultural resources	Operational, Decommissioning/Closure/ Rehabilitation	- All employees will be trained on fire safety and on how to reduce the probability of a fire spreading out of control. - Anyone who observes a fire must report it immediately to the fire protection agency/ fire brigade and their supervisor/ mine manager. - Vehicles must be parked in an area with no vegetation if a fire occurs. - Firefighting equipment i.e. extinguishers must be readily available at the site, clearly visible and in a good working order. - No smoking will be allowed on site.	Impact avoidance, if detected rectification and prevention.
Topsoil and vegetation	Alien	Natural and	Operational,	Alien invasive and weed	Impact avoidance, if

disturbance during excavations and transport of materials.	vegetation encroachment	agricultural resources	Decommissioning/Closure/ Rehabilitation	vegetation monitoring and removal must be undertaken annually during mining and for at least a year after mining activities have ceased on disturbed areas or until the landowner starts with the annual cultivation activities on the affected land. This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology depending on the contract agreement that the applicant has with the landowner. All invasive alien species as listed by the Conservation of Agricultural Resources Act (CARA) must be removed during these surveys. Declared weeds and aliens must be removed before annual seeding. • Only use topsoil as derived and conserved from the proposed mining area to be rehabilitated after mining activities have ceased on the property. • Every landowner has a legal obligation in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) and the National	detected rectification and prevention.
--	--------------------------------	------------------------	---	---	--

				Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) to control and eradicate alien invasive vegetation on his/her property	
Vegetation removal during excavations.	Natural fauna and avifauna habitat destruction	Natural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Mining activities must be limited to identified and specifically demarcated 5ha area. • No trapping, poisoning or removal of any indigenous fauna or avifauna species may be conducted on the property. • Remove and conserve topsoil layer and overburden material for rehabilitation after mining activities have ceased • Invasive vegetation to be removed during mining activities to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation. • No disturbance should be allowed within the remaining indigenous vegetation areas outside of the proposed 5ha area. This includes no dumping of fill, no new roads, and all forms of temporary disturbance.	Impact avoidance and significance management.

				• No natural vegetation areas edges may be cleared or impacted upon by the proposed mining activities. • Implement erosion and storm water runoff management measures to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds. • Backfill mined areas as soon as possible after mining completion with onsite excavated material. • Only use topsoil and excavated material as derived and conserved from the proposed mining site to backfill and rehabilitate impacted areas. • Monitor rehabilitated areas for signs of erosion for at least a year after rehabilitation and implement erosion rectification and prevention measures as and if required. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after mining activities have ceased and the site	
--	--	--	--	--	--

				has been rehabilitated This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology.	
Vegetation removal during excavations.	Removal and disturbance of indigenous vegetation	Natural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Mining activities must be limited to identified and specifically demarcated 5ha area. • Remove and conserve topsoil layer and overburden material for rehabilitation after mining activities have ceased • Invasive vegetation to be removed during mining activities to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation. • No disturbance should be allowed within the remaining indigenous vegetation areas outside of the proposed 5ha area. This includes no dumping of fill, no new roads, and all forms of temporary disturbance. • No natural vegetation areas edges may be cleared or impacted upon by the proposed mining activities.	Management of potential scale/size of impact.

				• Implement erosion and storm water runoff management measures to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds. • Backfill mined areas as soon as possible after mining completion with onsite excavated material. • Only use topsoil and excavated material as derived and conserved from the proposed mining site to backfill and rehabilitate impacted areas. • Monitor rehabilitated areas for signs of erosion for at least a year after rehabilitation and implement erosion rectification and prevention measures as and if required. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after mining activities have ceased and the site has been rehabilitated This must be done by the applicant, landowner or their appointed contractor, using CapeNature	
--	--	--	--	---	--

				approved methodology.	
Vegetation removal, excavations, vehicle movement.	Destruction and disturbance of terrestrial biodiversity features of the site and surround due to mining activities.	Natural resources	Operational, Decommissioning/Closure/ Rehabilitation	• Mining activities must be limited to identified and specifically demarcated 5ha area. • Remove and conserve topsoil layer and overburden material for rehabilitation after mining activities have ceased • Invasive vegetation to be removed during mining activities to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation. • No disturbance should be allowed within the remaining indigenous vegetation areas outside of the proposed 5ha area. This includes no dumping of fill, no new roads, and all forms of temporary disturbance. • No natural vegetation areas edges may be cleared or impacted upon by the proposed mining activities. • Implement erosion and storm water runoff management measures to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds.	Management of potential scale/size of impact.

				• Backfill mined areas as soon as possible after mining completion with onsite excavated material. • Only use topsoil and excavated material as derived and conserved from the proposed mining site to backfill and rehabilitate impacted areas. • Monitor rehabilitated areas for signs of erosion for at least a year after rehabilitation and implement erosion rectification and prevention measures as and if required. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after mining activities have ceased and the site has been rehabilitated This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology.	
Employment provided by mine	Job opportunities provided by mine to the local community	Socio Economic Impacts	Operational phase	This is a positive impact and therefore do not have to be mitigated	-
Loading, hauling and transport	Increased traffic due to the mining activities	Socio Economic and traffic Impacts	Operational, Decommissioning/Closure/ Rehabilitation	• A speed limit of 30km/hour will be displayed and enforced through a fining system on site. All vehicle	Management of potential scale of impact.

	requiring various vehicles to come onto and leave the site.			drivers entering the site will be informed of the speed limit. • Speed limit of 30km/h will be applicable on the mining property as well on the Ystervarkfontein Road up until the N2 national road. • All drivers to adhere to road safety regulations and have valid drivers' licenses.	
All activities associated with proposed mining	Mining on agricultural land	Socio Economic Impacts and agricultural resources impacts	Operational Phase	• During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur. • The upper 50 cm of soil, even if it contains gravel, must first be stripped and stockpiled before mining. • Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and	Management of potential scale/size of impact.

				maintain it throughout the stockpiling and rehabilitation processes. • Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan should be such that topsoil is stockpiled for the minimum possible time by rehabilitating different mining blocks progressively as the mining process continues. • Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high. • To ensure that soil drainage is sufficiently maintained, it is important that the mining excavation, including along its bottom edge, remains free draining after rehabilitation and does not form a depression. • After mining, any steep slopes, along the edges of the mining excavation or within it, must be reduced	
--	--	--	--	--	--

				to a minimum and profiled to blend with the surrounding topography. • The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface. • A cover crop must be planted and established immediately after spreading of topsoil, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum growth, and any soil chemical deficiencies should be corrected, based on a chemical analysis of the re-spread soil. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established. • The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs. On-going alien vegetation	
--	--	--	--	---	--

				control must keep the area free of alien vegetation after mining.	
Excavations	Heritage Resources Impacts	The potential impact of the proposed development on archaeological, paleontological and heritage remains	Operational Phase	Should any burials, fossils or other historical material be encountered during mining, work must cease immediately and HWC must be contacted.	Impact avoidance, if detected rectification and prevention.
Excavations	Visual impact	A negative visual impact due to the creation of excavation pits.	Operational Phase	- Proposed mining activities must be limited to development footprint site. - Rehabilitate the site immediately after mining process is complete.	Management of potential scale/size of impact.
Decommissioning of mine	Soil erosion	Natural and agricultural resources	Decommissioning Phase	- Mine area must be rehabilitated and immediately after mining is completed. - A cover crop must be planted before the onset of the first rainy season to promote stabilisation of the soil. - Contours and slopes must be reinstated and maintained according to surrounding topography. - The site must be monitored regularly (at least 6 monthly and after heavy rains) for at least two years after rehabilitation and all signs of erosion immediately rectified and alien vegetation removed to prevent potential siltation, erosion and alien encroachment.	Impact avoidance and prevention.

				• When no evidence of erosion and alien vegetation encroachment are visible and successful natural succession/rehabilitation of indigenous vegetation is observed the rehabilitated areas can be considered as successfully rehabilitated.	
Decommissioning of mine	Introduction of alien plant species during rehabilitation.	Natural and agricultural resources	Decommissioning Phase	• Only use topsoil as derived and conserved from the proposed mining area to be rehabilitated after mining activities have ceased on the property. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least two years after mining activities have ceased on disturbed and rehabilitated areas. This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology. All invasive alien species as listed by the Conservation of Agricultural Resources Act (CARA) must be removed during these surveys. Declared weeds and aliens must be removed before annual seeding. • Note that the landowner will be responsible for ongoing CARA listed alien vegetation management/removal on the	Impact avoidance and prevention.

				rehabilitated mining site after closure certificate has been obtained and is in any case responsible for alien vegetation management on the whole property as per legislation requirements.	
Decommissioning of mine	Socio Economic impacts	Loss of socio-economic benefits to the mine employees and local economy when mine closes.	Decommissioning Phase	The mining company must assist any employees who may potentially lose their job once mining is completed to find a new job as far as possible.	Impact avoidance and prevention.

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved).

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD IMPLEMENTATION FOR	COMPLIANCE WITH STANDARDS
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc....etc....etc.).	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc....)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc.) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation..	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond mining as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Excavations, loading, hauling,	Increased dust levels	• Reduce drop height of	Operational phase	National Environmental

transport, roads and stockpiles		material to a minimum. • Area will be mined in phases to reduce the barren areas. • Temporarily halt material handling in extreme windy conditions. • Use non-potable water to dampen bare soil areas if required to mitigate windblown dust. • A speed limit of 30km/hour will be displayed and enforced through a fining system. • All vehicle drivers entering the site will be informed of the speed limit. • The requirement of additional dust suppression measures to be implemented must be determined through a dust monitoring programme or fugitive dust control plan to limit the emission of particulate matter. • The proposed mining operation will practice dust fall out monitoring and management programme to ensure that potential health issues as a result of dust fall out are detected and immediately corrected.		Management: Air Quality Act, 39 of 2004 [NEMAQA] and Relevant Regulations. The dust generated and fallout will be monitored against the requirements described below and the activity will cease and mitigation measures implemented to ensure that the dust generated as a result of the activity meets the regulatory requirements. The National Dust Control Regulations regulates the following: No person may conduct any activity in such a way as to give rise to dust in such quantities and concentrations that the dust or dust fallout has a detrimental effect on the environment, including health, social, economic, ecological or cultural heritage conditions or has contributed to the degradation of the ambient air quality beyond the premises where it originates from; or that the dust remains visible in the ambient air beyond the premises where it originates from; or if the dust fall at the boundary or beyond the boundary of the premises where it originates exceeds: – 1200 mg/m²/day averaged over 30 days, measured in accordance with reference method ASTM D1739 (Standard Test Method for Collection and Measurement of Dustfall (Settleable
--	--	--	--	---

				Particulate Matter). It is important to note that people experience dust deposition as a nuisance effect, and that there are no direct human health implications because the dust does not reach the lungs. Indirect effects on human and animal health may result from the deposition of dust containing toxicants onto edible plants. Heavy dust deposition can have detrimental effects on plants if the leaves are smothered to the extent where transpiration and photosynthesis are affected. Particulate Matter). Two dust fallout incidents that exceeds the limit may occur within a year (not sequential months).
Excavations, loading, hauling, transport and crushing plant.	Noise impacts	• No activities that may generate noise levels above the legal limit in terms of the Environmental Conservation Act, Western Cape Noise regulations will be conducted. • Machinery and vehicles should be regularly maintained to prevent excessive noise. • All machinery and work activities must adhere to the requirements of the noise regulations.	Operational phase	The standard below will be used to measure noise levels and impacts. Table 2 of SANS 10103:2004 <i>The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication</i> where the daytime, equivalent continuous rating level is given as 45 dBA for Rural Districts.
Removal of topsoil, excavations and road use.	Soil erosion	• Visually inspect mining area boundaries, exposed surfaces, overburden and	Operational, Decommissioning/Closure/ Rehabilitation	Conservation of Agricultural Resources Act, 43 of 1983 and regulations

		topsoil stockpiles for signs of erosion. • If erosion channels are discovered the mine must determine the cause of erosion and implement erosion rectification and prevention measures to rehabilitate eroded areas and prevent future erosion. • Rehabilitate and reinstate engineered constructed contours as soon as a phase is complete. • Undertake mining activities only in identified and specifically demarcated areas as proposed and in phases. Rehabilitating/filling excavations as soon as possible to prevent accumulation of stormwater. • Spoil (top soil and overburden) should be stockpiled in a manner that it does not cause erosion or drain to a water resource or water course in times of high precipitation. • Runoff from upland areas will be mitigated through the creation of drainage channels and placement of overburden materials along the southern borders of the site to divert stormwater runoff around the quarry		Impact avoidance, if detected rectification and prevention.
--	--	--	--	---

		areas and into its natural flow path. • Implement erosion and storm water runoff management measures as according to EMP requirements to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds; and any storm water runoff from the mining areas and topsoil and overburden storage areas. • Mine area must be rehabilitated and planted with a crop immediately after mine is completed to stabilise the soil. • Monitor the area for signs of erosion during rehabilitation and rectify immediately if detected.		
Mine vehicles/machinery	Emissions	• Vehicles and machinery will be maintained to minimize emissions. A log book will be filled in to keep a record of all maintenance problems encountered and mitigation measures implemented to resolve the problem. • Vehicles and machinery emitting excessive emissions will be stopped immediately and not allowed to operate until the necessary repairs have	Operational and Rehabilitation phases	Carbon monoxide (CO) is an odourless, colourless, and poisonous gas. Most CO is formed as a result of incomplete combustion of organic materials used as fuel. CO emissions are highest during incomplete combustion e.g. during idling and low speed mobile source operations, such as vehicle idle. CO enters the bloodstream and reduces oxygen delivery to the body's organs and tissues. Its most serious effects occur at

		been done.		high concentrations, and therefore it tends to be a localized problem. CO may produce adverse health effects such as headaches, work capacity impairment, learning ability impairment, dizziness, weakness, nausea, vomiting, loss of muscular control, increasing and decreasing respiratory rates, collapse, unconsciousness, or death. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals also can be affected, but only at higher concentrations. It is not anticipated that the CO emissions levels that is generated will cause the above effects. The occupational exposure limit of CO is 50 parts per million for a 40 hour work week. It is highly unlikely that this level will be reached in the general environment. Impact avoidance, if detected rectification and prevention.
All activities associated with proposed mining	Impact on water resources/hydrology	• Undertake mining activities only in identified and specifically demarcated areas as proposed. • Storm water and erosion control as per an Environmental Management Programme	Operational and Rehabilitation phases	National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations Impact avoidance, if detected rectification and prevention.

		(EMP) must be conducted. • No disturbance should be allowed within any natural wetlands or drainage lines. This includes no dumping of fill, no roads, and all forms of temporary disturbance. • No drainage line or wetland areas edges may be disturbed or impacted upon by the proposed activities. • If any groundwater is reached during the proposed mining activities on site, mining of that area must immediately be ceased, the Environmental Control Officer must be informed and the area must be rehabilitated to prevent any potential detrimental impact on the groundwater resource. • All measures should be put in place to ensure proper post-mining rehabilitation of affected areas, to as close to the original condition as possible. • No pollution of surface water or ground water resources may occur due to activities on the property. Oil spillages from vehicles on site must		
--	--	---	--	--

		be controlled to prevent pollution of water resources. • All storm water falling outside the mine property must be diverted around the mine into its natural flow course. • No stormwater may be trapped/dammed on the mining site. • If damming of water occurs within the quarry areas this water must be pumped out to the lower lying areas along its natural flow course, without causing erosion. • Restrict mining areas only to approved footprint and demarcate the area before mining commences, maintain demarcation throughout operational phase. • Demarcation method to be approved by an Environmental Control Officer (ECO). • Minimize sediment load in the water by stripping a maximum of 10 meters ahead of the mining face and only moving the material once it needs to be processed or onto the intended topsoil stockpiles on the edge of all current		
--	--	---	--	--

		and future mining areas. Monitor for erosion. Should erosion be present, undertake mitigation measures to rectify and prevent further erosion. • All roads need to be maintained and monitored. Visible signs of possible erosion must be immediately rehabilitated. • All storm water falling outside the mine property must be diverted around the mine.		
Vegetation removal, excavations, vehicle movement.	Impact on terrestrial biodiversity, plants and fauna	• Mining activities must be limited to identified and specifically demarcated 5ha area. • Remove and conserve topsoil layer and overburden material for rehabilitation after mining activities have ceased • Invasive vegetation to be removed during mining activities to be disposed of at landfill site in such a manner that seeds must not be able to spread from the disposal site or during transportation. • No disturbance should be allowed within the remaining indigenous vegetation areas outside of the proposed 5ha area. This includes no	Operational and Rehabilitation phases	National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA] and relevant regulations Impact avoidance, if detected rectification and prevention.

		dumping of fill, no new roads, and all forms of temporary disturbance. • No natural vegetation areas edges may be cleared or impacted upon by the proposed mining activities. • Implement erosion and storm water runoff management measures to prevent (or if prevention is not possible limit) any erosion from occurring on the mining activity areas and surrounds. • Backfill mined areas as soon as possible after mining completion with onsite excavated material. • Only use topsoil and excavated material as derived and conserved from the proposed mining site to backfill and rehabilitate impacted areas. • Monitor rehabilitated areas for signs of erosion for at least a year after rehabilitation and implement erosion rectification and prevention measures as and if required. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least a year after mining activities have ceased and the site		
--	--	--	--	--

		has been rehabilitated This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology.		
Fuel storage areas, mining vehicles, staff smoking	Fire control	• All employees will be trained on fire safety and on how to reduce the probability of a fire spreading out of control. • Anyone who observes a fire must report it immediately to the fire protection agency/ fire brigade and their supervisor/ mine manager. • Vehicles must be parked in an area with no vegetation if a fire occurs. • Firefighting equipment i.e. extinguishers must be readily available at the site, clearly visible and in a good working order. • No smoking will be allowed on site.	Operational and Rehabilitation phases	Conservation of Agricultural Resources Act, 43 of 1983 and National Veld and Forest Fire Act, 101 of 1998; and regulations Impact avoidance, if detected rectification and prevention.
Toilets and litter	Waste and sewage handling	• Toilets to be provided on the site must be kept clean with no leakages and sewage tanks may not overflow. • If a leak or overflow occurs the correct emergency procedure is to be followed (see EMP). • Domestic litter will be collected and removed	Operational and Rehabilitation Phases	National Environmental Management: Waste Act (Act No 59 of 2008) and regulations Impact avoidance, if detected rectification and prevention.

		from site by the operator on a weekly basis. • Proper secured waste bins must be provided on site for the staff and emptied before full		
Mine vehicles/machinery, fuel storage	Hydrocarbon Spill Handling	• Any mine vehicle which is leaking hydrocarbons (e.g. petrol, diesel or oil) must be repaired immediately on an impermeable surface not allowing any fuel or oil to spill unto soil. If it is not possible to repair the leak immediately, a drip tray will be placed under the leak to trap any spillages. The content of the drip trays will be decanted into an old oil drum for removal from the site to a hazardous waste handling facility. • Hydrocarbon spillages are to be cleaned up immediately. • The mine will also maintain a store of suitable absorbent material, suitable bioremediation substance and a spill kit. All incidences/ spillages are to be recorded in an incident log book. Contaminated soil must go to Vissershok Hazardous Landfill site. • All fuel and hazardous substances must be stored in bunded/impermeable	Operational and Rehabilitation Phases	Hazardous Substances Act, 15 of 1973 and National Environmental Management: Waste Act (Act No 59 of 2008); and regulations Impact avoidance, if detected rectification and prevention.

		areas (refer to EMPr for further details)		
Topsoil and vegetation disturbance during excavations and transport of materials.	Alien and Weed Vegetation Management	• Alien invasive and weed vegetation monitoring and removal must be undertaken annually during mining and for at least a year after mining activities have ceased on disturbed areas or until the landowner starts with the annual cultivation activities on the affected land. This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology depending on the contract agreement that the applicant has with the landowner. All invasive alien species as listed by the Conservation of Agricultural Resources Act (CARA) must be removed during these surveys. Declared weeds and aliens must be removed before annual seeding. • Only use topsoil as derived and conserved from the proposed mining area to be rehabilitated after mining activities have ceased on the property. • Every landowner has a legal obligation in terms of the Conservation of Agricultural	Operational and Rehabilitation Phases	National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA] and relevant regulations Conservation of Agricultural Resources Act, 43 of 1983 Impact avoidance, if detected rectification and prevention.

		Resources Act, 1983 (Act No. 43 of 1983) and the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) to control and eradicate alien invasive vegetation on his/her property.		
All activities associated with proposed mining	Impacts on Agricultural Land	- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur. - The upper 50 cm of soil, even if it contains gravel, must first be stripped and stockpiled before mining. - Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. - Topsoil stripping,	Operational, Decommissioning/Closure/ Rehabilitation	Conservation of Agricultural Resources Act, 43 of 1983 Impact avoidance, if detected rectification and prevention.

		stockpiling and re-spreading must be done in a systematic way. The mining plan should be such that topsoil is stockpiled for the minimum possible time by rehabilitating different mining blocks progressively as the mining process continues. • Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high. • To ensure that soil drainage is sufficiently maintained, it is important that the mining excavation, including along its bottom edge, remains free draining after rehabilitation and does not form a depression. • After mining, any steep slopes, along the edges of the mining excavation or within it, must be reduced to a minimum and profiled to blend with the surrounding topography.		
--	--	---	--	--

		• The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface. • A cover crop must be planted and established immediately after spreading of topsoil, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum growth, and any soil chemical deficiencies should be corrected, based on a chemical analysis of the re-spread soil. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established. • The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs. • On-going alien vegetation control must keep the area free of alien vegetation after		
--	--	--	--	--

		mining.		
Loading, hauling and transport	Increased traffic	- A speed limit of 30km/hour will be displayed and enforced through a fining system on site. All vehicle drivers entering the site will be informed of the speed limit. - All drivers to adhere to road safety regulations and have valid drivers' licenses. - Hard surfaced the last 30 m of the farm road/proposed haul road approach to Main Road 174 (R302) , to reduce materials carry onto Main Road 174 (R302). - Locate the farm/haul road access gate 30 m from Main Road 174 (R302) road edge or ensure that the gate remains open during mining operations.	Operational, Decommissioning/Closure/ Rehabilitation	Management of potential scale of impact.
Excavations	Heritage Resources Impacts	Should any burials, fossils or other historical material be encountered during mining, work must cease immediately and HWC must be contacted.	Operational Phase	Impact avoidance, if detected rectification and prevention.
Excavations	Visual impact	- Proposed mining activities must be limited to development footprint site. - Rehabilitate the site immediately after mining process is complete.	Operational Phase	Management of potential scale/size of impact.
Decommissioning of mine	Soil erosion	Mine area must be	Decommissioning Phase	Impact avoidance and

		rehabilitated and immediately after mining is completed. • A cover crop must be planted before the on set of the first rainy season to promote stabilisation of the soil. • Contours and slopes must reinstate and maintained as according to surrounding topography. • The site must be monitored regularly (at least 6 monthly and after heavy rains) for at least two years after rehabilitation and all signs of erosion immediately rectified and alien vegetation removed to prevent potential siltation, erosion and alien encroachment. • When no evidence of erosion and alien vegetation encroachment are visible and successful natural succession/rehabilitation of indigenous vegetation is observed the rehabilitated areas can be considered as successfully rehabilitated.		prevention.
Decommissioning of mine	Introduction of alien plant species during rehabilitation.	• Only use topsoil as derived and conserved from the proposed mining area to be rehabilitated after mining activities have	Decommissioning Phase	Impact avoidance and prevention.

		ceased on the property. • Alien invasive and weed vegetation monitoring and removal must be undertaken for at least two years after mining activities have ceased on disturbed and rehabilitated areas. This must be done by the applicant, landowner or their appointed contractor, using CapeNature approved methodology. All invasive alien species as listed by the Conservation of Agricultural Resources Act (CARA) must be removed during these surveys. Declared weeds and aliens must be removed before annual seeding. • Note that the landowner will be responsible for ongoing CARA listed alien vegetation management/removal on the rehabilitated mining site after closure certificate has been obtained and is in any case responsible for alien vegetation management on the whole property as per legislation requirements.		
Decommissioning of mine	Socio Economic	• The mining company must	Decommissioning Phase	Impact avoidance and

	impacts	assist any employees who may potentially loose their job once mining is completed to find a new job as far as possible.		prevention.
--	----------------	---	--	-------------

g) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The proposed property, Farm Doornfontein RE/4/814 size 200.82ha is located approximately ± 7 km to the south of Malmesbury, within the municipal jurisdiction of Swartland Municipality. The property can be accessed via Main Road 174 (R302) which connects to the N1.

The predominant land use in the surrounding area is agriculture and includes cultivated land used for grain production and vineyards.

The property is used as an agricultural unit and is developed with infrastructure such as a farmhouse or labourer cottages. The site of the proposed 5ha sand mine has significantly been impacted upon by agricultural activities. The site has previously been ploughed and is currently used for production of oats. The soils down the slope have previously been mined and are now utilised for oats in the same way as the rest of the land. The nearest non-perennial watercourse is located approximately 250m to the west of the proposed mine.

The applicant, Dyck Advisory Group (Pty) Ltd, seeks permission to establish a dry-pit sand and gravel mine on the property. The proposed mining area in total is 5ha in extent.

Mine area coordinates:

COORDINATES			
C1	Lat	33°32'4.51"S	-33.534585°
	Long	18°43'48.76"E	18.730212°
C2	Lat	33°32'4.49"S	-33.534582°
	Long	18°43'56.83"E	18.732454°
C3	Lat	33°32'12.33"S	-33.536758°
	Long	18°43'56.92"E	18.732478°
C4	Lat	33°32'12.20"S	-33.536724°
	Long	18°43'48.81"E	18.730224°

The average depth of mine-able sand spread over the mine area (5ha) is ± 30 cm deep and the average depth of gravel, ± 50 cm (this excludes the 50cm topsoil proposed to be removed for rehabilitation purposes). The total volume of mine-able sand on the mining area is conservatively estimated to be $\pm 15\,000\text{m}^3$ and gravel $\pm 25\,000\text{m}^3$ with an expected maximum depth of 2.5m to be mined. The mine will be operated in such a way that once sand and gravel resources are removed and the mine is closed, the site can be used for agricultural activities as currently the case.

The mining operator will first remove the topsoil layer (50cm) from block 1 and stockpile it on the to be mined block 2. The mineable sand and gravel will then be removed from block 1 by a front-end loader and loaded onto tip-trucks. When all mineable sand and gravel is removed from block 1, the stockpiled topsoil on block 2 is removed and immediately placed on block 1, leaving 500mm topsoil above the gravel / clay layer. Removal of topsoil from block 2 commences and is stockpiled on block 3, where after mining on block 3 commence. Concurrent mining and rehabilitation continue until the sand resource on the 6 mining blocks is removed. The mining process reduced the depth of the sand but, following the recommended rehabilitation measures, will leave a minimum of 500 mm of topsoil.

After mining the area will be used for ongoing cultivation and livestock grazing as per previous status quo.

Rehabilitation

Main closure/rehabilitation objective is to rehabilitate the proposed 5Ha mining activities area to its previous status quo of successful agricultural cropping land.

This will be achieved by implementing the following progressive rehabilitation measures:

- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur.
- The upper 50 cm of soil, even if it contains gravel, must first be stripped and stockpiled before mining.
- Topsoil is a valuable and essential resource for rehabilitation, and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan should be such that topsoil is stockpiled for the minimum possible time by rehabilitating different mining blocks progressively as the mining process continues.
- Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.
- To ensure that soil drainage is sufficiently maintained, it is important that the mining excavation, including along its bottom edge, remains free draining after rehabilitation and does not form a depression.
- After mining, any steep slopes, along the edges of the mining excavation or within it, must be reduced to a minimum and profiled to blend with the surrounding topography.
- The stockpiled topsoil must then be evenly spread across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even. A slope must be maintained so that ponding of water does not occur on the surface.
- A cover crop must be planted and established immediately after spreading of topsoil, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum growth, and any soil chemical deficiencies should be corrected, based on a chemical analysis of the re-spread soil. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established.
- The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.
- On-going alien vegetation control must keep the area free of alien vegetation after mining.
- All waste, structures, stockpiles, fuel and water tanks, machinery, equipment, signs, demarcations and vehicles forming part of the mining activities must be removed from the site and these impacted areas must also be rehabilitated.
- Should any additional topsoil be required for rehabilitation purposes, it must be from neighbouring properties or alternatively sterilized accordingly. This is to ensure that any imported topsoil is free from soil pathogens, to prevent introduction of new pathogens to the region.

The site must be monitored regularly (at least 6 monthly and after heavy rains) for at least two years after rehabilitation and all signs of erosion immediately rectified and alien vegetation removed to prevent potential siltation, erosion and alien encroachment.

Mine management must be held accountable for well managed and effective implementation of all the recommended rehabilitation steps above. The specific, measurable rehabilitation outcomes against which the effectiveness of completed rehabilitation must be measured are:

- that the topography and surface has been sufficiently smoothed without steep excavation edges to allow for cultivation;
- that topsoil has been spread on the surface;
- that there is a potential rooting depth of at least 50 cm of soil that is suitable for root growth above any existing depth limitation, across the entire mining area;
- that there are no non free-draining depressions across the surface and that the depth of mining has not created an effective sub-surface dam, that is lower than the low point for drainage out of the mining area, and therefore, that no ponding of water occurs on the surface of the mined area;
- 5. that there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
- that a successful cover crop has been established across the entire area.
- that there is no invasive alien vegetation within the mining area.

When no evidence of erosion and alien vegetation encroachment are visible and successful establishment of the cover crop is observed the rehabilitated areas can be considered as successfully rehabilitated. If successful rehabilitation of the site is not achieved the appointed Environmental Control Officer must provide recommendations on additional rehabilitation methods to be implemented.

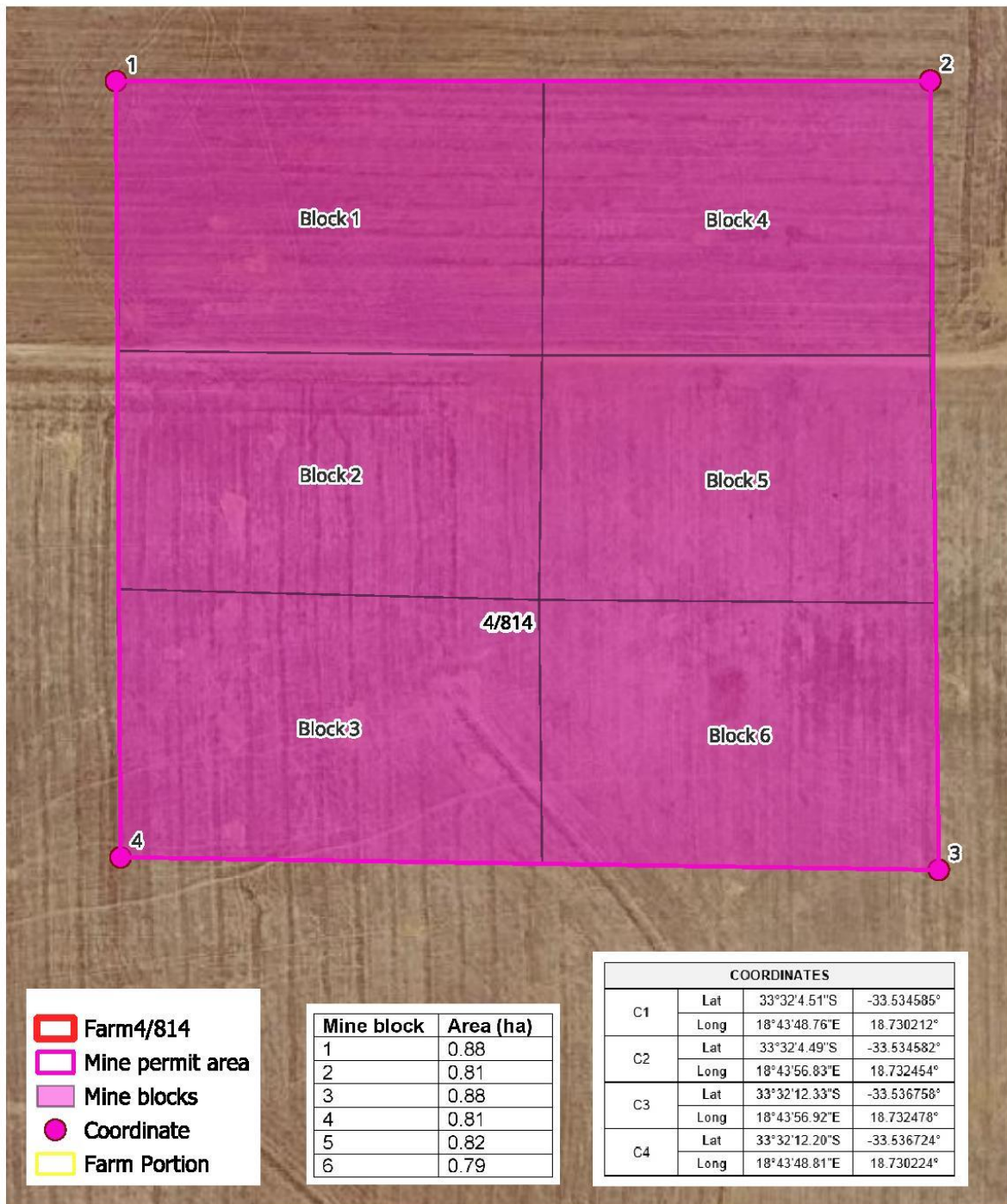
The mine permit holder must commit to post-closure maintenance during rehabilitation of the site until the time of receipt of a closure certificate for all or parts of the impacted mining areas.

Also refer to Mine Closure/Rehabilitation Plan attached as **Appendix F**.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

The environmental objectives in relation to the closure of the mining activities are included in the documents as part of the Draft BAR that have been provided to the registered interested and affective parties and landowner for comment.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.



MINE LAYOUT PLAN

Farm 4/814, Malmesbury RD

0 20 40 60 80 m



15/06/2026

P.O. Box 557, Moorreesburg, 7310, 022 4334408, 0722026587, planscape@telkomsa.net

Mining/rehabilitation Map: Proposed 5ha mining permit area phases and access road on Farm Doornfontein RE/4/814, Malmesbury, WC.

The mining permit holder will be responsible for rehabilitating all mining activities areas as according to the recommendations of the EMP. Refer to 1(a) above for rehabilitation measures to be implemented during and after the proposed mining activities.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The proposed rehabilitation measures/plan have been informed by the impact assessment conducted and specialist recommendations; Potential impacts with associated mitigation measures were identified and included for each phase of the proposed mining activities i.e. operational phase and closure/ rehabilitation phases.

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

Description of areas/activities to be rehabilitated	Amount (Rands)
Opencast mining areas rehabilitation (to be conducted concurrent with operational activities) including final voids and ramps – total area 5Ha (at a rate of R23 500/Ha)	117 500.00
2 Years maintenance, monitoring and aftercare (at a rate of R6 250/year)	12 500.00
TOTAL REHABILITATION COSTS ESTIMATE	ZAR 130 000.00

(The amounts as presented above were calculated by making use of the methodology in the Guideline Documents for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine as published by the DMR)

For more detail on calculations refer to the Financial and Technical Competence Report attached as Appendix E.

(f) Confirm that the financial provision will be provided as determined.

The applicant has confirmed that proposed budget amounts can be provided for from the operating expenditure. Should the Environmental Authorization be granted Dyck Advisory (PTY) Ltd will make a provision for the estimated operational and closure costs by means of Bank Financial guarantee or any other means available and accepted by the competent authority.

h) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

- **Monitoring of Impact Management Actions**
- **Monitoring and reporting frequency**
- **Responsible persons**
- **Time period for implementing impact management actions**
- **Mechanism for monitoring compliance**

The monitoring of Impact Management Actions will be conducted as prescribed in terms of regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). Section 38 of the Act is also relevant as far as monitoring of impacts is concerned. This section stipulates that the holder of the permit is required to rehabilitate the land disturbed to its natural state or predetermined condition. Quarterly EMP compliance audits by an Environmental Control Officer (ECO) are required during the operational phase. These reports will inform the annual performance assessment that will be submitted to DMR.

Rehabilitation is a long process, thus rehabilitation will be monitored for the first two years and on a six monthly basis after mining activities have been completed to ensure that the area is left in a good state. It is important to note that all environmental damage in the mining area is the responsibility of the permit/rights holder. The monitoring of the environmental risks that have been identified should be monitored to ensure that the area is left in a good state.

The following need to be monitored on the project site during operational phase (three monthly throughout the operational phase by external ECO):

- Erosion control
- Dust management
- Noise management
- Visual impact management
- Demarcation of mining activities area
- Impacts on surrounding indigenous vegetation, avifauna and fauna
- Impact on agricultural land
- Environmental pollution i.e. leakages, hydrocarbon/fuel spillage, litter
- Waste management
- Overburden and topsoil stockpiles
- Stormwater management
- Compliance to all EA, EMPr, Specialists and Mining Permit requirements

The following need to be monitored on the project site during rehabilitation phase (six monthly for two years by external ECO):

- Filling of all excavated areas according to surrounding topography and slopes with no depressions
- Returning and spreading of topsoil
- Successful establishment of indigenous *Cynadon* grass and natural succession of indigenous vegetation on the bare areas
- Erosion control
- Alien invasive plants control
- Determine the progress of rehabilitation
- Compliance to all EA, EMPr, Rehabilitation Plan, Specialists and Mining Permit requirements

An independent ECO should be appointed to conduct the required monitoring and provide the mine manager and DMR with the necessary feedback reports. The mine manager must take responsibility to conduct internal monthly ECO compliance monitoring to ensure that all EA, EMPr, Specialists and Mining Permit requirements are being complied with at all times. The mine management must make these monthly internal compliance reports available to the ECO.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL/MECHANISM REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING OF IMPACT MANAGEMENT ACTIONS AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Mining: Operation phase	Impacts on soil, air, water resources, indigenous vegetation, socio economic impacts and agricultural land	Conduct monthly internal audits and inspections of the mining operation and assess against mine permit, Environmental Authorization and EMPr conditions. Internal monthly audits, external three monthly audits and external yearly compliance audits and mine performance assessment reports.	Mine Manager (internal monthly audits) and External Environmental Control Officer (three monthly audits) Independent environmental auditor conducting the annual environmental performance assessment audit and report to be submitted to DMR. The contents of the annual environmental performance assessment audit report must comply with the requirement of Appendix 7 of the EIA Regulations, 2014.	Monitoring should be undertaken for duration of operations and after completion of each phase. Internal audits and inspections should be undertaken at least monthly. External audits by a qualified ECO should be undertaken on a 3 monthly basis during operational phase. Annual compliance audit reports should be made available to the Competent Authority in the form of an annual performance report done by an external ECO.
Mining: Closure and	Successful	External six monthly audits and	External Environmental Control	Monitoring by an external ECO

rehabilitation phase	rehabilitation of impacted area	external yearly compliance audits and mine performance assessment reports for at least two years during rehabilitation phase.	Officer (six monthly audits) Independent environmental auditor conducting the annual environmental performance assessment audit and report to be submitted to DMR. The contents of the annual environmental performance assessment audit report must comply with the requirement of Appendix 7 of the EIA Regulations, 2014.	on a 6 monthly basis for at least two years during rehabilitation phase or until successful rehabilitation has been achieved. Annual compliance audit reports should be made available to the Competent Authority in the form of an annual performance report done by an external ECO.
----------------------	---------------------------------	---	---	--

i) Indicate the frequency of the submission of the performance assessment/ environmental audit report.

Annual compliance audit reports should be made available to the Competent Authority in the form of an annual performance report done by an external ECO, effective from the year when mining commences annually until the closure certificate has been obtained.

j) Environmental Awareness Plan

(1) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Mining company staff members will be informed of the potential environmental risks associated with their work by implementing environmental awareness training through the following methods:

- Monthly meetings
- Environmental Management Program Training (annually)
- Induction courses
- Training from the Environmental Control Officer (once a year)

The Environmental Awareness Plan should be reviewed regularly to ensure that relevant environmental concerns are discussed and that the potential impacts of such concerns are minimized. The syllabus to be taught to staff members has been determined through identification of the major environmental concerns raised in the Environmental Impact Assessment.

Monthly meetings:

Monthly meetings are ideal to facilitate awareness of job-specific environmental dangers and to educate employees on how they can live a more sustainable lifestyle outside work. The method and medium of communication during the monthly meetings will be determined by the team leader facilitating the meetings. The topics discussed in monthly meetings will be recorded in a logbook, with all employees present signing an attendance register.

The team leader who is to undertake the monthly meetings will be provided with the necessary training so that he can effectively inform the other employees about the topics listed below.

The topics for discussion have been identified as both topics specific to the mining activities but also topics that the employees can take home and use in their personnel lives:

Any notes or minutes of the meeting or other records of the meeting should be made available to all staff members at all time for perusal and for future reference purposes.

In addition to the monthly meeting, environmental topics will be discussed at a special meeting to be held if an environmental incident occurred during the previous day. Such incidents may include a fuel spill or a complaint from a surrounding landowner/ resident.

During these meetings, the following topics will be discussed:

- How the incident occurred;
- Why the incident occurred;
- How the incident was dealt with (if applicable);
- Evaluation of the response undertaken by the employees;
- Can the response be improved;
- What preventative measures should be implemented; and
- What can be done to reduce the probability of the incident recurring

The incident and the outcomes of the discussion will be noted in an incident logbook and mitigatory measures will be implemented by the employees and mine manager as required.

Environmental Management Program Training

During the monthly meetings, aspects of the EMP will be selected to form part of a half days training workshop. Mining company employees will attend the training workshop based on the topics selected and environmental incidents that may have occurred during the previous few months. Examples of topics that may be included in the EMP training include:

- Clean up of oil spills;
- Water conservation;
- The importance of alien vegetation removal;
- Concurrent rehabilitation;
- Training on fire hazards;
- Crime and Trespassing;
- Identifying and preventing soil erosion, etc.

After attending the EMP training program the employees will be required to sign a register as proof of training.

Induction Training

All new employees will undergo an induction course when they are appointed by the mining company. Environmental awareness forms part of this induction course. The following syllabus of environmental training is to be included within the induction course.

Syllabus of environmental Training:

Sustainability

Discuss the concepts of sustainability, which must include:

- Definition of sustainable development.
- An explanation of the “Triple Bottom Line” of a sustainable development.
- An example of sustainable developments. These should be selected based on the audience, selecting a development that they can relate to.

Environmental Goals and Objectives

Discuss the latest specific environmental goals and objectives, as well as the benefits of achieving such goals. As these goals change, the induction course must be updated accordingly. Where possible, the goals and objectives covered should be selected on the basis of topics that personnel can relate to. These could include, but are not limited to the following:

Concurrent rehabilitation

Goal: Rehabilitate mining areas concurrently.

Objective: To ensure that all mining areas are concurrently rehabilitated.

Benefits: Reduce the cost of final rehabilitation.

Reduce the time to implement final rehabilitation. Reduce the time to obtain a closure certificate. Improve the ecological status of the site. The more surfaces rehabilitated the less chance of erosion and dust from exposed surfaces. To increase the aesthetical appeal of the mining site.

Waste minimization

Goal: Reduce waste generation and recycle where possible.

Objective: Initiate recycling projects where possible.

Benefits: Reduction of waste and promotion of recycling reduces the economic and environmental costs of dealing with waste. Recycling reduces the need to use

non-renewable resources, ensuring that these will be available to future generations.

Reducing amounts of hydrocarbon spillages

Goal: Reduce the amount of hydrocarbon spillages and the impact from spillages that do occur.

Objective: To reduce probability of hydrocarbon spillages.

Benefits: Saving of oil reduces the need to use non-renewable resources.
Reduce the potential for soil contamination. Reduce the potential to pollute the ground water.

Also allow time for questions

After attending the induction training, the employees will be required to sign a register as proof of training.

Environmental Training from the Environmental Control Officer

Every year, a qualified environmental consultant will be employed to undertake an environmental performance assessment of the mining company. As part of the terms of reference to the consultant, it will be made a requirement that after the consultant has finished the activities required for the audit the consultant will inform all the employees of his/her findings and provide practical tips of reducing some of the environmental impacts noted. The employees will be required to sign a register as proof of training.

(2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

The mining company will implement an incident reporting procedure in order to identify risks timeously and implement actions to avoid or minimise environmental impacts.

k) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

No specific information requirements have been detailed by the Competent Authority to date. It is confirmed that the financial provisions will be reviewed annually.

l) Site Specific Storm water Management Plan/Measures to be implemented during Proposed Mining Activities

In accordance with the Agricultural specialist recommendations:

During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will safely disperse run-off water. These should be in place above the mining area, to minimise run-off into the excavation and at any points where overflow out of the excavation might occur.

m) Additional Environmental Management Measures to be implemented during the Proposed Mining Activities

Responsibilities

The EA holder/applicant is ultimately responsible to ensure that all the requirements of the EMPr are implemented during all phases of the proposed mining activities.

The Environmental Control Officer must be appointed by the EA holder/applicant before any mining activities commences.

The EA holder/applicant is also responsible to ensure that any contractors appointed know of and adhere to the requirements of the EMPr.

It is also important to note that the EA holder/applicant must make sure that all on site staff are aware and adhere to all other relevant legislation that may relate to the activities taking place on site, especially local authority required compliances.

Environmental Control Officer:

The mining company must appoint or designate a suitable, experienced and qualified ECO before commencement of any mining activities to ensure compliance with the provisions of this EMP.

The ECO appointment contract must:

- Describe the level and type of competency required of the ECO ;
- Define and allocate the roles and responsibilities of the ECO.
- Indicate frequency of ECO site visits;

Site Meeting and Pre-conditions before Mining Activities Commence

The following pre-conditions must be fully met before any Mining activities may commence:

- Once/if Environmental Authorisation and a Mining Permit are obtained a Way Leave Land Use Application must be made to the local authorities, and Way Leave must be obtained before mining commences.
- Compile a dust monitoring programme before the commencement of mining activities on site. The dust monitoring programme must be compiled in accordance with the National Environmental Management : Air Quality Act, 2004 (Act No 39 of 2004) National Dust Regulations - subregulation (5) for implementation during mining activities
- A site meeting between the mining company manager and the ECO must take place at least 5 days prior to commencement of mining activities to:
 - Demarcate mining areas, services routes, stockpile areas, access, working boundaries and no-go areas;
 - Discuss methods and places for/of stockpiling;
 - Check required toilets and fire-fighting facilities to be in place;
 - Discuss and agree communication channels including provision of contact details;
 - Discuss and agree areas of responsibility;
 - Discuss and agree the demarcation and control of mining areas.
 - Discuss and implement adherence to site specific specialist recommendations.

Minutes of this formal site meeting must be kept and are to be distributed to all parties.

The following equipment must be on site before any mining work is due to start:

- Suitable toilet facilities.
- Sufficient refuse bins, which are weather and wind proof, with proper lids.
- Adequate quantity of type ABC (all purpose) 12.5 kg fire extinguishers

No-Go Areas:

All areas outside of the approved mining activities area must be demarcated as no-go areas which may not be impacted upon by the proposed mining activities. Demarcation method to be approved by an Environmental Control Officer (ECO). No disturbance should be allowed outside the approved mining area. This includes no dumping of fill, no roads, and all forms of temporary disturbance. Impacts on any no-go areas due to mining activities taking place on site is to be monitored by the ECO, and if it is determined that the mining activities impacted on any no-go areas the applicant will be responsible for rehabilitation of the impacts areas to its original state before mining activities commenced.

Security and Safety:

Access to the mining site must be controlled. Telephone numbers of emergency services, including the local firefighting services, must be posted conspicuously at the mining site or at the entrance to the property. No firearms are permitted on the site, other than those authorised by the developer for the property security service provider. Notices should be displayed at all public entrances to the property, warning visitors that they are entering a mining site. Signboards to inform road users of the existing mining site must also be displayed on the property to warn any pedestrians or road users of the mining activities taking place on site. No smoking will be allowed on site.

Public Complaints:

A complaints register must be kept on site specifying the date, time, nature of complaint, details of the complainant and the responses undertaken to address and resolve problems raised.

Speed Limit:

For security and safety reasons the speed limit on the property for all mining vehicles is 30km per hour. The mining company is responsible for ensuring that all his employees, operators and delivery vehicles adhere to this rule.

Demarcation and Fencing:

No-go areas along the edge of the proposed mining area must be clearly demarcated to restrict access/egress across such demarcated lines and minimise environmental impact. The ECO must indicate each boundary and/or access route to be demarcated and demarcation methods to be used before excavation commences and mining personnel will not be allowed beyond the perimeter of the site. All activities including stockpiling must occur within this demarcated area. The mining operator responsible must fund reinstatement or rehabilitation of damaged areas and features.

Where deemed necessary by the ECO physical demarcation of mining boundaries along no-go area should at the very least be via colour coded posts at least 1,5m high. For large areas, like fairways, these posts are to be at 15m centres with 5 equidistant easily visible lime spot markings in between.

The onus here will fall on the mining staff to ensure all respect these no-go lines. Failure to ensure discipline will lead to the immediate erection of more physically challenging structures.

The mining operator must take measures to control the corrosive effects of storm-water runoff particularly in the hoarded-off areas. No run-off oil, fuel, sewage, or any other hazardous material is to be permitted, or allowed to enter the storm-water system or natural areas.

In the event that sensitive features are threatened by mining activities, the temporary fencing off of these areas or the mining area, when working in a mainly natural environment, is recommended and will be determined by the ECO.

No additional access routes may be created during the proposed mining activities and existing access routes may also not be widened.

Indigenous Fauna and Flora:

Indigenous plants or wild animals including reptiles, amphibians, birds, etc. may not be damaged or harmed or interfered with. Vegetation removed as part of the legitimate development requirements is excluded. Trapping, poisoning and/or killing of animals is specifically and strictly forbidden.

All topsoil materials must be stockpiled and stored (at site identified by ECO), and used for the infilling and landscaping of disturbed areas on the property.

Alien Vegetation Management:

The clearance of alien invasive vegetation during and after completion of the mining activities must be undertaken in a manner to prevent the creation of dust i.e. no bulldozing.

No on-site burying, dumping, stockpiling or burning of any weeds and aliens or invasive species must occur. Invasive alien plant species which are removed from the site should not be chipped for mulch if they are in a seed-bearing state. Such material must be disposed of at a suitably licensed waste disposal facility. Wherever possible, suitable larger stumps should be made available to the local community for use as firewood.

The applicant must make sure of and implement all legal requirements regarding herbicide application procedures if herbicide is to be used to control weeds/invasive plants. The instructions on the herbicide labels must be strictly followed throughout application.

The contractor shall take all necessary precautions to prevent overspray of herbicides outside of the demarcated mining areas and onto natural veld.

All personnel working with any herbicide, pesticide or fertilizer must be registered and comply with the requirements set in these registrations.

CapeNature approved methodology must be used during alien vegetation/weed control.

All equipment associated to herbicides and pesticides must be maintained in accordance to the set standards.

The disposal of all redundant and empty containers of herbicides and pesticides must be controlled and disposed of at a waste management facility licensed to do so under the National Environmental Management: Waste Act.

The removal of the alien and weed species encountered within the zone of influence of the proposed mining activities, must take place to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998)

Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. Additionally, all care should be taken in the removal of alien vegetation to prevent seeds from falling on it, including (if necessary and practical) the use of temporary sheeting around the base of the plant.

No alien plants may be introduced to the mining area and surrounding areas during the rehabilitation phase and particular attention must be paid to ensure that any imported material used for rehabilitation purposes (if required), is certified weed-free.

Water Resources Management:

No activities, including swimming, washing, recreation, ablution, vehicle-washing, etc. will be permitted in any of the watercourses and/or the wetlands. Water is to be protected and conserved at all times. No watercourse may be polluted or affected by the mining activities. No surface, ground or stormwater may be polluted due to any activity on the property/site.

No water maybe abstracted from any surface water body and groundwater unless authorised by the BGCMA. No waste disposal may take place on site.

All requirements as stipulated in the National Water Act (NWA), 1998 (Act No 36 of 1998) must be adhered to

Archaeology and Palaeontology Management:

Should any heritage or fossil remains be exposed during any excavation or related activities, these must immediately be reported to the Provincial Heritage Resource Authority of the Western Cape, Heritage Western Cape (in terms of the National Heritage Resources Act, 1999 (Act No.25 of 1999)). Heritage remains uncovered or disturbed during excavations must not be disturbed until inspection and verified by the professional.

Also see below Change Fossil Find Procedure:

Chance Fossil Finds Procedure

(Adopted from the HWC Chance Fossils Finds Procedure: June 2016) by Mr Dewald Wilken

Introduction

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

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded. Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO. It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken

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

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

- The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found;
- The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates;
- The ECO or site agent must compile a Preliminary Report and fill in the attached Fossil Discoveries: Preliminary Record Form within 24 hours without removing the fossil from its original position. The Preliminary Report records basic information about the find including:
 - The date
 - A description of the discovery
 - A description of the fossil and its context (e.g. position and depth of find)
 - Where and how the find has been stored
 - Photographs to accompany the preliminary report (the more the better):
 - A scale must be used
 - Photos of location from several angles
 - Photos of vertical section should be provided
 - Digital images of hole showing vertical section (side);
 - Digital images of fossil or fossils.

Upon receipt of this Preliminary Report, SAHRA will inform the ECO or site agent whether a rescue excavation or rescue collection by a palaeontologist is necessary.

- Exposed finds must be stabilised where they are unstable and the site capped, e.g., with a plastic sheet or sandbags. This protection should allow for the later excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation.
- If the find cannot be stabilised, the fossil may be collected with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove all the fossil material and any breakage of fossil material must be avoided at all costs.

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

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

Fuel, Lubricant and Hazardous Material Handling Programme:

Servicing and refuelling of vehicles and machinery not to take place on site. All vehicles must be in a good condition with no leakages leading to possible contamination of soil or water supplies.

If present on site all potentially hazardous chemicals and fuel should be stored in bunded areas which are clearly marked. The bunded areas must have a volume of 110% above that of the stored volume.

Mitigation measures must be put in place to avoid any hazardous material spillages, any spillage must be contained and immediately reported to the Departments Directorate: Pollution Management.

Hazardous spill reaction procedure:

Confine the Spill -

- Remove leaking container/vehicle from the site to a bunded area and repair leak immediately.
- Reduce flow from punctured area and seal the leak, by using the plug putty (Provided that the hole/tear is not larger than 5cm in width).

Clean Up of a spill -

- Confine spillage to smallest possible area
- Collect spill control kits and absorb the spillage by spreading the absorbent granules over the affected area.
- Shut off critical equipment and utilities.
- Attempt to de-contaminate or clean up the spill
- Place the soaked granules or contaminated soil into plastic bags and dispose with hazardous waste.
- Assess need for outside spill contractor to assist.
- Notify site manager of the need for or outside spill contractor and of the nature and location of the spill.

Within 24hours of spill detection the ECO must be informed of the incident, where after ECO will conduct a site visit and recommend further remediation and/or rehabilitation methods to be implemented. Depending on type and extent of emergency that occurred specialists may be contacted to provide specific recommendations and an incident report might need to be completed and sent to municipal and governmental authorities

On completion of the clean-up operations, ECO to inspect site and announce "All Clear".

On-Site emergency repairs:

Only small mobile plant and emergency repairs are to take place on site. These will require the provision of drip trays and funnels to ensure that no oil or fuel leakages occur onto the ground. Should such spill take place, then the oil saturated soil is to be placed in suitable containers and disposed of at a hazardous waste disposal site. Any contamination of soil is to be treated with Spillsolve or similar product. Contaminated water as a result of an oil or fuel spillage on the area should similarly be treated in appropriate way, and the polluted water should not be specifically removed and not allowed to merge with run-off water collected in the trap collecting all run offs from the slab.

Collection of contaminated spares and waste oils and greases:

Contaminated spares, oil filters, gaskets, water, waste oils and fuel etc. must be stored in separate impermeable waste containers to be transported to or collected by a registered and reputed waste handling operator for disposal at a licensed hazardous waste disposal facility.

Staff will require instruction in:

- Deleterious effects of oil / fuel on the environment
- Identification of oil leaks
- Handling of oil / fuel leaks into soil
- Location and method in storage of contaminated spares
- Fire prevention and emergency drills in case of an accident

Roads:

Existing access roads will be used during mining work. The mining operator must ensure that access to mining sites and associated infrastructure and equipment is clearly defined and designated to be off-limits to the public at all times during mining.

Traffic safety measures must be considered and implemented in determining entry or exit points to public roads. Mud and sand deposited onto public roads by mining activities must be cleared regularly. Appropriate traffic warning signs must be maintained.

The applicant will be responsible for upkeep and repair of farm roads used where necessary during mining activities to the satisfaction of the landowner.

Dust and Noise Control:

Dust control- The mine operator is to take appropriate measures to minimise the generation of dust as a result of mining works, to the satisfaction of the landowner. Vegetation must be stripped from demarcated mining sites only shortly before commencing with the mining process. On sandy or very dusty sites, mulched vegetation, which is to be obtained from area cleared for mining and is suitable, can be used as a method of stabilisation and dust control. Anchovy net can further be used as a method of stabilising dust control on mining sites or stockpiled sites, especially on sites where no current mining equipment is working. Seed bearing material with invasive vegetation must not be used for stabilization purposes.

During high velocity wind conditions, the mine operator or his representative is to evaluate the situation and make recommendations as to whether dust suppression measures are adequate, or whether to suspend work until wind speeds drop to an acceptable level.

The use of potable water for dust suppression is discouraged and alternative sources of water should be considered and discussed with the landowner i.e. from farm dams if required.

Where possible, all haulage vehicles exiting the site must be suitably covered when transporting materials to minimise the impact of windblown dust.

Compile a dust monitoring programme before the commencement of mining activities on site. The dust monitoring programme must be compiled in accordance with the National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004) National Dust Control Regulations, 2013 - subregulation (5) for implementation during mining activities. If the dust monitoring results indicates that dustfall standards as set out in regulation 3 is exceeded a dust management plan must be compiled and submitted to the relevant air quality officer for approval. As according to the regulations this dust management plan must then be implemented within a month of the date of approval received from the air quality officer. An implementation progress report must be submitted to the air quality officer at agreed time intervals. See below a copy of the National Dust Control Regulations, 2013.

GOVERNMENT NOTICES
GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF ENVIRONMENTAL AFFAIRS
DEPARTEMENT VAN OMGEWINGSAKE

No. R. 827

1 November 2013

NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004
(ACT NO. 39 OF 2004)

NATIONAL DUST CONTROL REGULATIONS

I, Bomo Edith Edna Molewa, Minister of Water and Environmental Affairs, hereby make the National Dust Control Regulations, in terms of section 53(o), read with section 32 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), set out in the Schedule hereto.



BOMO EDITH EDNA MOLEWA

MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

SCHEDULE

1. Definitions

In these regulations any word or expression to which a meaning has been assigned in the Act has that meaning, and unless the context indicates otherwise:

"ASTM D1739" means the American Standard for Testing and Materials method D1739, which is the standard test method for the collection and measurement of dust fall;

"dust (or settleable particulate matter)" means any material composed of particles small enough to pass through a 1 mm screen and large enough to settle by virtue of their weight into the sampling container from the ambient air.

"dustfall" means the deposition of dust;

"dustfall monitoring programme" means monitoring of the dustfall on a continuous basis;

"Non- residential area" means any area not classified for residential use as per local town planning scheme;

"premises" means any land and structures thereon including stockpiles of materials, roadways and other means of conveyance, from which dust may be generated through anthropogenic or natural activities or processes;

"residential area" means any area classified for residential use in terms of the local town planning scheme; and

"the Act" means National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004).

2. Purpose of the regulations

The purpose of the regulations is to prescribe general measures for the control of dust in all areas.

3. Dustfall standard

- (1) A standard for the acceptable dustfall rate is set out in Table 1 for residential and non-residential areas.

Table 1: Acceptable dust fall rates

Restriction Areas	Dustfall rate (D) (mg/m ² /day, 30-days average)	Permitted frequency of exceeding dust fall rate
Residential area	D < 600	Two within a year, not sequential months.
Non-residential area	600 < D < 1200	Two within a year, not sequential months.

- (2) The method to be used for measuring dustfall rate and the guideline for locating sampling points shall be ASTM D1739: 1970, or equivalent method approved by any internationally recognized body.

4. Dustfall monitoring programme

- (1) The air quality officer may require any person, through a written notice, to undertake a dustfall monitoring programme as contemplated in subregulation (5) if:
- (a) the air quality officer reasonably suspects that the person is contravening regulation 3; or
 - (b) the activity being conducted by the person requires a fugitive dust emission management plan as per the notice published in terms of section 21 of the Act.
- (2) Any person who conducts any activity in such a way as to give rise to dust in quantities and concentrations that may exceed the dustfall standard set out in regulation 3 must, upon receipt of a notice from the air quality officer, implement dustfall monitoring programme.
- (3) A person required to implement the dustfall monitoring programme must, within a specified period, submit a dustfall monitoring report to the air quality officer.
- (4) If a person who is required to implement the dustfall monitoring programme has an existing one, the reports of that programme shall be accepted by the air quality officer if it meets the requirements of regulation 5.

- (5) A dustfall monitoring programme must include:
- (a) the establishment of a network of dust monitoring points using method ASTM D1739: 1970 (or equivalent), sufficient in number to establish the contribution of the person to dustfall in residential and non-residential areas in the vicinity of the premises, to monitor identified or likely sensitive receptor locations, and to establish the baseline dustfall for the district; and
 - (b) a schedule for submitting to the air quality officer, dustfall monitoring reports annually or at more frequent intervals if so requested by the air quality officer.

5. Dustfall monitoring report

A dustfall monitoring report must provide:

- (a) information on the location of sampling sites, including latitudinal and longitudinal coordinates, and a position indicator on a topographic map;
- (b) classification of the area where samplers are located, in terms of residential and non-residential, and identification of sensitive receptors;
- (c) reference to the standard methods used for site selection, sampling and analysis, and any methods/laboratory accreditation, if applicable;
- (d) the dustfall monitoring results including a comparison of current year and historical results (if any) for each site, and including a tabular summary of compliance with the dustfall standard set out in regulation 3;
- (e) meteorological data (wind speed and direction, rainfall) for the sampling area; and
- (f) any other relevant data that might influence the results.

6. Measures for the control of dust

- (1) Any person who has exceeded the dustfall standard set out in regulation 3 must, within three months after submission of the dustfall monitoring report, develop and submit a dust management plan to the air quality officer for approval.
- (2) A dust management plan, contemplated in subregulation (1), must:
 - (a) identify all possible sources of dust within the affected site;
 - (b) detail the best practicable measures to be undertaken to mitigate dust emissions;
 - (c) detail an implementation schedule;
 - (d) identify the line management responsible for implementation;

- (e) incorporate the dust fallout monitoring plan; and
 - (f) establish a register for recording all complaints received by the person regarding dustfall, and for recording follow up actions and responses to the complainants.
 - (3) A dust management plan contemplated in subregulation (1) must be implemented within a month of the date of approval.
 - (4) An implementation progress report must be submitted to the air quality officer at agreed time intervals.
- 7. Ambient air quality monitoring for PM₁₀**
- An air quality officer may require any person to undertake continuous ambient air quality monitoring for PM₁₀ in accordance with a notice published in terms of section 9 of the Act, if the dustfall monitoring report contemplated in regulation 5 indicates non-compliance with regulation 3.
- 8. Offences**
- A person is guilty of an offence if that person contravenes or fails to comply with a provision of regulation 4 (2) and (3), 6(1); (3) and (4) or 7.
- 9. Penalties**
- A person convicted of an offence referred to in regulation 8 is liable to in the case of a first conviction to a fine not exceeding R5 million or to imprisonment for a period not exceeding five years; and in the case of a second or subsequent conviction to a fine not exceeding R10 million or imprisonment for a period not exceeding 10 years and in respect of both instances to both such fine and such imprisonment.
- 10. Short title and commencement**
- These regulations are called the National Dust Control Regulations, 2013.

This gazette is also available free online at www.gpwonline.co.za

Noise control - Mining noise levels must not pose a nuisance to the surrounding communities and all mining working hours must be limited to normal working hours Monday - Saturday 7h00 – 17h00 unless otherwise arranged with municipality and adjacent landowners. All machinery and mining vehicles must be serviced regularly and be in a good

working condition to prevent excessive noise generation. Noise levels is not to exceed the daytime, equivalent continued rating of 45dBA as recommend by SANS 10103:2004.

Anti-erosion Measures:

The mining operator must take all appropriate and active measures to prevent erosion, especially wind and water erosion, resulting from operations and activities, specifically inclusive of storm water control measures, to the satisfaction of the ECO.

During mining the mining operator must protect areas susceptible to wind and water erosion, by installing all the necessary temporary and permanent works. Measures can include terracing, brush packing, anchovy net stabilisation, etc. Where required erosion protection measures must be installed.

Recommendations/methodology as provided by the engineers in Appendix G4: Engineer Report – Assessment of Excavation Slopes and Open Pit Mining of Gravel and Rock to mitigate potential slope erosion and stabilise the mining area must be implemented at all times during the proposed mining activities.

Top Soil and Material Removal & Stockpiling:

Topsoil must be removed from proposed mining areas and separately stockpiled (within the demarcated working area or on designated areas). Topsoil stockpiles must be convex berms of 2m wide and should not exceed 1.5 metre in height, and if required be covered by anchovy net as necessary to prevent wind erosion. Topsoil must not be compacted in any way, especially by vehicles riding over it. Surplus sub-soil that becomes available during mining work must be used as fill material.

Appropriate use of Machinery:

The mine operator must at all times carefully consider what machinery is appropriate to the task to minimise the extent of environmental damage. No machinery is to operate outside of any demarcated working area. Overloading of vehicles carrying minerals must not be allowed. Operators of machinery must be suitably qualified.

Eating, Washing and Resting Areas:

The mining operator must designate restricted places for personnel to eat, wash and rest, within the specified working areas. The mining operator must provide adequate weatherproof refuse bins. The feeding of, or leaving food for, animals is strictly prohibited.

The mining operator is responsible for the provision of sufficient and suitably placed toilets. Toilets must be neat and must be provided with doors and locks and must be secure to prevent wind damage. The mining operator must ensure that toilets are serviced and emptied when required. Toilet wastewater must be disposed of at a licensed sewage treatment facility. Sanitation provision and servicing must be to the satisfaction of the landowner.

Cleaning of vehicles / equipment:

Washing of mining vehicles and equipment will only be allowed at in bunded areas and not on bare soil.

Waste Disposal in terms of Integrated Waste Management:

The mining operator will be expected to keep his mining site neat and tidy and free of litter at all times. No on-site burying or dumping of any waste materials, vegetation, litter or refuse must be allowed. The mining operator must ensure that waste and surplus food, food packaging and organic waste are not disposed of by any workers anywhere on the site except in the provided removable refuse bins.

Refuse bins must be weather and animal proof. Bins must not be allowed to become overfull and must be emptied on a frequent basis by the mining operator. The mining operator must transport refuse collected from the working areas on site to a suitable waste site when required.

Refuse is deemed to include all discarded mining materials such as food waste etc. The mining operator must make adequate provision for the removal of mining rubble and other excess material. No material or mining rubble may be spoiled on the property.

All hazardous waste must be stored in a secured and demarcated area and disposed of using a registered waste disposal operator.

Waste minimisation should be implemented such as the avoidance, reduction and re-use of waste during mining, before considering the disposal of such waste. Any solid waste that is not being recycled must be disposed of at a licenced landfill. Recyclable general waste, building rubble and plant materials must be stored separately at mining site office and diverted from landfill facilities as far as possible. Plant materials can be sent for chipping or for composting.

All green waste cleared from the site must be beneficiated or taken to an approved waste disposal facility.

The applicant must obtain and file disposal certificates from service providers who will dispose of the general and hazardous waste as evidence that the waste has been disposed of at an appropriate and licenced facility.

Fires:

No open fires will be allowed on site and adequate firefighting equipment should be available on site in good working order at all times as prescribed by the fire management protocols. No smoking will be allowed on site.

Site Clean Up:

The mining operators must ensure that all temporary structures, equipment, materials and facilities used or created on site for, or during mining activities, are removed once the project has been completed. The mining sites must be cleared, and cleaned to the satisfaction of the ECO.

Mining Personnel Safety and Mine Health and Safety:

All personnel must wear Personal Protective Equipment during the mining as required. The mine must be compliant with the Mine Health and Safety Act and regulations requirements at all times.

Emergency Response/Remedial Action Plans:

If an environmental emergency such as fire, oil/fuel spills, sewage pipe burst, floods etc. occurs on site during the mining phase immediate actions must be taken to manage and contain the situation by the mining operator/s and municipality.

Within 24 hours of emergency detection the ECO must be informed of the incident, where after ECO will conduct a site visit and recommend further remediation and/or rehabilitation methods to be implemented. Depending on type and extent of emergency that occurred specialists may be contacted to provide specific recommendations.

An incident report must be completed and sent to municipal and governmental authorities.

Incident Reporting:

In order to ensure that the necessary environmental issues are adequately addressed and recorded, the following environmental reporting shall be undertaken:

- Incident reporting; and
- Compliance reporting

In terms of NEMA Section 30 the following shall apply during the occurrence of an “incident” due to the proposed mining activities:

NEMA Section 30. Control of incidents

(1) In this section

(a) “incident” means an unexpected, sudden and uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property;

(b) “responsible person” includes any person who

- (i) is responsible for the incident;
- (ii) owns any hazardous substance involved in the incident; or
- (iii) was in control of any hazardous substance involved in the incident at the time of the incident;

(c) “relevant authority” means

- (i) a municipality with jurisdiction over the area in which an incident occurs;
- (ii) a provincial head of department or any other provincial official designated for that purpose by the MEC in a province in which an incident occurs;
- (iii) the Director-General;
- (iv) any other Director-General of a national department

(2) Where this section authorises a relevant authority to take any steps, such steps may only be taken by

(a) the person referred to in subsection (1)(c)(iv) if no steps have been taken by any of the other persons listed in subsection (1)(c);

(b) the person referred to in subsection (1)(c)(iii) if no steps have been taken by any of the persons listed in subsection (1)(c)(i) and (c)(ii);

(c) the person referred to in subsection (1)(c)(ii) if no steps have been taken by the person listed in subsection (1)(c)(i):

Provided that any relevant authority may nevertheless take such steps if it is necessary to do so in the circumstances and no other person referred to in subsection (1)(c) has yet taken such steps.

(3) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available

(a) the nature of the incident;

(b) any risks posed by the incident to public health, safety and property;

(c) the toxicity of substances or by-products released by the incident; and

(d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to

- (i) the Director-General;
- (ii) the South African Police Services and the relevant fire prevention service;
- (iii) the relevant provincial head of department or municipality; and
- (iv) all persons whose health may be affected by the incident.

(4) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident

- (a) take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;
- (b) undertake clean-up procedures;
- (c) remedy the effects of the incident;
- (d) assess the immediate and long-term effects of the incident on the environment and public health;

(5) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, within 14 days of the incident, report to the Director-General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including

- (a) the nature of the incident;
- (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects;
- (c) initial measures taken to minimise impacts;
- (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and
- (e) measures taken and to be taken to avoid a recurrence of such incident.

(6) A relevant authority may direct the responsible person to undertake specific measures within a specific time to fulfil his or her obligations under subsections (4) and (5): Provided that the relevant authority must, when considering any such measure or time period, have regard to the following:

- (a) the principles set out in section 2;
- (b) the severity of any impact on the environment as a result of the incident and the costs of the measures being considered;
- (c) any measures already taken or proposed by the person on whom measures are to be imposed, if applicable;
- (d) the desirability of the state fulfilling its role as custodian holding the environment in public trust for the people;
- (e) any other relevant factors.

(7) A verbal directive must be confirmed in writing at the earliest opportunity, which must be within seven days.

(8) Should

(a) the responsible person fail to comply, or inadequately comply with a directive under subsection (6);

(b) there be uncertainty as to who the responsible person is; or

(c) there be an immediate risk of serious danger to the public or potentially serious detriment to the environment,

a relevant authority may take the measures it considers necessary to

(i) contain and minimise the effects of the incident;

(ii) undertake clean-up procedures; and

(iii) remedy the effects of the incident.

(9) A relevant authority may claim reimbursement of all reasonable costs incurred by it in terms of subsection (8) from every responsible person jointly and severally.

(10) A relevant authority which has taken steps under subsections (6) or (8) must, as soon as reasonably practicable, prepare comprehensive reports on the incident, which reports must be made available through the most effective means reasonably available to

(a) the public;

(b) the Director-General;

(c) the South African Police Services and the relevant fire prevention service;

(d) the relevant provincial head of department or municipality; and

(e) all persons who may be affected by the incident

See below for a template of an Incident Report to serve as a guideline for the recording and addressing of emergency incidents as and when they occur.

Document Type:	Emergency Incident Report		
	Title:	(PROPERTY WHERE INCIDENT OCCURRED, DATE AND TYPE OF INCIDENT)	
	Document Status:	Pilot reporting format	
Reference:	[A reference that may be used in future correspondence]	Initial Submission Date:	[Date of initial submission of the report to the Department: Environmental Affairs and Tourism]
Revision No.:	example	Compiled by:	[Full name and contact details of the person submitting the report]

This form provides a template for the emergency incident report required in terms of section 30(5) of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter "NEMA") in which the responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.

In terms of section 30(1)(a) of NEMA, an "incident" means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

In line with section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), "serious" is taken to be a measure of the impact of an incident where such an incident has had, could have had, is having, or will have a negative impact on human health or well-being.

RESPONSIBLE PERSON			
In terms of section 30(1)(b) of NEMA, the "responsible person" includes any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control of any hazardous substance involved in the incident at the time of the incident			
Name:	[Full name of person, company, etc.]	Designation:	[designation of responsible person (n/a for companies, etc.)]
Postal Address:	[Full postal address including postal code]	Physical Address:	[Full physical address]
Telephone (B/H)	[Business hours contact telephone number and area code]	Telephone (A/H)	[After hours contact telephone number and area code]
Nature of Business:	[Brief summary of the nature of the business]		

EMERGENCY INCIDENT SUMMARY INFORMATION							
Mark the appropriate boxes							
Fire:		Spill:		Explosion:		Gaseous Emission:	
Injuries		Reportable injuries:		Hospitalisation:		Fatalities:	
Open water impacts:		Ground water impacts:		Atmospheric impacts:		Soil impacts:	
Own emergency response involved		Fire prevention services involved		Government hazardous materials emergency response involved		More than 1 governmental emergency response service involved	
Emission of non-toxic substances at low concentrations		Emission of non-toxic substances at high concentrations		Emission of toxic substances at low concentrations		Emission of toxic substances at high concentrations	
No evacuation required		Immediate area evacuated		Immediate surrounds evacuated		Evacuation of the general public	

INITIAL EMERGENCY INCIDENT REPORT				
In terms of section 30(3) of NEMA, the responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available: (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or byproducts released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to: (i) the Director General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.				
Description	Date:	Time:	Medium:	Contact Details:
Director General:	[submission date]	[submission time]	[Fax, phone, SMS, letter, etc.)	[who was the report made to?]
SAPS:				
Relevant fire prevention service:				
Relevant province or municipality				
Affected persons:			Provide details of who was contacted and how they were contacted as Annexure A to this report	

INCIDENT DETAILS			
In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure			
Incident start time:	[The exact time that the unexpected event started]	Incident duration:	[the duration of the unexpected event]
Duration of danger:	[The time taken from the start of the event to the time when the impacts of the event no longer posed a threat to anyone's health or well-being]	Duration of exposure:	[The duration of conditions that had a direct impact anyone's health or well-being]
Incident description	[Brief description of the incident detailing, but not limited to, a description of: (i) what happened; (ii) how it happened; (iii) where it happened; (iv) the timing and sequence of events; and (v) why it happened. A detailed discussion may be included as an annex.]		
	Plans, diagrams, maps or any other graphical material relating to the incident description must be attached as annexures B1, B2, etc.		
Wind speed and direction	[The wind speed and direction at the point of the incident at the time of the incident]	Ambient air temperature	[ambient air temperature at the time of the incident]
Weather conditions	[Sunny, light rain, mist, heavy rain, etc.]	Other relevant meteorological conditions	[Temperature inversion, floods, etc]

POLLUTANTS RELEASED DURING INCIDENT					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity.					
List all the pollutants directly released during the incident (i.e. exclude those pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.)					
Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

SECONDARY POLLUTANTS RESULTING FROM INCIDENT					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.					
List all the pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.					
Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

• POLLUTANT CONCENTRATIONS					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.					
List all the pollutants detailed in sections Error! Reference source not found. and Error! Reference source not found. Error! Reference source not found..					
○ Substance or mixture of substances	○ Reference Number	○ Estimated pollutant concentration			
		○ 10m	○ 100m	○ 500m	○ Concentration unit (e.g. ppm)
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[estimate the concentration of the pollutant in water, soil and/or air within a 10m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 100m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 500m radius of the epicentre of the incident]	[[Provide the unit of concentration used in columns 10, 100 and 500.]

INCIDENT IMPACT	
In terms of NEMA section 30(5)(b), the responsible person must report on possible acute effect on persons and the environment and data needed to assess these effects;	
Minor injuries	[Describe the number and types of any minor injuries that resulted from the incident or efforts to manage the incident or the impacts thereof]
Reportable injuries	[Describe the number and types of any injuries requiring statutory reporting that resulted from the incident or efforts to manage the incident or the impacts thereof]
Hospitalisation	[Describe the number and types of any injuries that required professional medical care that resulted from the incident or efforts to manage the incident or the impacts thereof]
Fatalities	[Describe the number and cause of any fatalities that resulted from the incident or efforts to manage the incident or the impacts thereof]
Biological impacts	[Describe any impacts on biological life, other than human life, e.g. fish kills, plant mortality, etc.]
Impact area	[Describe the area possibly affected by the incident or the impacts thereof including: (i) size of the area; (ii) socio-economic context; (iii) population density; (iv) sensitive environments (if any), etc.]
Data	Attach relevant impact reports, medical reports, death certificates, post mortem reports, environmental monitoring data, etc. as Annexes C1, C2,... to this report

EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS	
Foresight	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
Procedures and/or systems	Attach any relevant safety, health and environmental plans (including any statutory planning requirements) that detail what actions should be taken in the event of the incident that is the subject of this report
Procedure and/or systems failures	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident]
Technical measures	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident]
Technical failure	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident]

INITIAL INCIDENT MANAGEMENT	
In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.	
○ Evacuation	[Describe any evacuation activities including information on the number of people evacuated and whether these people were staff or otherwise]
○ Technical measures	[Describe all technical measures taken to address the incident]
○ Mitigation measures	[Describe all measures taken to minimise the impact]
○ Emergency Services	[Describe any governmental emergency services involvement]

• CLEANUP AND/OR DECONTAMINATION			
In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.			
○ Cleanup and/or decontamination		[Provide a detailed description of all cleanup and/or decontamination activities and the environmental quality and impacts resulting from these activities as well as contact details for any contracted service providers in an annex.]	
Permissions and Instructions			
Provide details of any permissions and/or instructions received from any organ of state during initial incident management, cleanup and/or decontamination			
○ Type	○ Statuate	○ Issued By	○ Details
[Describe the nature or type of permission or instruction]	[Provide a reference to the legal mandate for the permission or instruction]	[Provide contact details for the permitting or instructing authority]	[provide a summary of the activities carried out in terms of the permission or instruction]

MITIGATION MEASURES			
In terms of NEMA section 30(5)(e), the responsible person must report on measures taken and to be taken to avoid a recurrence of such incident.			
Measure	Objective	Cost	Timing
[Briefly describe each of the measures taken, and to be taken, to avoid a recurrence of such incident]	[Briefly describe the objective of the measure, i.e. the desired outcome of the measure]	[Estimate the cost of the measure in terms of capital costs and/or recurrent costs]	[Provide information on the timing for the full implementation of the measure]

• AUTHORISATIONS			
Provide detail on all authorisations (including permits, licenses, certificates, etc.) in respect of the activity to which the incident relates.			
○ Type	○ Statute	○ Issued By	○ Issue & Expiry Date
[Describe the nature or type of authorisation, e.g. Registration Certificate]	[Provide the reference for the authorisation, e.g. section X of the National Environmental Management Act (Act No. 107 of 1989)]	[Provide contact details for the issuing authority]	[provide the date of issue and expiry]

HISTORY			
Provide details on any and every similar incident involving the responsible person in the last 24 months. Similar incidents include those that: (i) involved similar circumstances; (ii) involved similar emissions; (iii) involved similar personal; and/or (iv) involved similar impacts.			
Incident title	Report reference	Date of incident	Summary of event
[Provide the title used in the relevant emergency incident report]	[Provide the reference in respect of the relevant emergency incident report]	[Date of incident]	[Provide a summary of the event]

Signed by, or as a mandated signatory for, the responsible person:		Date:	
--	--	-------	--

EAP UNDERTAKING/DECLARATION

The EAP herewith confirms

- the correctness of the information provided in the reports ✓
-
- the inclusion of comments and inputs from stakeholders and I&APs ; ✓
- the inclusion of inputs and recommendations from the specialist reports where relevant; ✓ and
- that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein. ✓



Signature of the environmental assessment practitioner:

Enviro-EAP

Name of company:

17 September 2026

Date:

-END-