APPENDIX F – COMPLETE IMPACT ASSESSMENT

According to Appendix 1(3) of the EIA Regulations (GN R.982 of 2014), a Basic Assessment Report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include—

(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be avoided, managed or mitigated;

(viii) the possible mitigation measures that could be applied and level of residual risk;

- (j) an assessment of each identified potentially significant impact and risk, including
- (i) cumulative impacts;
- (ii) the nature, significance and consequences of the impact and risk;
- (iii) the extent and duration of the impact and risk;
- (iv) the probability of the impact and risk occurring;
- (v) the degree to which the impact and risk can be reversed;

(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and

(vii) the degree to which the impact and risk can be avoided, managed or mitigated;

This appendix provides a summary of the key findings, impact assessments and recommended mitigation measures identified for the Dwarsrug access road Basic Assessment project and includes Specialist findings where applicable.

able I:	impact and mitigations assoc	clated with the Construction Phase: Alternative 1 (pre	eterrea alt	ernative)		
No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
2.1	Poor Stormwater management During the construction phase, unsuitable road design will have an impact on stormwater at the site.	Direct impacts: Unsuitable road design may cause traffic safety risks due to insufficient storm water drainage planning. Indirect impacts: Unsuitable road design may lead to increased levels of erosion, sedimentation and pollution of the water courses.	NONE	GENERAL Extent: Study area (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (30) MEDIUM - Extent: Surrounding area (2) Duration: Medium term (4) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (36) MEDIUM -	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (3) Probability: Improbable (2) Reversibility: High Significance: (14) LOW- Extent: Local (1) Duration: Medium term (2) Magnitude: Low (4) Probability: Improbable (2) Reversibility: High Significance: (14) LOW-	 Storm water manageme approved by DEA, DWS All stormwater structures requirements. The road engineer must are included in the road sedimentation of water
		Cumulative impacts: Unsuitable road design and erosion impacts may aggravate sedimentation into local drainage lines and rivers.		term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (33) MEDIUM -	Extent: Local (1) Duration: Medium term (2) Magnitude: Minor (3) Probability: Improbable (1) Reversibility: High Significance: (6) LOW -	
2.1	Noise Impacts: Impacts from increased noise levels will occur during construction of the proposed activity.	Direct impacts: * Increased noise levels by machinery during the construction of the road.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High	Extent: Local (1) Duration: Short term (1) Magnitude: Minor (3) Probability: Probability: Probable (3) Reversibility: High	 Machinery and equipm Construction activities single are to be known and age Retro-fit some equipme All labourers to wear PP

Table 1: Impact and mitigations associated with the Construction Phase: Alternative 1 (preferred alternative)

IGATION MEASURES

ment plans must be compiled by an engineer WS and the ECO for the project. res must comply with DWS and SANRAL

ust ensure that suitable stormwater structures bad design in order to minimise erosion and rercourses.

oment are to be switched off when not used. s should take place during work hours, these agreed upon with all contractors. ment with dampening measures PPE

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
				Significance: (24) LOW-	Significance: (15) LOW-	
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.2		 Direct impacts: » Frequent movement of heavy machinery may lead to the compaction of soils. » Compaction will lead to increased runoff and removal of vegetation » Disturbance and removal of soils may lead to erosion. » Soils may become contaminated by hydrocarbons leaking from construction equipment and machinery. 	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High Significance: (18) LOW-	 All soils compacted as a profiled and monitored vegetation. Driving must take place 30km/h must be implem project during the const Any erosion problems ob infrastructure should be thereafter to ensure that A road/civil engineer must be implemented.
	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion within the development area as a result of frequent movements of machinery and clearing of vegetation is expected to	Indirect impacts: Compaction will lead to increased runoff and removal of vegetation	-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (3) Probability: Probable (3) Reversibility: Medium Significance: (15) LOW-	 Arouad/environgineer main included in the road des All stormwater structures SANRAL requirements.
	occur.	Cumulative impacts: Valuable topsoil losses, sedimentation and soil erosion.		Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High Significance: (18) LOW-	
2.3	Dust generation Dust generated by clearing and of vegetation and earthworks will impact on air quality in the vicinity of the site as well as impede photosynthesis and	Direct impacts: » Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Highly Probable (3) Reversibility: High	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High	 » Dust suppression method such as sprinkling and w » Driving must take place 30km/h must be implem project during the const » Dust generation must const Regulations (GN No. R. 8 terms of the National Em 2004 (Act No. 39 of 2004)

a result of construction activities should be d to ensure establishment of natural

e on existing roads and a speed limit of mented on all roads associated with the astruction phase.

observed to be associated with the project e rectified as soon as possible and monitored nat they do not re-occur.

must ensure that stormwater structures are lesign, in order to minimise erosion.

es must be designed to comply with DWS and

ods should be undertaken during clearing, wind breaks.

ce on existing roads and a speed limit of emented on all roads associated with the astruction phase.

comply with the National Dust Control . 827) of 1 November 2013, promulgated in Environmental Management: Air Quality Act, 04).

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
	respiration of plants on the project site.			Significance: (24) LOW-	Significance: (18) LOW-	 » Limit vegetation clearin
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.4	Traffic impacts	Direct impacts: » More construction vehicles will be utilising the Granaatboskolk road.		Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (7) Probability: Definite (3) Reversibility: Medium Significance: (27) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	 Where possible, heavy using roads during peal Road signs and speed I Transport of material ar road regulations.
	During construction, an increase in construction vehicles will increase traffic in the vicinity of the	Indirect impacts: None anticipated		-	-	
	project site.	Cumulative impacts: The construction vehicles that will be using the Granaatboskolk road will place additional pressure on the roads in the area.	-	Extent: Local (2) Duration: Short term (1) Magnitude: Moderate (7) Probability: Definite (3) Reversibility: Medium Significance: (30) MEDIUM-	Extent: Local (2) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High Significance: (27) LOW-	
2.5	Safety and health Impacts: Safety and security impacts are expected to occur during the construction of an access road	Direct impacts: Negative health impacts on the health of construction workers.		Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Improbable (1) Reversibility: Medium Significance: (8) LOW -	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (3) Probability: Improbable (1) Reversibility: Medium Significance: (7) LOW -	 All construction staff multiply Equipment (PPE) and so carry construction active. The construction staff here must be trained in the usenvironmental, health of environmental, health of Appoint Health, Safety monitoring of safety co Classify all Hazardous were and the Adhere to the Occupa of 1993).

ring as far as possible.

ry vehicle traffic should be discouraged from eak traffic hours. d limits should be adhered to at all times. and waste should comply with the necessary

must have the appropriate Personal Protective safety equipment before being allowed to trivities.

handling chemicals or hazardous materials e use of the substances and the

and safety consequences of incidents.

y and Environment (HSE) Officer to ensure

conditions during construction activities.

bational Health and Safety Act (OHSA) (Act 85

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIO
		Indirect impacts: None anticipated				
		Cumulative impacts: None anticipated				
2.6	Social	Direct opportunities: » Employment opportunities for local workers.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (4) Reversibility: Medium Significance: (32) MEDIUM+	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (4) Reversibility: Medium Significance: (32) MEDIUM+	 Where possible local lab Where possible training
	During construction, temporary and medium- term employment will be created.	Indirect opportunities: The employment opportunities will enable transfer of skills to local people. The local economy will also be stimulated through new employment opportunities created for people.	-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (12) LOW+	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (12) LOW+	
		Cumulative impacts: None anticipated	-	-	-	
2.7	Waste storage Improper storage of waste will adversely affect the environment	Direct impacts: Improper storage of waste could lead to contamination and will adversely affect the environment		Extent: Local (1) Duration: Short term (2) Magnitude: Moderate (7) Probability: Probable (3) Reversibility: Medium Significance: (30) MEDIUM-	Extent: Local (1) Duration: Short term (2) Magnitude: Moderate (5) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	 A Waste Management Construction waste mus dump/landfill (on a regulation) Initiate recycling programer construction site where prevented it should be must be reused or recycling for energy recovery. This recovery organisations. waste should be disposed Should waste be stored
		Indirect impacts: None anticipated		- WEDIUM-	-	 Should waste be stored longer than 80 days.
		Cumulative impacts: None anticipated		-	-	
0.0			NOVE	ECOLOGICAL		
2.8	Disturbance and vegetation clearing:	Direct impacts:	NONE	Extent: Local (1) Duration: Long- term (4)	Extent: Local (1) Duration: Long- term (4)	 The final route should be before construction cor reduce impacts on SCC

labour should be utilised. ng schemes should be used.

nt Plan will be required for the site. nust be disposed of at a licenced egular basis)

grammes at the construction site.

ent hierarchy must be adopted at the rewaste is prevented, if it cannot be

e minimised. If waste can't be minimised it cycled. If this is not an option it should be used This may involve selling waste to third part ns. Lastly if energy recovery is not possible osal of.

ed on site, it cannot be temporarily stored for

be subject to a preconstruction walk-through commences and adjusted where required to CC and habitats of concern.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
	Impacts on vegetation will occur due to disturbance and vegetation clearing associated with the construction of the access road. In addition, it is possible that some loss of individuals of plants of SCC will occur.	Indirect impacts: None anticipated	-	Magnitude: Medium (4) Probability: Certain (5) Reversibility: High (Irreversible) Significance: (45) MEDIUM-	Magnitude: Low (2) Probability: Likely (4) Reversibility: Moderate Significance: (28) LOW-	 Search and Rescue of Search and Rescue of Search and Rescue of Search activities. Preconstruction environersite to ensure that basic This includes topics such pollution and chemical wildlife interactions, remareas etc. All construction vehicles demarcated roads. No site has been pegged for the search activity of the search act
		Cumulative impacts: » The development will contribute to cumulative impacts on habitat loss and transformation in the area.	-	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Certain (5) Reversibility: High (Irreversible) Significance: (45)	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (2) Probability: Likely (4) Reversibility: Moderate Significance: (28)	
2.9	Loss of habitat and impacts on local fauna: Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	Direct impacts: » Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	NONE	MEDIUM- Extent: Local (1) Duration: Short- term (1) Magnitude: Medium (4) Probability: Highly probable (4) Reversibility: High (Irreversible) Significance: (24) LOW-	LOW- Extent: Local (1) Duration: Short- term (1) Magnitude: Low 34) Probability: Highly probable (4) Reversibility: Moderate Significance: (20) LOW-	 Any fauna directly thread be removed to a safe to qualified person. The collection, hunting a site should be strictly for wander off the demarca Fires should not be allow All hazardous materials a to prevent contaminatio fuel and oil spills that oc appropriate manner as All construction vehicles
		Indirect impacts: None anticipated Cumulative impacts: During the construction phase the activity would contribute to cumulative fauna disturbance and disruption in the area, but as there are large tracts of intact habitat in the area, it is likely that displaced fauna will have space to move about the site to avoid areas of high activity.	-	Extent: Local (1) Duration: Short- term (1) Magnitude: Medium (4) Probability: Highly probable (4) Reversibility: Moderate Significance: (24) LOW-	Extent: Local (1) Duration: Short- term (1) Magnitude: Low 34) Probability: Highly probable (4) Reversibility: Moderate Significance: (20) LOW-	max) to avoid collisions tortoises.

SCCs should be conducted prior to clearing

onmental induction for all construction staff on ic environmental principles are adhered to. ch as no littering, appropriate handling of al spills, avoiding fire hazards, minimising maining within the demarcated construction

es should adhere to clearly defined and lo off-road driving is to be allowed once the for construction.

eatened by the construction activities should location by the ECO or other suitably

g or harvesting of any plants or animals at the orbidden. Personnel should not be allowed to reated construction site.

owed on site.

Is should be stored in the appropriate manner tion of the site. Any accidental chemical, occur at the site should be cleaned up in the as related to the nature of the spill.

es should adhere to a low speed limit (30km/h ns with susceptible species such as snakes and

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIGA
2.10	Soil erosion: Disturbance created	Direct impacts: Disturbance could result in soil erosion.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Probable (3) Reversibility: Low Significance: (27) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: Low Significance: (12) LOW-	 Erosion management at the Erosion Management All roads should have run flow and dissipate any ererosion risk. Regular monitoring for erosion problems are dev per the Erosion Managem project. All erosion problems obse possible, using the approproved the proproved to the proprov
	during construction will leave the site vulnerable to erosion.	Indirect impacts: None anticipated Cumulative impacts: Erosion would contribute to degradation in the area, but as this can be well- mitigated, the contribution can be minimised.	-	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Probable (3) Reversibility: Low Significance: (27)	- Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: Low Significance: (12)	revegetation techniques.
				FRESHWATER IMPACT	LOW-	
2.11	Vegetation clearance in the watercourse: Vegetation clearance in the riparian habitat and in- stream habitat of the watercourses for the proposed access road. Potential for pioneer and alien invasive species to encroach on watercourses during and after disturbance caused during vegetation clearance.	Direct impacts: Loss of vegetation in the in-stream habitat of the watercourses. Indirect impacts: Pioneer and alien invasive species will possibly encroach on watercourses during and after disturbance caused during vegetation clearance.		Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (40) MEDIUM- Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (40) MEDIUM-	S Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (35) MEDIUM- Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Definite (5) Reversibility: Moderate Significance: (35) MEDIUM-	 Vegetation clearance m within the servitude and unnecessary clearance is Cleared vegetation stock to limit disturbance. No cleared vegetation s watercourses. Movement of workers wit servitude of the road. We the watercourse. This wi watercourse. Construction of the acce preferably in the summer as these are the drier ma Construction in the autum be avoided as far as possi and the watercourses are An alien invasive monitor must be compiled to mar the watercourses and all along the entire route of the

at the site should take place according to ent Plan and Rehabilitation Plan. runoff control features which redirects water energy in the water that may pose an

erosion during construction to ensure that no developing as a result of the disturbance, as gement and Rehabilitation Plans for the

oserved should be rectified as soon as propriate erosion control structures and ues.

Id be revegetated with indigenous perennial area.

e must be limited as far as possible and only nd course of the proposed access road. No e is to be undertaken.

ockpiles are to be removed as soon as possible

n stockpiles are to be placed in any of the

within the watercourse must be limited to the Workers are not allowed to wonder freely in will cause unnecessary degradation of the

ccess road in the watercourse is to take place ner and spring months (September to March) months in which rainfall is likely to be limited. tumn and winter months (April to August) is to ossible, as this is when rainfall can be expected are likely to be in flow after rainfall events.

itoring and control management programme nanage encroachment of alien species within along the entire course of the road. Control of the access road is required is to ensure that

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
		Cumulative impacts: None anticipated		-	_	vegetation disturbanc establishment does not route which could result later stage. Control alo since catchment level of seeds from alien species along the route of the Importantly, the alien inv programme is also to approximately two (2) encroach following con
2.12	Excavation impacts in the watercourse: Clearance of substrate and infill of materials during road construction. Vehicle movement and compaction in the watercourses. Possible soil contamination from vehicle oils and fuels. General erosion impacts to the watercourses.	Direct opportunities: Possible soil erosion and contamination of soils as well as compaction in the watercourses. Indirect opportunities: None anticipated Cumulative impacts: None anticipated	- -	Extent: Local (1) Duration: Short- term (2) Magnitude: Moderate (6) Probability: Definite (5) Reversibility: Moderate Significance: (50) MEDIUM-	Extent: Immediate site (1) Duration: Very short- term (2) Magnitude: Low (6) Probability: Definite (5) Reversibility: Moderate Significance: (30) MEDIUM-	 Crossing points must be possible, to prevent the watercourse. Aligning the flow path altering the substrate along the lengt the structural integrity of Erosion will also cause a Ideally, ford crossings watercourses for the widercourse. The for or comprise of geotextile be taken when pouring construction of the ford designated construction crossings will have a relithe watercourses. implemented, any oth following approval from watercourses to minimis All vehicles and machine construction must be callowed to cross or word detected, the vehicle
						crossing through the wa » Soil stockpiles are to disturbance. » No soil stockpiles are to Soil stockpiles within 100 suitable materials (su sedimentation.

nce is managed and alien vegetation of take place high or lower along the road ult in encroachment on the watercourses at a along the entire access route is also important el drainage may also result in the dispersion of the into the watercourses should alien establish ne access road outside of the watercourses. invasive monitoring and control management to be implemented post-construction for 2) years to ensure alien invasives do not postruction.

be perpendicular to the watercourses, as far as the onset of erosion along the length of the the road in parallel will induce a preferential the hydrology, which can erode away the ngth of the watercourse, thereby threatening of the geomorphology of the watercourse. additional sedimentation impacts.

gs are to be implemented through the vidth and length of the proposed road through ford crossing should either be concrete based tile topped with course aggregate. Care must ng concrete into the watercourses during the ords, so that no cement is spilt outside of the ion area within the watercourse. The ford relatively minimal impact on the hydrology of However, if ford crossings cannot be ther suitable crossing can be implemented m the Department of Water and Sanitation.

must be limited as far as possible through nise compaction impacts.

nery to be used within the watercourses during checked for oil and fuel leaks before being vork in the watercourses. Should a leak be e is to be prohibited from working within or vatercourses until repaired.

be removed as soon as possible to limit

to be placed within 50m of any watercourse. 00m of a watercourse must be bunded with (such as bricks or planks), to prevent

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
2.13	Decrease in water quality	Direct impacts: Possible water contamination in the watercourses.		Extent: Local (2) Duration: Medium- term (3)	Extent: Local (1) Duration: Very short- term (1)	 » During construction, silt side, along the length of and riparian habitat (as sediment as far as possiduring the autumn and construction need to to as physical barriers to somewhat, and are like events. » An appointed environm structural integrity of inspections. Should any are to be implement environmental control of rehabilitation to proporequired. » No fuels, oils or any other into the watercourses. » During the construction
	Decrease in water quality of the watercourses: Water contamination due to vehicle oil and fuel leakages temporary chemical toilets. General sedimentation impacts are anticipated following			Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Moderate Significance: (33) MEDIUM-	Magnitude: Low (2) Probability: Improbable (2) Reversibility: Moderate Significance: (4) LOW-	 During the construction watercourses when the work is to take place in Temporary chemical so the watercourses. Rath 100m away from the w Temporary chemical so regularly for maintenar spills.
	clearance of vegetation in the watercourses.	Indirect opportunities: None anticipated		-	-	
		Cumulative impacts: None anticipated		-	-	
				HERITAGE		
2.14	Damage of heritage sites: The Stone Age heritage	Direct impacts: * Construction activities could result in damage to heritage sites.	NONE	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3)	Extent: Low (1) Duration: Permanent (5) Magnitude: Minor (2) Probability: Probable (3)	 Develop a chance find heritage finds, to be important to be important to be important to be important to be imple If any artefacts are ider protocol must be imple
	sites could be impacted upon by construction activities.			Reversibility: Low Significance: (30) MEDIUM-	Reversibility: Low Significance: (24) LOW-	
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	

ilt netting must be erected on the downstream of the road crossing, through the watercourse as delineated) during the dry season to contain ssible. However, the silt nets are to be removed and winter months (April to August) should take place at this time, as the silt nets will act to the watercourses altering the hydrology kely to be washed away during or after rainfall

nmental control officer (ECO) must monitor the of the watercourses when undertaking iny erosion be detected, mitigation measures ented to repair erosion as advised. The officer must have some experience in erosion posed adequate measures, should this be

her hazardous materials are to be brought or stored within 100m from the edge of the

on phase, no vehicles are to cross through the ne watercourses are in flow. Additionally, no in the watercourses when in flow.

sanitation facilities must be not be placed in ther these will need to be placed at least watercourses.

sanitation facilities must also be checked ance purposes and cleaned often to prevent

nds protocol for the mitigation of possible mplemented as part of the EMP for the f the project.

entified during construction, the chance finds lemented

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
2.15	Damage of seal-in fossils: Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface that are then no longer available for scientific study.	Direct impacts: Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface. Indirect impacts: None anticipated Cumulative impacts: None anticipated	NONE -	Extent: Low (1) Duration: Permanent (5) Magnitude: High (8) Probability: Probable (3) Reversibility: Low Significance: (42) MEDIUM- -	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM- -	 The EAP as well as the EC the fact that the Ecca G remains, albeit mostly trafossils have been record. South Africa, with special Formation. The Whitehill restricted in this study are In areas that are allocate sensitivity and specificall envisaged (following the fossils are recorded durin qualified palaeontologis fossils at specific footprin PIA). If significant fossil finds (e petrified wood) are recorded developme collection permit to collections.

Table 2: Impact and mitigations associated with the Operation Phase: Alternative 1 (preferred alternative)

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
				GENERAL		
2.2	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion due to the access road and the frequent movement of	 Direct impacts: Frequent movement of vehicles may lead to the compaction of soils. Compaction will lead to increased runoff and removal of vegetation Disturbance and removal of soils may lead to erosion. Soils may become contaminated by hydrocarbons leaking from vehicles and trucks using the access road. 		Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Likely (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	 Driving must take place 30km/h must be implem project during the opera Any erosion problems of infrastructure should be thereafter to ensure tha A road/civil engineer m included in the road de All stormwater structures with DWS and SANRAL res
	vehicles.	Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.3	Dust generation Dust generated by vehicles will impact on air quality in the vicinity of the	Direct impacts: Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6)	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4)	 » Dust suppression method such as sprinkling and w » Driving must take place 30km/h must be implem project during the operation

IGATION MEASURES

ECO for this project must be made aware of Group sediments contains significant fossil trace fossil assemblages. Several types of rded from this Group in the Karoo Basin of cial mention of the very important Whitehill hill Formation outcrops are however very area.

ated a Very High and High Palaeontological ally where deep excavation into bedrock is he geotechnical investigation), or where ring the geotechnical investigations, a gist must be appointed to assess and record rints of infrastructure developments (Phase 1

(e.g. vertebrate teeth, bones, burrows, corded during excavations for infrastructure ments, the palaeontologist must apply for a ollect the fossils according the SAHRA

IGATION MEASURES

e on existing roads and a speed limit of mented on all roads associated with the eration phase.

observed to be associated with the project e rectified as soon as possible and monitored nat they do not re-occur.

must ensure that stormwater structures are lesign, in order to minimise erosion.

es implemented must be designed to comply . requirements.

ods should be undertaken during clearing, wind breaks. e on existing roads and a speed limit of mented on all roads associated with the eration phase.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
	site as well as impede photosynthesis and respiration of plants on the project site.			Probability: Probable (3) Reversibility: Low Significance: (30)	Probability: Probable (3) Reversibility: Low Significance: (24)	 » Dust generation must concerning the Regulations (GN No. R. 1) terms of the National Er 2004 (Act No. 39 of 2004)
		Indirect impacts: None anticipated	-	MEDIUM-	LOW-	
		Cumulative impacts: None anticipated			-	
2.4	Traffic impacts During the operational phase, an increase in vehicles will increase traffic in the vicinity of the project site.	Direct impacts: More construction vehicles will be utilising the Granaatboskolk road, this will also be associated with stop and go's where necessary.	-	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	- Extent: Local (1) Duration: Medium term (3) Magnitude: Minor(4) Probability: Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	 Where possible, heavy using roads during peal Road signs and speed I Transport of material ar road regulations.
		Cumulative impacts: None anticipated	-	-	-	
2.5	Social During the operational phase, temporary and medium term employment will be created.	Direct opportunities: Employment opportunities for local workers. Indirect opportunities: The employment opportunities will enable transfer of skills to local people. The local economy will also be stimulated through new	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (5) Probability: Probable (4) Reversibility: Low Significance: (36) MEDIUM+ Extent: Local (1) Duration: Short term (1) Magnitude:	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (5) Probability: Probable (4) Reversibility: Low Significance: (36) MEDIUM+ Extent: Local (1) Duration: Short term (1) Magnitude:	 Where possible local lat Where possible training
		employment opportunities created for people.		Magnificance: (4) Probability: Probable (2) Reversibility: Low Significance: (12) LOW+	Moderate (4) Probability: Probable (2) Reversibility: Low Significance: (12) LOW+	

t comply with the National Dust Control R. 827) of 1 November 2013, promulgated in Environmental Management: Air Quality Act, 004).

ry vehicle traffic should be discouraged from eak traffic hours. d limits should be adhered to at all times. and waste should comply with the necessary

labour should be utilised. ng schemes should be used.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
		Cumulative impacts: None anticipated	-	-	-	
2.6	Waste storage Improper storage of waste during the operational phase will adversely affect the environment	Direct impacts: Improper storage of waste could lead to contamination and will adversely affect the environment		Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (7) Probability: Probable (3) Reversibility: Low Significance: (33) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	 A Waste Management Waste generated during of at a licenced dump/ Initiate recycling progra The waste managemer construction site where prevented it should be must be reused or recyc for energy recovery, this recovery organisations. waste should be disposed
		Indirect impacts:				» Should waste be stored
		None anticipated Cumulative impacts:				longer than 80 days.
		None anticipated				
				ECOLOGICAL		
2.7	Impacts on fauna: The road will generate some long-term impact on fauna due to habitat fragmentation as a result of the presence of the road and disturbance and mortality due to collisions with vehicles.	Direct impacts: » Impacts on fauna in and around the site. Indirect impacts: None anticipated Cumulative impacts: The development would contribute to the cumulative disturbance for fauna.	NONE -	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Probable (3) Reversibility: High Significance: (24) LOW- Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Probable (3) Reversibility: High Significance: (24)	Extent: Local (1) Duration: Long- term (4) Magnitude: Minor (2) Probability: Probable (4) Reversibility: High Significance: (21) LOW- - Extent: Local (1) Duration: Long- term (4) Magnitude: Minor (2) Probability: Probable (4) Reversibility: High Significance: (21)	» All vehicles using the roo (30km/h max) to avoid snakes and tortoises.
2.8	Soil erosion: Disturbance created during construction will leave the site vulnerable to erosion for several years	Direct impacts: The soil erosion created in the construction phase will remain several years into the operational phase.	NONE	LOW- Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (4) Reversibility: Low	LOW- Extent: Local (1) Duration: Long- term (1) Magnitude: Low (4) Probability: Likely (3) Reversibility: High	 Erosion management a the Erosion Manageme The road should have ru flow and dissipate any erosion risk. Regular monitoring for e erosion problems have

nt Plan will be required for the site. ring the operational phase must be disposed up/landfill (on a regular basis) grammes at the construction site. the net hierarchy must be adopted at the re waste is prevented, if it cannot be be minimised. If waste can't be minimised it cycled. If this is not an option it should be used this may involve selling waste to third part ns. Lastly if energy recovery is not possible osal of.

ed on site, it cannot be temporarily stored for

road should adhere to a low speed limit id collisions with susceptible species such as

t at the site should take place according to nent Plan and Rehabilitation Plan. e runoff control features which redirects water y energy in the water which may pose an

or erosion during operation to ensure that no re developed as result of the disturbance, as

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	мітіс
	into the operational phase.			Significance: (32) MEDIUM-	Significance: (24) LOW-	per the Erosion Manage project. » All erosion problems obs
		Indirect impacts:	-			possible, using the app revegetation techniqu There should be follow- remaining bare areas v succulents from the loc
		Cumulative impacts: Erosion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.		Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (2) Probability: Probable (3) Reversibility: High Significance: (21) LOW-	
2.9	The site will be vulnerable to the invasion of alien plant species:	Direct impacts: Disturbance created during construction will leave the site vulnerable to alien plant invasion for several years into the operational phase.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (3) Reversibility: Low Significance: (27)	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (4) Probability: Unlikely (2) Reversibility: High Significance: (16)	 Alien management at t Alien Invasive Manager Regular monitoring for a no erosion problems ha as per the Alien Manag Woody aliens should be the appropriate alien co species present.
	Disturbance created	Indirect impacts: None anticipated		LOW-	LOW-	
	during construction will		-	_	-	
	leave the site vulnerable to alien plant invasion for several years into the operational phase.	Cumulative impacts: Alien plant invasion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.	-	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Likely (3) Reversibility: Low	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: High	
				Significance: (24) L OW-	Significance: (12) LOW-	
				FRESHWATER IMPACT		
2.9	Water contamination due to oil, fuel and chemical leakages: Water contamination due to vehicle oil and fuel leakages. General sedimentation impacts are anticipated following clearance of vegetation in	Direct impacts: Water contamination due to vehicle oil and fuel leakages. Sedimentation due to activities in the construction phase will continue for several years into the operational phase.		Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate	Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate	 No fuels, oils or any othe the watercourse or st watercourses. During the operational watercourses when the

gement and Rehabilitation Plans for the

observed should be rectified as soon as propriate erosion control structures and ues.

w-up rehabilitation and revegetated of any s with indigenous perennial shrubs and ocal area.

t the site should take place according to the ement Plan.

r alien plant during operation to ensure that nave developed as result of the disturbance, agement Plan for the project.

be controlled on at least an annual basis using control techniques as determined by the

ther hazardous materials are to be brought into stored within 100m from the edge of the

al phase, no vehicles are to cross through the ne watercourses are in flow.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	мітіс
	the watercourses, this will continue for several years into the operational phase.			Significance: (40) MEDIUM-	Significance: (35) MEDIUM-	
		<i>Indirect impacts:</i> None anticipated		-	-	
		Cumulative impacts: None anticipated		-	-	
2.10	Vegetation clearance in the watercourse: Vegetation clearance in the riparian habitat and in- stream habitat of the watercourses for the proposed access road. Potential for pioneer and alien invasive species to encroach on watercourses during and after	Direct opportunities: Potential for pioneer and alien invasive species to encroach on watercourses during the operational phase.	NONE	Extent: Local (2) Duration: Medium- term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Moderate Significance: (33) MEDIUM-	Extent: Local (1) Duration: Very short- term (1) Magnitude: Low (2) Probability: Improbable (2) Reversibility: Moderate Significance: (4) LOW-	An alien invasive monitor must be compiled to monitor the watercourses and of along the entire route of vegetation disturbance establishment does not route which could result later stage. Control alo since catchment level of seeds from alien specie
	disturbance caused during vegetation clearance in the	Indirect impacts: None anticipated	-			along the route of the Importantly, the alien in
	construction phase will continue for several years into the operational phase.	<i>Cumulative impacts:</i> None anticipated	-	-	-	programme is also to approximately two (2) encroach following cor
			I	HERITAGE		
2.12	Damage of heritage sites: The Stone Age heritage sites could be impacted	Direct impacts: » Construction activities could result in damage to heritage sites.	NONE	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3) Reversibility: Low	Extent: Low (1) Duration: Permanent (5) Magnitude: Minor (2) Probability: Probable (3) Reversibility: Low	 » Develop a chance fin heritage finds, to be operational phase of th » If any artefacts are ide finds protocol must be in
	upon during the operational phase.			Significance: (30) MEDIUM-	Significance: (24) LOW-	
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.13	Damage of seal-in fossils:	Direct impacts:	NONE	Extent: Low (1) Duration: Permanent (5)	Extent: Low (1) Duration: Permanent (5)	» The EAP as well as the E the fact that the Ecca

nitoring and control management programme manage encroachment of alien species within d along the entire course of the road. Control e of the access road is required is to ensure that ince is managed and alien vegetation not take place high or lower along the road sult in encroachment on the watercourses at a along the entire access route is also important el drainage may also result in the dispersion of cies into the watercourses should alien establish he access road outside of the watercourses. invasive monitoring and control management to be implemented post-construction for (2) years to ensure alien invasives do not construction.

finds protocol for the mitigation of possible e implemented as part of the EMP for the the project.

dentified during the operational, the chance e implemented

ECO for this project must be made aware of a Group sediments contains significant fossil

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	мітіс
	Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface that are then no longer available for scientific study.	 » Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface. 		Magnitude: High (8) Probability: Probable (3) Reversibility: Low Significance: (42) MEDIUM-	Magnitude: Low (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	remains, albeit mostly tr have been recorded f Africa, with special Formation. The White restricted in this study a » If significant fossil find petrified wood) are re- such as road developr collection permit to
		Indirect impacts: None anticipated	-			
		Cumulative impacts: None anticipated				specifications.

Table 3: Impact and mitigations associated with the Decommissioning Phase: Alternative 1 (preferred alternative)

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	ΜΙΤΙΟ
				GENERAL		
2.2	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion due to the access road and the frequent movement of vehicles.	 Direct impacts: Frequent movement of vehicles may lead to the compaction of soils. Compaction will lead to increased runoff and removal of vegetation Disturbance and removal of soils may lead to erosion. Soils may become contaminated by hydrocarbons leaking from vehicles and trucks using the access road. Indirect impacts: None anticipated Cumulative impacts: None anticipated 	NONE -	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Likely (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	 Driving must take place must be implemented of the operation phase. Any erosion problems of infrastructure should be thereafter to ensure tho A road/civil engineer in included in the road de All stormwater structure with DWS and SANRAL r
2.3	Dust generation Dust generated by vehicles will impact on air quality in the vicinity of the site as well as impede photosynthesis and	Direct impacts: Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Low	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Probability: Probable (3) Reversibility: Low	 » Dust suppression methors such as sprinkling and w » Driving must take place must be implemented of the operation phase. » Dust generation must Regulations (GN No. R.

IGATION MEASURES

trace fossil assemblages. Several types of fossils from this Group in the Karoo Basin of South mention of the very important Whitehill tehill Formation outcrops are however very area.

nds (e.g. vertebrate teeth, bones, burrows, ecorded during excavations for infrastructure oments, the palaeontologist must apply for a collect the fossils according the SAHRA

IGATION MEASURES

e on existing roads and a speed limit of 30km/h I on all roads associated with the project during

s observed to be associated with the project be rectified as soon as possible and monitored hat they do not re-occur.

must ensure that stormwater structures are lesign, in order to minimise erosion.

res implemented must be designed to comply requirements.

hods should be undertaken during clearing, wind breaks.

e on existing roads and a speed limit of 30km/h I on all roads associated with the project during

st comply with the National Dust Control R. 827) of 1 November 2013, promulgated in

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
	respiration of plants on the project site.			Significance: (30) MEDIUM-	Significance: (24) LOW-	terms of the National E 2004 (Act No. 39 of 200
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	-
				ECOLOGICAL		
2.7	Disturbance of fauna: The decommissioning of the facility may lead to disturbance or persecution of fauna within or the areas adjacent to the facility.	Direct impacts: * Impacts on fauna in and around the site. Impacts: None anticipated Cumulative impacts: The development would contribute to the cumulative disturbance for fauna.	NONE -	Extent: Local (1) Duration: Short- term 2) Magnitude: Low (4) Probability: Probable (3) Reversibility: Moderate Significance: (21) LOW- Extent: Local (1) Duration: Short- term 2) Magnitude: Low (4) Probability:	Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (2) Probability: Probable (3) Reversibility: High Significance: (15) LOW- - Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (2) Probability:	 Any potentially danger by the decommissionin location. The collection, hunting site or in the surrounding All hazardous materials to prevent contaminati and oil spills that occu appropriate manner as All vehicles accessing (30km/h max) to avoid snakes and tortoises.
2.8	Soil erosion: Decommissioning of the site will leave the site vulnerable to soil erosion from earthwork (levelling), which may be accelerated for a short period until vegetation settles.	Direct impacts: The soil erosion from earthwork (levelling) may be accelerated for a short period until vegetation settles and embankment reshaping and levelling has been completed. Indirect impacts: None anticipated	NONE -	Probable (3) Reversibility: Moderate Significance: (21) LOW- Extent: Local (1) Duration: Short- term (2) Magnitude: Medium (4) Probability: Probable (4) Reversibility: High Significance: (28) LOW-	Probable (3) Reversibility: High Significance: (15) LOW- Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (3) Probability: Improbable (3) Reversibility: High Significance: (18) LOW-	 Erosion management of Erosion Management P Regular monitoring for years to ensure that no of the disturbance, Rehabilitation Plans for All erosion problems obsusing the appropriate techniques. All cleared areas re revegetated with indig
		Cumulative impacts:		-	_	

I Environmental Management: Air Quality Act, 004).

erous fauna such snakes or fauna threatened ning activities should be removed to a safe

g or harvesting of any plants or animals at the ing areas should be strictly forbidden.

als should be stored in the appropriate manner ation of the site. Any accidental chemical, fuel accur at the site should be cleaned up in the as related to the nature of the spill.

g the site should adhere to a low speed limit bid collisions with susceptible species such as

at the site should take place according to the Plan and Rehabilitation Plan.

or erosion after decommissioning for at least 5 to erosion problems have developed as a result as per the Erosion Management and for the project.

bserved should be rectified as soon as possible, e erosion control structures and revegetation

resulting from decommissioning should be igenous perennial species from the local area.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
		None anticipated				
2.9	The site will be vulnerable to the invasion of alien plant species:	Direct impacts: Disturbance created during construction will leave the site vulnerable to alien plant invasion for several years into the operational phase.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (3) Reversibility: Low Significance: (27) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (4) Probability: Unlikely (2) Reversibility: High Significance: (16) LOW-	 Alien management at Alien Invasive Manager Regular monitoring decommissioning to developed as result Management Plan for t Woody aliens should be the appropriate alien species present. Follow years after decommission
	Disturbance created during decommissioning	Indirect impacts: None anticipated	-	-	-	
	will leave the site vulnerable to alien plant invasion for several years after site clearing and decommissioning.	Cumulative impacts: Alien plant invasion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.		Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: High Significance: (12) LOW-	

Table 4: Impact and mitigations associated with the Construction Phase: Alternative 2

TIGATION MEASURES

at the site should take place according to the jement Plan.

g for alien plant invasion following ensure that no erosion problems have It of the disturbance, as per the Alien or the project.

be controlled on at least an annual basis using on control techniques as determined by the low-up monitoring should occur for at least 5 ssioning.

N	10.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION GENERAL	SIGNIFICANCE POST-MITIGATION	MITI
2.	1		Direct impacts: Unsuitable road design may cause traffic safety risks due to insufficient storm water drainage planning.	NONE	Extent: Study area (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (30) MEDIUM -	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (3) Probability: Improbable (2) Reversibility: High Significance: (14) LOW-	 Storm water managem approved by DEA, DWS All stormwater structure requirements. The road engineer mus are included in the road sedimentation of water
		Poor Stormwater management During the Construction phase, unsuitable road design will have an impact on stormwater at the site.	Indirect impacts: Unsuitable road design may lead to increased levels of erosion, sedimentation and pollution of the water courses.		Extent: Surrounding area (2) Duration: Medium term (4) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (36) MEDIUM -	Extent: Local (1) Duration: Medium term (2) Magnitude: Low (4) Probability: Improbable (2) Reversibility: High Significance: (14) LOW-	
			Cumulative impacts: Unsuitable road design and erosion impacts may aggravate sedimentation into local drainage lines and rivers.		Extent: Surrounding area (2)	Extent: Local (1) Duration: Medium term (2) Magnitude: Minor (3) Probability: Improbable (1) Reversibility: High Significance: (6) LOW -	
2.	1	Noise Impacts: Impacts from increased noise levels will occur during construction of the proposed activity.	Direct impacts: » Increased noise levels by machinery during the construction of the road.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High	Extent: Local (1) Duration: Short term (1) Magnitude: Minor (3) Probability: Probable (3) Reversibility: High	 Machinery and equipm Construction activities s are to be known and a Retro-fit some equipme All labourers to wear PF

ement plans must be compiled by an engineer WS and the ECO for the project. ures must comply with DWS and SANRAL

ust ensure that suitable stormwater structures bad design in order to minimise erosion and tercourses.

oment are to be switched off when not used. Is should take place during work hours, these agreed upon with all contractors. Inent with dampening measures PPE

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
				Significance: (24) LOW-	Significance: (15) LOW-	
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.2		 Direct impacts: » Frequent movement of heavy machinery may lead to the compaction of soils. » Compaction will lead to increased runoff and removal of vegetation » Disturbance and removal of soils may lead to erosion. » Soils may become contaminated by hydrocarbons leaking from construction equipment and machinery. 	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High Significance: (18) LOW-	 All soils compacted as a profiled and monitored vegetation. Driving must take place 30km/h must be implem project during the constant of the prosion problems of infrastructure should be thereafter to ensure that A road/civil engineer m included in the road de All stormwater structures SANRAL requirements.
	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion within the development area as a result of frequent movements of machinery and clearing of vegetation is expected to occur.	Indirect impacts: Compaction will lead to increased runoff and removal of vegetation	-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (3) Probability: Probable (3) Reversibility: Medium Significance: (15) LOW-	
		Cumulative impacts: Valuable topsoil losses, sedimentation and soil erosion.		Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Medium Significance: (24) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High Significance: (18) LOW-	
2.3	Dust generation Dust generated by clearing and of vegetation and earthworks will impact on air quality in the vicinity of the site as well as impede photosynthesis and	Direct impacts: » Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Highly Probable (3) Reversibility: High	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High	 » Dust suppression method such as sprinkling and w » Driving must take place 30km/h must be implem project during the const » Dust generation must co Regulations (GN No. R. 8 terms of the National En 2004 (Act No. 39 of 2004

a result of construction activities should be d to ensure establishment of natural

e on existing roads and a speed limit of mented on all roads associated with the astruction phase.

observed to be associated with the project e rectified as soon as possible and monitored nat they do not re-occur.

must ensure that stormwater structures are lesign, in order to minimise erosion.

es must be designed to comply with DWS and

ods should be undertaken during clearing, wind breaks.

ce on existing roads and a speed limit of emented on all roads associated with the instruction phase.

comply with the National Dust Control . 827) of 1 November 2013, promulgated in Environmental Management: Air Quality Act, 04).

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
	respiration of plants on the project site.			Significance: (24) LOW-	Significance: (18) LOW-	 Limit vegetation clearin
		Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
2.4	Traffic impacts	Direct impacts: » More construction vehicles will be utilising the Granaatboskolk road.		Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (7) Probability: Definite (3) Reversibility: Medium Significance: (27) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	 Where possible, heavy using roads during peal Road signs and speed I Transport of material ar road regulations.
	During construction, an increase in construction vehicles will increase traffic in the vicinity of the	Indirect impacts: None anticipated		-	-	
	project site.	Cumulative impacts: The construction vehicles that will be using the Granaatboskolk road will place additional pressure on the roads in the area.	-	Extent: Local (2) Duration: Short term (1) Magnitude: Moderate (7) Probability: Definite (3) Reversibility: Medium Significance: (30) LOW-	Extent: Local (2) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: High Significance: (27) LOW-	
2.5	Safety and health Impacts: Safety and security impacts are expected to occur during the construction of an access road	Direct impacts: Negative health impacts on the health of construction workers.		Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Improbable (1) Reversibility: Medium Significance: (8) LOW -	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (3) Probability: Improbable (1) Reversibility: Medium Significance: (7) LOW -	 All construction staff mu Equipment (PPE) and so carry construction activ The construction staff he must be trained in the u environmental, health of Appoint Health, Safety monitoring of safety co Classify all Hazardous w Adhere to the Occupa of 1993).

ring as far as possible.

y vehicle traffic should be discouraged from eak traffic hours. d limits should be adhered to at all times. and waste should comply with the necessary

must have the appropriate Personal Protective safety equipment before being allowed to tivities.

handling chemicals or hazardous materials e use of the substances and the

and safety consequences of incidents.

y and Environment (HSE) Officer to ensure

conditions during construction activities. s waste and dispose of appropriately. Dational Health and Safety Act (OHSA) (Act 85

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
		Indirect impacts: None anticipated				
		Cumulative impacts: None anticipated				
2.6	Social	Direct opportunities: * Employment opportunities for local workers.	NONE	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (4) Reversibility: Medium	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (6) Probability: Probable (4) Reversibility: Medium Significance: (32)	 Where possible local la Where possible training
	During construction, temporary and medium- term employment will be created.	Indirect opportunities: The employment opportunities will enable transfer of skills to local people. The local economy will also be stimulated through new employment opportunities created for people.	-	MEDIUM+ Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (12) LOW-	MEDIUM+ Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Medium Significance: (12) LOW-	
		Cumulative impacts: None anticipated	-	-	-	
2.7	Waste storage Improper storage of waste will adversely affect the environment	Direct impacts: Improper storage of waste could lead to contamination and will adversely affect the environment		Extent: Local (1) Duration: Short term (2) Magnitude: Moderate (7) Probability: Probable (3) Reversibility: Medium Significance: (30) MEDIUM-	Extent: Local (1) Duration: Short term (2) Magnitude: Moderate (5) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	 A Waste Management Construction waste mudump/landfill (on a regulation of the waste management construction site where prevented it should be must be reused or recy for energy recovery. The recovery organisations, waste should be disposed or should be disposed
		Indirect impacts: None anticipated		-	-	 Should waste be stored longer than 80 days.
		Cumulative impacts: None anticipated		-	-	
			1	ECOLOGICAL		
2.8	Disturbance and vegetation clearing:	Direct impacts:	NONE	Extent: Local (1) Duration: Long- term (4)	Extent: Local (1) Duration: Long- term (4)	 The final route should b before construction co reduce impacts on SCC

labour should be utilised. ng schemes should be used.

nt Plan will be required for the site. nust be disposed of at a licenced egular basis)

grammes at the construction site. ent hierarchy must be adopted at the

re waste is prevented, if it cannot be

be minimised. If waste can't be minimised it cycled. If this is not an option it should be used This may involve selling waste to third part ns. Lastly if energy recovery is not possible osal of.

ed on site, it cannot be temporarily stored for

be subject to a preconstruction walk-through commences and adjusted where required to CC and habitats of concern.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
	Impacts on vegetation will occur due to disturbance and vegetation clearing associated with the construction of the access road. In addition, it is possible that some loss of individuals of plants of SCC will occur.	Indirect impacts:	-	Magnitude: Medium (4) Probability: Certain (5) Reversibility: High (Irreversible) Significance: (45) MEDIUM-	Magnitude: Low (2) Probability: Likely (4) Reversibility: Moderate Significance: (28) LOW-	 Search and Rescue of S activities. Preconstruction environ site to ensure that basic This includes topics such pollution and chemical wildlife interactions, rem areas etc. All construction vehicles demarcated roads. No
		None anticipated Cumulative impacts: » The development will contribute to cumulative impacts on habitat loss and transformation in the area.	-	-	-	site has been pegged f
2.9	Loss of habitat and impacts on local fauna: Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	Direct impacts: » Disturbance, transformation and loss of habitat will have a negative effect on resident fauna during construction.	NONE	Extent: Local (1) Duration: Short- term (1) Magnitude: Moderate (7) Probability: Highly probable (4) Reversibility: High (Irreversible) Significance: (36) MEDIUM-	Extent: Local (1) Duration: Short- term (1) Magnitude: Low (3) Probability: Highly probable (4) Reversibility: Moderate Significance: (20) LOW-	 Any fauna directly three be removed to a safe lo qualified person. The collection, hunting of site should be strictly for wander off the demarc Fires should not be allow All hazardous materials to prevent contamination fuel and oil spills that occup appropriate manner as All construction vehicles may to avoid collisions
		Indirect impacts: - Cumulative impacts: During the construction phase the activity would contribute to cumulative fauna disturbance and disruption in the area, but as there are large tracts of intact habitat in the area, it is likely that displaced fauna will have space to move about the site to avoid areas of high activity.		Extent: Local (1) Duration: Short- term (1) Magnitude: Moderate (7) Probability: Highly probable (4) Reversibility: High (Irreversible) Significance: (36) MEDIUM-	Extent: Local (1) Duration: Short- term (1) Magnitude: Low (3) Probability: Highly probable (4) Reversibility: Moderate Significance: (20) LOW-	max) to avoid collisions tortoises.
2.10	Soil erosion: Disturbance created during construction will leave the site vulnerable to erosion.	<i>Direct impacts:</i> Disturbance could result in soil erosion.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Probable (3) Reversibility: Low	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: Low	 Erosion management a the Erosion Manageme All roads should have ru flow and dissipate any e erosion risk. Regular monitoring for e erosion problems are de per the Erosion Manage project.

SCCs should be conducted prior to clearing

onmental induction for all construction staff on sic environmental principles are adhered to. Ich as no littering, appropriate handling of cal spills, avoiding fire hazards, minimising emaining within the demarcated construction

les should adhere to clearly defined and No off-road driving is to be allowed once the d for construction.

reatened by the construction activities should e location by the ECO or other suitably

g or harvesting of any plants or animals at the forbidden. Personnel should not be allowed to arcated construction site.

owed on site.

als should be stored in the appropriate manner ation of the site. Any accidental chemical, occur at the site should be cleaned up in the

as related to the nature of the spill.

les should adhere to a low speed limit (30km/h ns with susceptible species such as snakes and

t at the site should take place according to nent Plan and Rehabilitation Plan. runoff control features which redirects water y energy in the water that may pose an

or erosion during construction to ensure that no developing as a result of the disturbance, as gement and Rehabilitation Plans for the

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
				Significance: (27) LOW-	Significance: (12) LOW-	 All erosion problems obs possible, using the apprentice revegetation technique
		Indirect impacts: None anticipated	-	-	-	 All cleared areas should species from the local or
		Cumulative impacts: Erosion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.		Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Probable (3) Reversibility: Low Significance: (27) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: Low Significance: (12) LOW-	
				FRESHWATER IMPACT		
2.11	Vegetation clearance in the watercourse: Vegetation clearance in the riparian habitat and in- stream habitat of the watercourses for the proposed access road. Potential for pioneer and alien invasive species to encroach on watercourses during and after disturbance caused during vegetation	Direct impacts: Loss of vegetation in the in-stream habitat of the watercourses. Indirect impacts: Pioneer and alien invasive species will possibly encroach on watercourses during and after disturbance caused during vegetation clearance.		Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (40) <u>MEDIUM-</u> Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate	Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (35) MEDIUM- Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate	 Vegetation clearance within the servitude and unnecessary clearance Cleared vegetation store to limit disturbance. No cleared vegetation watercourses. Movement of workers w servitude of the road. W the watercourse. This w watercourse. Construction of the accor preferably in the summe as these are the drier m Construction in the autu be avoided as far as pose and the watercourses a An alien invasive monitor must be compiled to more
	clearance.	Cumulative impacts: None anticipated		Significance: (40) MEDIUM- -	Significance: (35) MEDIUM- -	the watercourses and a along the entire route of vegetation disturbance establishment does not route which could result later stage. Control alo since catchment level seeds from alien specie along the route of the

bserved should be rectified as soon as propriate erosion control structures and Jes.

Id be revegetated with indigenous perennial area.

e must be limited as far as possible and only nd course of the proposed access road. No e is to be undertaken.

ockpiles are to be removed as soon as possible

on stockpiles are to be placed in any of the

within the watercourse must be limited to the Workers are not allowed to wonder freely in will cause unnecessary degradation of the

ccess road in the watercourse is to take place mer and spring months (September to March) months in which rainfall is likely to be limited. tumn and winter months (April to August) is to ossible, as this is when rainfall can be expected are likely to be in flow after rainfall events.

itoring and control management programme manage encroachment of alien species within a along the entire course of the road. Control of the access road is required is to ensure that nee is managed and alien vegetation of take place high or lower along the road ult in encroachment on the watercourses at a along the entire access route is also important el drainage may also result in the dispersion of ies into the watercourses should alien establish ne access road outside of the watercourses.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG
						Importantly, the alien inv programme is also to approximately two (2) encroach following cons
2.12		Direct opportunities: Possible soil erosion and contamination of soils as well as compaction in the watercourses.	NONE	Extent: Local (1) Duration: Short- term (2) Magnitude: Moderate (6) Probability: Definite (5) Reversibility: Moderate Significance: (50) MEDIUM-	Extent: Immediate site (1) Duration: Very short- term (2) Magnitude: Low (6) Probability: Definite (5) Reversibility: Moderate Significance: (30) MEDIUM-	 Crossing points must be possible, to prevent the watercourse. Aligning the flow path altering the substrate along the leng the structural integrity of Erosion will also cause and ldeally, ford crossings watercourses for the wid the watercourse. The for or comprise of geotextile be taken when pouring
	Excavation impacts in the watercourse: Clearance of substrate and infill of materials during road construction. Vehicle movement and compaction in the watercourses. Possible soil contamination from vehicle oils and fuels. General erosion impacts to the watercourses.	None anticipated Cumulative impacts: None anticipated				 be taken when pouring construction of the ford designated construction crossings will have a relative watercourses. Himplemented, any other following approval from > Vehicle movement mut watercourses to minimise > All vehicles and machine construction must be challowed to cross or word detected, the vehicle is crossing through the water soil stockpiles are to be disturbance. > No soil stockpiles are to be disturbance. > No soil stockpiles within 100 suitable materials (subsedimentation. > During construction, silt misside, along the length of and riparian habitat (as a sediment as far as possibe during the autumn and construction need to take as physical barriers to barriers

invasive monitoring and control management to be implemented post-construction for 2) years to ensure alien invasives do not postruction.

be perpendicular to the watercourses, as far as he onset of erosion along the length of the the road in parallel will induce a preferential he hydrology, which can erode away the ngth of the watercourse, thereby threatening of the geomorphology of the watercourse. additional sedimentation impacts.

gs are to be implemented through the ridth and length of the proposed road through ford crossing should either be concrete based tile topped with course aggregate. Care must ng concrete into the watercourses during the rds, so that no cement is spilt outside of the ion area within the watercourse. The ford elatively minimal impact on the hydrology of However, if ford crossings cannot be ther suitable crossing can be implemented in the Department of Water and Sanitation.

nust be limited as far as possible through ise compaction impacts.

nery to be used within the watercourses during checked for oil and fuel leaks before being vork in the watercourses. Should a leak be e is to be prohibited from working within or vatercourses until repaired.

be removed as soon as possible to limit

to be placed within 50m of any watercourse. 00m of a watercourse must be bunded with such as bricks or planks), to prevent

t netting must be erected on the downstream of the road crossing, through the watercourse is delineated) during the dry season to contain sible. However, the silt nets are to be removed and winter months (April to August) should take place at this time, as the silt nets will act to the watercourses altering the hydrology

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
						somewhat, and are like events. » An appointed environr structural integrity of inspections. Should an are to be impleme environmental control rehabilitation to prop required.
2.13	Decrease in water quality of the watercourses: Water contamination due to vehicle oil and fuel leakages temporary chemical toilets. General sedimentation impacts are anticipated following clearance of vegetation in the watercourses.	Direct impacts: Possible water contamination in the watercourses. Indirect opportunities: None anticipated Cumulative impacts: None anticipated		Extent: Local (2) Duration: Medium- term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Moderate Significance: (33) MEDIUM-	Extent: Local (1) Duration: Very short- term (1) Magnitude: Low (2) Probability: Improbable (2) Reversibility: Moderate Significance: (4) LOW-	 No fuels, oils or any oth into the watercourse o watercourses. During the construction watercourses when the work is to take place in Temporary chemical so the watercourses. Rath 100m away from the w Temporary chemical so regularly for maintenar spills.
		None anticipated		HERITAGE		
2.14	Damage of heritage sites: The Stone Age heritage sites could be impacted upon by construction activities.	Direct impacts: » Construction activities could result in damage to heritage sites. Indirect impacts: None anticipated Cumulative impacts: None anticipated	-	Extent: Low (1) Duration: Permanent (5) Magnitude: Moderate (7) Probability: Probable (3) Reversibility: Low Significance: (39) MEDIUM-	Extent: Low (1) Duration: Permanent (5) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM- -	 Develop a chance find heritage finds, to be im construction phase of t If any artefacts are ide protocol must be imple
2.15	Damage of seal-in fossils: Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface that are then no longer available for scientific study.	Direct impacts: Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface.	NONE	Extent: Low (1) Duration: Permanent (5) Magnitude: High (8) Probability: Probable (3) Reversibility: Low	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3) Reversibility: Low	 The EAP as well as the last the fact that the Ecca remains, albeit mostly t fossils have been recor South Africa, with spec Formation. The Whiteh restricted in this study c In areas that are allocc sensitivity and specificor

kely to be washed away during or after rainfall

onmental control officer (ECO) must monitor the of the watercourses when undertaking any erosion be detected, mitigation measures nented to repair erosion as advised. The ol officer must have some experience in erosion oposed adequate measures, should this be

ther hazardous materials are to be brought or stored within 100m from the edge of the

on phase, no vehicles are to cross through the he watercourses are in flow. Additionally, no in the watercourses when in flow.

sanitation facilities must be not be placed in ther these will need to be placed at least watercourses.

sanitation facilities must also be checked ance purposes and cleaned often to prevent

nds protocol for the mitigation of possible mplemented as part of the EMP for the f the project.

entified during construction, the chance finds elemented

e ECO for this project must be made aware of a Group sediments contains significant fossil v trace fossil assemblages. Several types of orded from this Group in the Karoo Basin of ecial mention of the very important Whitehill shill Formation outcrops are however very area.

cated a Very High and High Palaeontological cally where deep excavation into bedrock is

No	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	ΜΙΤΙΟ
				Significance: (42) MEDIUM-	Significance: (30) MEDIUM-	envisaged (following the fossils are recorded duri qualified palaeontologi
		Indirect impacts: None anticipated Cumulative impacts: None anticipated	-	-	-	fossils at specific footprin PIA). » If significant fossil finds (e petrified wood) are rece such as road developm collection permit to coll specifications.

Table 5: Impact and mitigations associated with the Operation Phase: Alternative 2

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	мпо
			T	GENERAL		
2.2	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion due to the access road and the	 Direct impacts: » Frequent movement of vehicles may lead to the compaction of soils. » Compaction will lead to increased runoff and removal of vegetation » Disturbance and removal of soils may lead to erosion. » Soils may become contaminated by hydrocarbons leaking from vehicles and trucks using the access road. 	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Likely (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	 Driving must take place 30km/h must be implem project during the oper Any erosion problems o infrastructure should be thereafter to ensure that A road/civil engineer m included in the road de All stormwater structure with DWS and SANRAL r
	frequent movement of vehicles.	Indirect impacts: None anticipated Cumulative impacts: None anticipated	-	-	-	
2.3	Dust generation Dust generated by vehicles will impact on air quality in the vicinity of the site as well as impede photosynthesis and	Direct impacts: Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	 » Dust suppression methors such as sprinkling and w » Driving must take place 30km/h must be implement project during the operation must concern and the segulations (GN No. R. atterms of the National Er 2004 (Act No. 39 of 2004)
	respiration of plants on the project site.	Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	- - -	- -	

IGATION MEASURES

he geotechnical investigation), or where uring the geotechnical investigations, a gist must be appointed to assess and record urints of infrastructure developments (Phase 1

(e.g. vertebrate teeth, bones, burrows, corded during excavations for infrastructure ments, the palaeontologist must apply for a blect the fossils according the SAHRA

TIGATION MEASURES

- ce on existing roads and a speed limit of emented on all roads associated with the eration phase.
- s observed to be associated with the project be rectified as soon as possible and monitored hat they do not re-occur.
- must ensure that stormwater structures are design, in order to minimise erosion.
- res implemented must be designed to comply L requirements.

nods should be undertaken during clearing, I wind breaks.

ce on existing roads and a speed limit of emented on all roads associated with the eration phase.

comply with the National Dust Control R. 827) of 1 November 2013, promulgated in Environmental Management: Air Quality Act, 004).

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITI
2.4	Traffic impacts During the operational phase, an increase in vehicles will increase	Direct impacts: More construction vehicles will be utilising the Granaatboskolk road, this will also be associated with stop and go's where necessary.		Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor(4) Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	 Where possible, heavy using roads during pea Road signs and speed Transport of material ar road regulations.
	traffic in the vicinity of the project site.	Indirect impacts: None anticipated				
		Cumulative impacts: None anticipated	-	-	-	
2.5	Social	Direct opportunities: Employment opportunities for local workers.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (5) Probability: Probable (4) Reversibility: Low Significance: (36)	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (5) Probability: Probable (4) Reversibility: Low Significance: (36)	 Where possible local la Where possible training
		to the standard line in the second		MEDIUM+	MEDIUM+	-
	During the operational phase, temporary and medium term employment will be created.	Indirect opportunities: The employment opportunities will enable transfer of skills to local people. The local economy will also be stimulated through new employment opportunities created for people.		Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Low Significance: (12) LOW-	Extent: Local (1) Duration: Short term (1) Magnitude: Moderate (4) Probability: Probable (2) Reversibility: Low Significance: (12) LOW-	
		Cumulative impacts: None anticipated	-	-	-	
2.6	Waste storage Improper storage of waste during the operational phase will adversely affect the environment	Direct impacts: Improper storage of waste could lead to contamination and will adversely affect the environment		Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (7) Probability: Probable (3) Reversibility: Low	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: Low	 A Waste Management Waste generated durin of at a licenced dump, Initiate recycling progra The waste management construction site where prevented it should be must be reused or recy for energy recovery, this

y vehicle traffic should be discouraged from eak traffic hours. d limits should be adhered to at all times. and waste should comply with the necessary

labour should be utilised. ng schemes should be used.

nt Plan will be required for the site. ring the operational phase must be disposed ip/landfill (on a regular basis) grammes at the construction site. then thierarchy must be adopted at the re waste is prevented, if it cannot be be minimised. If waste can't be minimised it cycled. If this is not an option it should be used this may involve selling waste to third part

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	ΜΙΤΙΟ
				Significance: (33) MEDIUM-	Significance: (24) LOW-	recovery organisations. waste should be dispose » Should waste be stored
		Indirect impacts: None anticipated				longer than 80 days.
		Cumulative impacts: None anticipated				
				ECOLOGICAL		
2.7	Impacts on fauna: The road will generate some long-term impact on	Direct impacts: » Impacts on fauna in and around the site.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (4) Probability: Probable (4) Reversibility: High Significance: (32) MEDIUM-	Extent: Local (1) Duration: Long- term (4) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	» All vehicles using the roo (30km/h max) to avoid snakes and tortoises.
	fauna due to habitat fragmentation as a result of the presence of the road and disturbance and mortality due to collisions with vehicles.	Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: The development would contribute to the cumulative disturbance for fauna.	-	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Probable (3) Reversibility: High Significance: (24) LOW-	Extent: Local (1) Duration: Long- term (4) Magnitude: Minor (2) Probability: Probability: Probable (4) Reversibility: High Significance: (21) LOW-	
2.8	2.8 Soil erosion: Disturbance created during construction will leave the site vulnerable to erosion for several years into the operational phase.	Direct impacts: The soil erosion created in the construction phase will remain several years into the operational phase.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (4) Reversibility: Low Significance: (32) MEDIUM-	Extent: Local (1) Duration: Long- term (1) Magnitude: Low (4) Probability: Likely (3) Reversibility: High Significance: (24) LOW-	 » Erosion management a the Erosion Manageme » The road should have ru flow and dissipate any e erosion risk. » Regular monitoring for e erosion problems have per the Erosion Manage project. » All erosion problems observed
		Indirect impacts:	-			revegetation technique » There should be follow-u
		Cumulative impacts: Erosion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.		Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3)	Extent: Local (1) Duration: Long- term (4) Magnitude: Low (2)	remaining bare areas w succulents from the loc

ns. Lastly if energy recovery is not possible osal of. ed on site, it cannot be temporarily stored for

road should adhere to a low speed limit id collisions with susceptible species such as

t at the site should take place according to nent Plan and Rehabilitation Plan. e runoff control features which redirects water y energy in the water which may pose an

or erosion during operation to ensure that no re developed as result of the disturbance, as gement and Rehabilitation Plans for the

observed should be rectified as soon as propriate erosion control structures and ues.

w-up rehabilitation and revegetated of any s with indigenous perennial shrubs and ocal area.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	ΜΙΤΙΟ
				Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	Probability: Probable (3) Reversibility: High Significance: (21) LOW-	
2.9	The site will be vulnerable to the invasion of alien plant species:	Direct impacts: Disturbance created during construction will leave the site vulnerable to alien plant invasion for several years into the operational phase.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (3) Reversibility: Low Significance: (27) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (4) Probability: Unlikely (2) Reversibility: High Significance: (16) LOW-	 Alien management at t Alien Invasive Manager Regular monitoring for a no erosion problems ha as per the Alien Manag Woody aliens should be the appropriate alien a species present.
	Disturbance created during construction will leave the site vulnerable to alien plant invasion for several years into the operational phase.	Indirect impacts: None anticipated Cumulative impacts: Alien plant invasion would contribute to degradation in the area, but as this can be well-mitigated, the contribution can be minimised.		Extent: Local (1) Duration: Long- term (4) Magnitude: Low (3) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	- Extent: Local (1) Duration: Long- term (3) Magnitude: Low (2) Probability: Unlikely (2) Reversibility: High Significance: (12) LOW-	
	•			FRESHWATER IMPACT		
2.9	Water contamination due to oil, fuel and chemical leakages: Water contamination due to vehicle oil and fuel leakages. General sedimentation impacts are anticipated following clearance of vegetation in the watercourses, this will continue for several years into the operational phase.	Direct impacts: Water contamination due to vehicle oil and fuel leakages. Sedimentation due to activities in the construction phase will continue for several years into the operational phase.		Extent: Immediate area (1) Duration: Medium- term (3) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (40) MEDIUM-	Extent: Immediate area (1) Duration: Short- term (2) Magnitude: Low (4) Probability: Definite (5) Reversibility: Moderate Significance: (35) MEDIUM-	 » No fuels, oils or any othe the watercourse or st watercourses. » During the operational watercourses when the
		Cumulative impacts: None anticipated		-	-	

t the site should take place according to the ement Plan.

or alien plant during operation to ensure that have developed as result of the disturbance, agement Plan for the project.

agement Plan for the project. be controlled on at least an annual basis using a control techniques as determined by the

ther hazardous materials are to be brought into stored within 100m from the edge of the

al phase, no vehicles are to cross through the he watercourses are in flow.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	міті
2.10	Vegetation clearance in the watercourse: Vegetation clearance in the riparian habitat and in- stream habitat of the watercourses for the proposed access road. Potential for pioneer and alien invasive species to encroach on watercourses during and after	Direct opportunities: Potential for pioneer and alien invasive species to encroach on watercourses during the operational phase.	NONE	Extent: Local (2) Duration: Medium- term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Moderate Significance: (33) MEDIUM-	Extent: Local (1) Duration: Very short- term (1) Magnitude: Low (2) Probability: Improbable (2) Reversibility: Moderate Significance: (4) LOW-	An alien invasive monit must be compiled to m the watercourses and along the entire route of vegetation disturband establishment does not route which could resu later stage. Control all since catchment level seeds from alien specie
	disturbance caused during vegetation clearance in the	Indirect impacts: None anticipated	-			along the route of th Importantly, the alien i
	construction phase will continue for several years into the operational phase.	Cumulative impacts: None anticipated	-	-	-	programme is also approximately two (2 encroach following co
			<u> </u>	HERITAGE		•
2.11	Damage of heritage sites: The Stone Age heritage sites could be impacted upon during the operational phase.	Direct impacts: » Construction activities could result in damage to heritage sites.	NONE	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Low (1) Duration: Permanent (5) Magnitude: Moderate (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	 Develop a chance fit heritage finds, to be operational phase of th If any artefacts are ide finds protocol must be in the fit of the fit of
		Indirect impacts: None anticipated	-	-	-	-
		Cumulative impacts: None anticipated	-	-	-	
2.12	Damage of seal-in fossils: Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface that are then no longer available for scientific study.	Direct impacts: » Disturb, damage, destroy or permanently seal-in fossils at or below the ground surface. Indirect impacts: None anticipated	NONE -	Extent: Low (1) Duration: Permanent (5) Magnitude: High (8) Probability: Probable (3) Reversibility: Low Significance: (42) MEDIUM-	Extent: Low (1) Duration: Permanent (5) Magnitude: Low (4) Probability: Probable (3) Reversibility: Low Significance: (30) MEDIUM-	 The EAP as well as the the fact that the Eccorremains, albeit mostly the have been recorded the Africa, with special Formation. The White restricted in this study a If significant fossil find petrified wood) are resuch as road developed collection permit to
		Cumulative impacts: None anticipated				specifications.

nitoring and control management programme manage encroachment of alien species within d along the entire course of the road. Control e of the access road is required is to ensure that ince is managed and alien vegetation not take place high or lower along the road sult in encroachment on the watercourses at a along the entire access route is also important el drainage may also result in the dispersion of cies into the watercourses should alien establish he access road outside of the watercourses. invasive monitoring and control management to be implemented post-construction for (2) years to ensure alien invasives do not construction.

finds protocol for the mitigation of possible e implemented as part of the EMP for the the project.

dentified during the operational, the chance e implemented

e ECO for this project must be made aware of ca Group sediments contains significant fossil trace fossil assemblages. Several types of fossils d from this Group in the Karoo Basin of South mention of the very important Whitehill itehill Formation outcrops are however very area.

nds (e.g. vertebrate teeth, bones, burrows, recorded during excavations for infrastructure pments, the palaeontologist must apply for a p collect the fossils according the SAHRA

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIG

Table 6: Impact and mitigations associated with the Decommissioning Phase: Alternative 2

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	MITIC
2.1	Increased sedimentation, contamination of soils and soil erosion: Increase in sedimentation and erosion due to the access road and the frequent movement of vehicles.	Direct impacts: » Frequent movement of vehicles may lead to the compaction of soils. » Compaction will lead to increased runoff and removal of vegetation » Disturbance and removal of soils may lead to erosion. » Soils may become contaminated by hydrocarbons leaking from vehicles and trucks using the access road. Indirect impacts: None anticipated	NONE -	GENERAL Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Likely (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Likely (3) Reversibility: Low Significance: (24) LOW-	 Driving must take place must be implemented of the operation phase. Any erosion problems of infrastructure should be thereafter to ensure tho A road/civil engineer in included in the road de All stormwater structure with DWS and SANRAL restriction
		Cumulative impacts: None anticipated		-	-	
2.2	Dust generation Dust generated by vehicles will impact on air quality in the vicinity of the site as well as impede photosynthesis and	Direct impacts: Dust generation will affect air quality in the vicinity of the site as well as respiration of plants.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probabile (3) Reversibility: Low Significance: (30) MEDIUM-	Extent: Local (1) Duration: Medium term (3) Magnitude: Minor (4) Probability: Probability: Probable (3) Reversibility: Low Significance: (24) LOW-	 » Dust suppression methors such as sprinkling and w » Driving must take place must be implemented of the operation phase. » Dust generation must Regulations (GN No. Regulations (GN No. Regulations of the National E 2004 (Act No. 39 of 2004)
	respiration of plants on the project site.	Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated	-	-	-	
				ECOLOGICAL		
2.3	Disturbance of fauna: The decommissioning of the facility may lead to disturbance or persecution of fauna within or the areas adjacent to the facility.	Direct impacts: » Impacts on fauna in and around the site.	NONE	Extent: Local (1) Duration: Short- term 2) Magnitude: Low (4) Probability: Probable (3)	Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (2) Probability: Probability: Probable (3) Reversibility: High	 Any potentially danger by the decommissionir location. The collection, hunting site or in the surrounding All hazardous materials to prevent contamination

IGATION MEASURES

TIGATION MEASURES

ce on existing roads and a speed limit of 30km/h d on all roads associated with the project during

s observed to be associated with the project be rectified as soon as possible and monitored hat they do not re-occur.

er must ensure that stormwater structures are design, in order to minimise erosion.

rres implemented must be designed to comply L requirements.

thods should be undertaken during clearing, I wind breaks.

ce on existing roads and a speed limit of 30km/h d on all roads associated with the project during

ust comply with the National Dust Control R. 827) of 1 November 2013, promulgated in I Environmental Management: Air Quality Act, 204).

erous fauna such snakes or fauna threatened ning activities should be removed to a safe

ng or harvesting of any plants or animals at the ing areas should be strictly forbidden. als should be stored in the appropriate manner ation of the site. Any accidental chemical, fuel

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	ΜΙΤΙΟ
		Indirect impacts: None anticipated	-	Reversibility: Moderate Significance: (21) LOW-	Significance: (15) LOW-	and oil spills that occu appropriate manner as All vehicles accessing (30km/h max) to avoid snakes and tortoises.
		Cumulative impacts: The development would contribute to the cumulative disturbance for fauna.	-	Extent: Local (1) Duration: Short- term 2) Magnitude: Low (4) Probability: Probable (3) Reversibility: Moderate Significance: (21) LOW-	Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (2) Probability: Probable (3) Reversibility: High Significance: (15) LOW-	
2.4	Soil erosion: Decommissioning of the site will leave the site vulnerable to soil erosion from earthwork (levelling), which may be accelerated for a short period until vegetation settles.	Direct impacts: The soil erosion from earthwork (levelling) may be accelerated for a short period until vegetation settles and embankment reshaping and levelling has been completed.	NONE	Extent: Local (1) Duration: Short- term (2) Magnitude: Medium (4) Probability: Probable (4) Reversibility: High Significance: (28) LOW-	Extent: Local (1) Duration: Short- term (2) Magnitude: Minor (3) Probability: Improbable (3) Reversibility: High Significance: (18) LOW-	 Erosion management a Erosion Management P Regular monitoring for years to ensure that no of the disturbance, Rehabilitation Plans for All erosion problems obs using the appropriate techniques. All cleared areas reservegetated with indige
	361163.	Indirect impacts: None anticipated	-	-	-	
		Cumulative impacts: None anticipated		-	-	
2.5	The site will be vulnerable to the invasion of alien plant species: Disturbance created during decommissioning will leave the site vulnerable to alien plant invasion for several years after site clearing and	Direct impacts: Disturbance created during construction will leave the site vulnerable to alien plant invasion for several years into the operational phase.	NONE	Extent: Local (1) Duration: Long- term (4) Magnitude: Medium (4) Probability: Likely (3) Reversibility: Low Significance: (27) LOW-	Extent: Local (1) Duration: Long- term (3) Magnitude: Low (4) Probability: Unlikely (2) Reversibility: High Significance: (16) LOW-	 Alien management at Alien Invasive Manager Regular monitoring decommissioning to developed as result Management Plan for th Woody aliens should be the appropriate alien species present. Follow years after decommission
	decommissioning.	Indirect impacts: None anticipated	-	-	-	

cur at the site should be cleaned up in the as related to the nature of the spill. g the site should adhere to a low speed limit bid collisions with susceptible species such as

at the site should take place according to the Plan and Rehabilitation Plan.

or erosion after decommissioning for at least 5 o erosion problems have developed as a result , as per the Erosion Management and or the project.

bserved should be rectified as soon as possible, e erosion control structures and revegetation

resulting from decommissioning should be igenous perennial species from the local area.

at the site should take place according to the ement Plan.

for alien plant invasion following ensure that no erosion problems have t of the disturbance, as per the Alien the project.

be controlled on at least an annual basis using on control techniques as determined by the low-up monitoring should occur for at least 5 ssioning.

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	мітіс
		Cumulative impacts: Alien plant invasion would contribute to degradation in the area, but as this	-	Extent: Local (1) Duration: Long-	Extent: Local (1) Duration: Long-	
		can be well-mitigated, the contribution can be	-	term (4)	term (3)	
		minimised.		Magnitude: Low	Magnitude: Low	
				(3) Probability: Likely	(2) Probability:	
				(3)	Unlikely (2)	
				Reversibility: Low	Reversibility: High	
				Significance: (24) L OW-	Significance: (12)	

Table 7: Impact associated with The No-go option

No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	NO MIT		
				GENERAL				
7.1	Access road for the Dwarsrug WEF	Direct impacts: The Dwarsrug WEF will have no access road and this will affect the operation aspect of the WEF.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Likely (3) Reversibility: Low Significance: (30) MEDIUM-	ΝΑ	NA		
		Indirect impacts: None anticipated	-	-	-			
		Cumulative impacts: None anticipated		-	-			
7.2	Continuation of current land use	Direct impacts: The farm portion is currently zoned for agricultural use, should this development not be authorised the site will remain unchanged and will continue to be used for agricultural purposes.	NONE	Extent: Local (1) Duration: Short- term 2) Magnitude: Low (4) Probability: Probable (3) Reversibility: Moderate Significance: (21) LOW-	NA	NA		

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No.	ISSUE	DESCRIPTION OF IMPACT	SIGNIFI CANCE NO-GO OPTION	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION	NO MI
		Indirect impacts: None anticipated Cumulative impacts: None anticipated	-	-	-	
7.3	Employment opportunities	Direct impacts: » If the proposed development does not materialize, no employment opportunities will be created in the construction of this access road.	NONE	Extent: Local (1) Duration: Medium term (3) Magnitude: Moderate (6) Probability: Probable (3) Reversibility: Low	NA	NA
		Indirect impacts: None anticipated Cumulative impacts:	-	Significance: (30) MEDIUM-	-	