

DR. COLLEEN EBERSOHN
PhD Univ. Pretoria
Cell:072 222 6013

e-mail: ebersohn@cyberperk.co.za

MS. JANET EBERSOHN

Bsc. Hons. Environmental Management

Cell: 082 557 7122

e-mail: janet@ecoroute.co.za

### **IMPACT AND RISK ASSESSMENT**

# PROPOSED DEVELOPMENT OF ERF 1058, WHITES ROAD, HOEKWIL (WILDERNESS HEIGHTS) GEORGE MUNICIPALITY, WESTERN CAPE.

Each potential environmental impact and risk identified was assessed according to specific criteria. These included the nature, extent, duration, consequence, probability and frequency of identified impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources, and can be avoided, managed or mitigated. The criteria are based on the EIA Regulations, published by the Department of Forestry, Fisheries and the Environment (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989. These criteria include:

#### Nature of the impact

This is an estimation of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

#### **Mitigation Measures**

Ways in which an impact can be avoided, minimised, or managed to reduce its environmental significance.

Extent of the impact - the scale of the impact			
Rating	Definition of Rating		
Very Limited	Extending only as far as the development site area		
Limited	Limited to the site and its immediate surroundings		
Local	Extending across the site and to nearby settlements		
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic.		
National	National scale or across international borders		

Duration of the impact - the lifespan or length of time the impact will last			
Rating	Definition of Rating		
Brief	Impact will not last longer than 1 year		
Short term	Impact will last between 1 and 2 years		
Medium Term	Impact will last between 2 and 15 years		
Long Term	Impact will last more than 15 years		
Permanent	Impact may be permanent, or in excess of 20 years		
Very High	Natural and/ or social functions and/ or processes are severely altered		

PO Box 1252, Sedgefield, 6573

Intensity - the severity of the impact			
Rating	Definition of Rating		
Negligible	Natural and/ or social functions and/ or processes are negligibly altered		
Low	Natural and/or social functions and/or processes are slightly altered		
Medium	Natural and/or social functions and/or processes are notably altered		
High	Natural and/ or social functions and/ or processes are significantly altered		
Very High	Natural and/ or social functions and/ or processes are severely altered		

Probability of occurrence - the probability of the impact occurring			
Rating	Definition of Rating		
Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere		
Possible	Has occurred here or elsewhere and could therefore occur		
Probable	It is most likely that the impact will occur		
Definite	There are sound scientific reasons to expect that the impact will occur		

Reversibility - the ability of the impacted environment to return to its pre-impacted state			
Rating	Definition of Rating		
Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.		
Partly reversible	the impact is reversible but more intense mitigation measures are required		
Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures		
Irreversible	the impact is irreversible, and no mitigation measures exist		

Irreplaceable loss of resources - the degree to which resources will be irreplaceably lost			
Rating	Definition of Rating		
Negligible	No loss of resources		
Low	Marginal loss, the resource is not damaged irreparably or is not scarce		
Medium	the resource is damaged irreparably but is represented elsewhere		
High	Irreparable damage and is not represented elsewhere		

**Cumulative effect** - An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development.

Rating	Definition of Rating			
Negligible	the impact would result in negligible to no cumulative effect			
Low	the impact would result in insignificant cumulative effects			
Medium the impact would result in minor cumulative effects				
High the impact would result in significant cumulative effects				

Confidence - the level of confidence in the assessment rating			
Low Judgement is based on intuition			
Medium Determination is based on common sense and general knowledge			
High Substantive supportive data exists to verify the assessment			

_	<b>Significance -</b> Significance of impacts are determined through a synthesis of the assessment criteria				
Rat	ing	Definition of Rating			
	Very high negative (-)	The impact will have highly significant effects and are unlikely to be able to be mitigated adequately			
	High negative (-)	The impact will have significant effects and will require significant mitigation measures to achieve an accepted level of impact			
	Medium negative (-)	The impact will have moderate negative effects and will require moderate mitigation			
	Low negative (-)	The impact will have minimal effects and would require little mitigation			
	Negligible	The impact will have negligible effects and would require little or no mitigation			
	Low positive (+)	The impact will have minor positive effects			
	Medium positive (+)	The impact will have moderate positive effects			
	High positive (+)	The impact will have significant positive effects			
	Very High positive (+)	The impact will have highly significant positive effects.			

# Impacts foreseen during the Construction Phase for Alternative A (Preferred Alternative) and Alternative B:

Construction

Image of the control						
Impact	Loss of natural fynbos vegetation					
Description of	Loss of fynbos vegetation, and habitat loss for terrestrial wildlife.					
impact						
Mitigable	High Mitigation exists and will notably reduce significance of impacts					
Potential		be ecologically desirable to (c				
mitigation	nodes w	nodes within previously disturbed areas and close to existing disturbance (e.g. major				
	roads). \	Where development is proposed	d further from	the main road, this should be		
		within existing open areas in the				
		development from areas of ind				
		icket/forest at the bottom (south	~	_		
		with the local fire protection ag	•			
		ement plan for the site. Note that	_			
	_	-				
		pable natural vegetation in pre	-			
		Exclusion of fire will probably	· ·			
	_	on and exclusion of secondary f	-			
	assessme	ent of the site as likely having his	torically been	mesic thicket.		
	Access t	o areas of VERY HIGH sensitivity of	during constru	ction must not be permitted by		
	any con	struction personnel (mapped a	s "Mesic thicke	et/forest, and as "VERY HIGH").		
	These ar	eas must be fenced off and no	access allowe	d.		
		and implement an alien manag				
		as and provides a programme fo				
Accessment	and arc	<u></u>	T TOTIG TOTITIES			
Assessment	Nogativo	Without mitigation	Lovenogative	With mitigation		
Nature Duration	Negative	I have digit made, the area or a great and a set	Low negative			
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,		
Extent	Very	or in excess of 20 years  Extending only as far as the	Very	or in excess of 20 years  Extending only as far as the		
EXICIII	limited	development site area	limited	development site area		
Intensity	Low	Natural and/or social	Very low	Natural and/or social		
illicitsity	LOW	functions and/or processes	V GI Y IOW	functions and/or processes		
		are somewhat altered		are slightly altered		
Probability	Definite	There are sound scientific	Definite	There are sound scientific		
Trobubility		reasons to expect that the	Delimine	reasons to expect that the		
		impact will occur		impact will occur		
Confidence	High	Substantive supportive data	High	Substantive supportive data		
Commence	l High	exists to verify the assessment	Tilgii	exists to verify the		
		exists to verify the assessment		assessment		
Reversibility	Partly	The impact is reversible but	Completely	The impact can be reversed		
,	reversible	more intense mitigation	reversible	with the implementation of		
		measures are required		minor mitigation measures.		
Resource	Low	Marginal loss, the resource is	Low	Marginal loss, the resource is		
irreplaceability		not damaged irreparably or		not damaged irreparably or		
,		is not scarce		is not scarce		
Significance	Low negative (-)  Negligible					
Comment on	The vegetat	ion on site (within the proposed	development			
	relatively poor condition and consists of secondary vegetation with a species composition					
significance	relatively po	or condition and consists of seco	maary vegera			
significance				morr with a species composition		
	that is not re	presentative of the natural habi	tat.	non with a species composition		
Cumulative impacts	that is not re		tat.	non with a species composition		

Project Phase

Project Phase	Construction						
Impact	Loss of natural mesic thicket/forest vegetation						
Description of	Loss of mesic thicket/forest vegetation and habitat loss for terrestrial wildlife.						
impact							
Mitigable	Medium Mitigation exists and may reduce significance of impacts						
Potential	Keep all	proposed infrastructure away fro	om the mesic t	thicket/forest areas. In all areas			
mitigation	close to	the mesic thicket, rehabilitation	of disturbed of	areas after construction should			
	promote	e natural successional processes t	that currently o	drive the secondary vegetation			
	towards	thicket development.					
	Strictly control any possible erosion from upslope areas. There should be no erosion						
		runoff effects on the mesic thicket/forest areas.					
		ke regular monitoring to detect		er dearadina impacts early so			
		y can be controlled.		and the second s			
		possible, retain well-developed t	hicket natche	s within the upper parts of the			
		se have a high diversity of wood					
		kisting mesic thicket.	y plant specie	s, including several man occor			
		•	litata province	ally disturbed groups to a state			
		onstruction is complete, rehabi	· ·	-			
		natural successional processes	· ·	-			
		g on site, this is very likely to lead	a to turther thic	ckei development within these			
	areas.						
	-	garden development on site sl					
		It is recommended that thicket	•				
		e gardens. This will result in mostly					
	should b	be allowed to the extent that	it doesn't co	empromise any fire-protection			
	consider	rations.					
	♦ It would	be ecologically desirable to (c	ıs much as po	ossible) cluster development in			
	nodes w	rithin previously disturbed areas	and close to e	existing disturbance (e.g. major			
	roads). Where development is proposed further from the main road, this should be						
	located within existing open areas in the secondary thicket.						
	<ul> <li>Exclude development from areas of indigenous natural vegetation, in this case, the</li> </ul>						
	mesic thicket/forest at the bottom (southern side) of the site.						
	<ul> <li>Consult with the local fire protection agency regarding whether to implement a</li> </ul>						
	management plan for the site. Note that the natural vegetation occurring on						
	the probable natural vegetation in previously cultivated areas on site, is NOT f prone. Exclusion of fire will probably lead to promotion of more mesic thic vegetation and exclusion of secondary fynbos, but this is supported by the ecologic						
	_		-				
		ent of the site as likely having his	•				
		o areas of VERY HIGH sensitivity of	•	• • • • • • • • • • • • • • • • • • • •			
	any construction personnel (mapped as "Mesic thicket/forest, and as "VERY HIGH").						
		eas must be fenced off and no					
		and implement an alien manag					
	and are	as and provides a programme fo	or long-term c				
Assessment		Without mitigation		With mitigation			
Nature	Negative	I	Negative	T			
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,			
Evtoni	Limited	or in excess of 20 years	Limitad	or in excess of 20 years Limited to the site and its			
Extent	Limited	Limited to the site and	Limited	immediate surroundings			
Intensity	High	surrounding wider landscape Natural and/ or social	Medium	Natural and/or social			
iniciony	111911	functions and/ or processes	MEGIUITI	functions and/or processes			
		are significantly altered		are notably altered			
Probability	Probable	It is most likely that the	Probable	It is most likely that the			
. rozability		impact will occur	. 1050510	impact will occur			
		,p a o o o o o i	J				

Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Irreversible	the impact is irreversible, and no mitigation measures exist	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures
Resource irreplaceability	Medium	The resource is damaged irreparably but is represented elsewhere	Medium	The resource is damaged irreparably but is represented elsewhere
Significance	٨	Medium negative (-)		Low negative (-)
Comment on significance	Damage to this area of thicket (in combination with the existing powerline servitude) could potentially affect the connectivity of the entire landscape, as well as buffer areas associated with the Garden Route National Park. The potential impact affects a small proportion of the vegetation but could have wider ecological implications.			
	Note that if any impact did occur, then the probability would be definite and the significance of the impact would then be HIGH. The most important mitigation is therefore to minimise the possibility of the risk occurring			
Cumulative impacts	The impact could result in cumulative effects in the wider landscape.			

Project Phase	Construction				
Impact		Loss of individuals of protected tree species			
Description of	Loss of a	Loss of a small number of small individuals of protected tree species found on site.			
impact					
Mitigable	High				
Potential	❖ Do not d	<ul> <li>Do not disturb natural woodland where there is a continuous canopy of forest trees,</li> </ul>			
mitigation	and pro	tect forest margin areas so that	forest interior	s maintain existing microhabitat	
	conditio	ns and structural integrity.			
	♦ If any tre	es need to be removed or prune	ed then a per	mit is required, according to the	
		Forests Act.		3 3 4 3 3 4 3 3 3 3 3 3 3	
		sary, plant additional milkwood	ds in the dev	velonment as part of the final	
				her appropriate coastal forest	
		species, but the proportions and composition should reflect habitat that would have			
	occurred naturally at this site.				
Assessment		Without mitigation	With mitigation		
Nature	Negative	Г	Low negati		
Duration	Permanent	Impact may be permanent,	Medium	Impact will last between 2	
		or in excess of 20 years	Term	and 15 years	
Extent	Very	Extending only as far as the	Very	Extending only as far as the	
	limited	development site area	limited	development site area	
Intensity	Low	Natural and/or social	Very low	Natural and/or social	
		functions and/or processes		functions and/or processes	
Door book 1995 o	Due le ede le	are somewhat altered	Danilala	are slightly altered	
Probability	Probable	It is most likely that the	Possible	Has occurred here or	
		impact will occur		elsewhere and could	
Confidence	Medium	Determination is based on	Medium	therefore occur  Determination is based on	
Confidence	Medium		Medium		
		common sense and general knowledge		common sense and general knowledge	
Reversibility	High	The affected environmental	High	The affected environmental	
Kevelainiiii	1 11911	will be able to recover from	riigii	will be able to recover from	
		the impact		the impact	
				I inc impact	

Resource	Low	The resource is not damaged	Low	The resource is not
irreplaceability		irreparably or is not scarce		damaged irreparably or is
				not scarce
Significance		Low negative (-)		Negligible
Comment on	Currently, or	nly a small number of small indiv	iduals of prote	ected tree species were found
significance	on site. Thes	e have introduced through natu	ıral processes	relatively recently, i.e. through
		pagation. They were only found		
		juveniles. Nevertheless, they are protected under national legislation and must therefore		
	*	be protected or be dealt with appropriately.		
	De profecte	De profected of be dealt with appropriately.		
	The potential impact affects a very small proportion of the overall known population of			
	the species,	the species, and the proportion affected of those occurring on site is also smaller.		
Cumulative	The impact	would result in insignificant cumu	lative effects	
impacts				

Construction

Impact		Loss of habitat for flagged animal species			
Description of				t is suspected habitat for flagged	
impact	animal spec	cies. This includes all natural th	nicket habitat d	on site, none of which is within the	
				bly be affected by the proposed	
	developme		, ,	, , , , , , , , , , , , , , , , , , , ,	
Mitigable	Medium	Mitigation exists and will re	duca rianificar	acc of impacts	
Potential				•	
mitigation		Keep all proposed infrastructure away from the mesic thicket/forest areas. In all areas			
	close to	the mesic thicket, rehabilita	tion of disturbe	ed areas after construction should	
	promote	e natural successional proces	ses that current	ly drive the secondary vegetation	
	towards	thicket development.			
	Access	to forested areas durina	construction r	must not be permitted by any	
				d off and no access allowed.	
		•		continuous canopy of forest trees,	
				. ,	
	-	and protect forest margin areas so that forest interiors maintain existing microhabitat			
		conditions and structural integrity.			
	Where p	❖ Where possible, retain well-developed thicket patches within the upper parts of the			
	site. The	se have a high diversity of w	oody plant spe	ecies, including several that occur	
	within ex	within existing mesic thicket.			
Assessment	\	Without mitigation		With mitigation	
Nature	Negative		Negative	<b>y</b> : -	
Duration	Permanent	Impact may be	Permanent	Impact may be permanent, or	
		permanent, or in excess		in excess of 20 years	
		of 20 years		,	
Extent	Limited	Limited to the site and its	Very limited	Extending only as far as the	
		immediate surroundings	,	development site area	
Intensity	Low	Natural and/or social	Very low	Natural and/or social functions	
,		functions and/or		and/or processes are slightly	
		processes are somewhat		altered	
		altered			
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
		elsewhere and could		extreme circumstances, and/or	
		therefore occur		might occur for this project	
				although this has rarely been	
				known to result elsewhere	
Confidence	Medium	Determination is based	Medium	Determination is based on	
		on common sense and		common sense and general	
		general knowledge		knowledge	
DO Boy 1252 Sado	ofield CE72			www ecoroute co 72	

Project Phase

Reversibility	Irreversible	the impact is irreversible, and no mitigation measures exist	Irreversible	the impact is irreversible, and no mitigation measures exist
Resource irreplaceability	Medium	the resource is damaged irreparably but is represented elsewhere	Medium	the resource is damaged irreparably but is represented elsewhere
Significance	Low negative (-) Negligible			Negligible
Comment on	The potentia	The potential impact affects a small proportion of the overall habitat available for these		
significance	species and	will possibly not directly affect	ct any individu	uals. Nevertheless, the threatened
	status of ma	ny species is due significantl	y to overall los	ss of habitat, which is reflected in
	the threaten	ed status of the species. Add	ditional loss of I	habitat, however small, continues
	to drive eco	to drive ecosystems towards new thresholds of loss. More importantly at the current		
	location, the mesic thicket habitat is part of a wider network of habitat and loss of the			
	habitat on site could break migration routes and habitat connectivity.			
Cumulative impacts	The potentic wildlife.	The potential impact affects a negligible proportion of the overall habitat available for		

Project Phase		Cor	nstruction		
Impact		Disturbance to fauna a	nd fragmentat	ion of habitats	
Description of	Cut-off of n	atural dispersal and foragi	ng movement	by animals, fragmentation of	
impact	ecological in	frastructure, secondary impo	icts to wildlife s	such as noise and lighting.	
Mitigable	Medium	Mitigation exists and will not	ably reduce si	gnificance of impacts	
Potential	Where fe	ncing is required, wildlife ga	ps in the perin	neter fence must be installed at	
mitigation	appropri	ate intervals and be of a sui	table dimensic	on to allow for the movement of	
	small anii	mals.			
		in should be delicated at the should be removed, the			
			ted to advise	e on how the species can be	
	relocated				
				rcated to prevent the movement	
			unding enviror	nments, barrier tape must be put	
	up to enf				
				ig the evenings and at night to	
		minimise all possible disturbances to nocturnal species which are more dependent on			
	,	auditory signals for life processes.  No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put			
		orce this. Monitoring must tak			
				minimise impacts on fauna. All	
				sensitive areas. Fluorescent and	
				sodium vapor (green/red) lights	
		e used wherever possible.		(9	
		•	dua in a progr	ressive manner and shouldn't be	
				overnight they must be properly	
	covered temporarily to ensure that no small fauna species fall in. Holes must be				
	subseque	ently inspected for fauna prio	r to backfilling.	•	
Assessment	W	lithout mitigation		With mitigation	
Nature	Negative		Low negative		
Duration	Permanent	Impact may be	Permanent	Impact may be permanent, or	
		permanent, or in excess of		in excess of 20 years	
		20 years			
Extent	Limited	Limited to the site and its	Limited	Limited to the site and its	
		immediate surroundings		immediate surroundings	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
		functions and/or		functions and/ or processes	
		processes are slightly		are negligibly altered	
		altered	<u> </u>		

Probability	Probable	It is most likely that the impact will occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce	
Significance		Low negative (-)		Negligible	
Comment on significance	potentially of associated v	Damage to areas of thicket (in combination with the existing powerline servitude) could potentially affect the connectivity of the entire landscape, as well as buffer areas associated with the Garden Route National Park. The potential impact affects a small proportion of the vegetation but could have wider ecological implications.			
Cumulative impacts	The potentic wildlife.	he potential impact affects a negligible proportion of the overall habitat available for			

Project Phase		Cons	truction		
Impact	Waste Pollution				
Description of	Pollutio	Pollution of buffer zone and natural areas caused by waste generated by the construction process.			
impact	1.15 - 1-		•		
Mitigable Potential	High ❖ Waste m	Mitigation exists and will cons		e must be collected and stored	
mitigation	effective Tempore Dangere moved of burned of Separation Litter, spi minimise Cement closed s immedia removed Toilets at toilets mi must be removed	<ul> <li>Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled.</li> <li>Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.</li> <li>Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.</li> </ul>			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negativ		
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year	
Extent	Very Limited	Extending only as far as the development site area	Very Limited	Extending only as far as the development site area	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Low	Natural and/or social functions and/or processes are slightly altered	

Probability	Possible	Has occurred here or elsewhere and could therefore occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource	Negligible	No loss of resources	Negligible	No loss of resources
irreplaceability				
Significance	Negligible Negligible			Negligible
Comment on	Construction activities are likely to generate significant quantities of solid waste that could			
significance	pollute the b	pollute the buffer zone and natural areas.		
Cumulative	The impact v	The impact would result in insignificant cumulative effects.		
impacts				

Project Phase		Cor	nstruction			
Impact		Construc	tion Vehicles			
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.					
Mitigable	High	High Mitigation exists and will considerably reduce significance of impacts				
Potential	<ul> <li>Construct</li> </ul>	Construction activities must be confined to clearly demarcated areas so as to prevent				
mitigation		unnecessary disturbance the surrounding environment.				
		es are to park or operate wit				
		•		oust be checked for oil and fuel		
	,	v. No machinery or vehicles v	•			
				for the servicing or parking of ervious bases and should have		
				tank capacity) to contain any		
		•		n any natural drainage areas or		
		al flow paths and must be lo		,		
	fuel or oil spills are clean-up and discarded correctly.					
Assessment		thout mitigation		With mitigation		
Nature	Negative		Low negative			
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year		
Extent	Very Limited	Extending only as far as	Very Limited	Extending only as far as the		
		the development site		development site area		
lada a sib .	Lave	area	NI a suli avila I a	Night wall and all are a sign		
Intensity	Low	Natural and/or social functions and/or	Negligible	Natural and/ or social functions and/ or processes		
		processes are slightly		are negligibly altered		
		altered		are riegilgibly affered		
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in		
		elsewhere and could		extreme circumstances,		
		therefore occur		and/or might occur for this		
				project although this has rarely		
				been known to result		
Confidence	Medium	Determination is based	Medium	elsewhere  Determination is based on		
Comidence	MEGIUITI	on common sense and	MEGIUITI	common sense and general		
		general knowledge		knowledge		
	l	I gonoral knombago	l	14.10.11.10490		

Reversibility	Completely reversible	the impact can be reversed with the implementation of minor	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
		mitigation measures.		
Resource	Negligible	No loss of resources	Negligible	No loss of resources
irreplaceability				
Significance		Negligible		Negligible
Comment on	Operation of vehicles could result in spillages or leaks of hydrocarbons (fuel and oil) and			
significance	could lead to unnecessary disturbance of natural areas.			
Cumulative	The impact would result in insignificant cumulative effects.			
impacts		-		

Project Phase	Construction				
Impact		Erosion Mo	ınagement		
Description of	Poter	Potential erosion during clearance of the site and increased stormwater runoff			
impact					
Mitigable		igation exists and will considerably			
Potential		that construction activities do not		ferential flow paths and	
mitigation		ntrated surface runoff during rainf			
		demarcate the construction area			
		mpact soil or disturb vegetation o e transport of sediment through us			
		gradable coir logs placed along a			
		that vegetation clearing is condu			
		ss to minimise erosion and runoff.	, , , , , , , , , , , , , , , , , , ,		
		etate exposed areas once constru	uction has been	completed.	
		that stormwater and runoff gener	•	_	
		on areas (i.e. swales or retention p	onds), to avoid	concentrated runoff and	
	associa	associated erosion.			
Assessment	Negative	Without mitigation		With mitigation	
Nature Duration	Negative Short	Impact will last between 1 and	Low Negative Brief	Impact will not last longer	
Duranon	term	2 years	DIEI	than 1 year	
Extent	Limited	Limited to the site and its	Very Limited	Extending only as far as	
		immediate surroundings	l vory Emilion	the development site area	
Intensity	Low	Natural and/or social functions	Negligible	Natural and/ or social	
		and/or processes are slightly		functions and/ or	
		altered		processes are negligibly	
				altered	
Probability	Probable	It is most likely that the impact	Possible	Has occurred here or	
		will occur		elsewhere and could	
Confidence	Medium	Determination is based on	Medium	therefore occur  Determination is based on	
Comidence	Mediom	common sense and general	Medioiti	common sense and	
		knowledge		general knowledge	
Reversibility	Partly	the impact is reversible but	Completely	the impact can be	
,	reversible	more intense mitigation	reversible	reversed with the	
		measures are required		implementation of minor	
				mitigation measures.	
Resource	Low	Marginal loss, the resource is	Negligible	No loss of resources	
irreplaceability		not damaged irreparably or is			
Significance		not scarce Low negative (-)		Negligible Negligible	
Comment on	Steen slon	es on the property will be vulneral	nle to erosion du	* *	
significance		onstruction phase. It is therefore im		-	
J.g.iourice		are implemented.	.ponam mar ap		
		yererreeneen			

Cumulative	Without mitigation this impact could result in potential erosion on site caused by
impacts	stormwater.

Project Phase		Constru	uction		
Impact	Disturbance / removal of topsoil				
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil				
Mitigable	High Mitig	High Mitigation exists and will considerably reduce the significance of impacts			
Potential					
mitigation	<ul> <li>Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth.</li> <li>Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes.</li> <li>The stockpiling of topsoil for use in rehabilitation is required.</li> <li>Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.</li> <li>Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.</li> <li>The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be</li> </ul>				
	utilised f	or this purpose if it is without seed			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very Limited	Extending only as far as the development site area	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable	It is most likely that the impact will occur	Possible	Has occurred here or elsewhere and could therefore occur	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Negligible	No loss of resources	
Significance		Low negative (-)		Negligible	
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			incorrect storage. This is not ures in place. Topsoil can be	
Cumulative		gation this impact could result in	potential erosi	ion on the site caused by	
impacts	stormwater flow.				

Project Phase	Construction
Impact	Noise pollution

Description of impact	Noise caused by machinery and staff			
Mitigable	Low	Mitigation does not exist; or miti of impacts		
Potential mitigation	07:00-17:	<ul> <li>Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.</li> <li>Machinery may be fitted with silences to dampen noise.</li> </ul>		
Assessment		Without mitigation		lith mitigation
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Negligible	The impact will have negligible effects and would require little or no mitigation	Negligible	The impact will have negligible effects and would require little or no mitigation
Probability	Probable	It is most likely that the impact will occur	Probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource	Not		Not relevant	
irreplaceability	relevant			
Significance		Low negative (-)		Negligible
Comment on		of noise pollution during construc	ction is expected	t; however, with mitigation
significance		vill be reduced.		
Cumulative impacts	No cumulativ	ve impacts exist.		

Project Phase		Construction
Impact		Visual impact
Description of	\	isual & aesthetic consequences of the proposed project
impact		
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts
Potential	The necessa	ry measures be implemented during the construction phase to protect
mitigation	the natural v	egetation, to control the noise, dust and visual intrusion.
	The potentia	I visual impacts and proposed mitigation thereof must be undertaken by
	a profession	ally registered landscape architect that must be part of the design team
	(including er	ngineers and architects). The brief of the landscape architect (LA) must
	include:	
	o The LA	must consult with both engineers and architects to ensure that sensitive
	earthw	ork and building design development occurs, which will allow for
	reducir	ng the construction and operation phase visual impacts.
	o The LA	must work with the project surveyor, arborist and planners in establishing
	which t	rees are to remain on site for visual screening and taking this information
	into the	e design development of the civil and building works.
	o The LA	must prepare a landscape plan, design development thereof and
		ring implementation and thereafter maintenance. The plan must include
		e survey and what trees are, what indigenous vegetation is, to be
	retaine	d, what is to be removed, the planting of indigenous trees, new trees and

	shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development.			
Assessment		hout mitigation	VIII 111	With mitigation
Nature	Negative		Negative	
Duration	Short term	Impact will last between 1 and 2 years	Short term	Impact will last between 1 and 2 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Possible	Has occurred here or elsewhere and could therefore occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Partly reversible	the impact is reversible but more intense mitigation measures are required	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource irreplaceability	Not relevant		Not relevant	
Significance				Negligible
Comment on significance	The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and compliment the ambience of the surrounding area.			
Cumulative impacts	No cumulative ir	No cumulative impacts exist.		

Project Phase		Constr	ruction	
Impact	Employment			
Description of	Empowerme	nt of the local community men	nbers living in the	e area relating to temporary
impact		employment	opportunities	
Mitigable	Medium	Mitigation only exists to ensure	e that the positiv	e impact is followed
		through.		
Potential	Use existi	ing social structures and co	ommunication	channels to ensure social
mitigation	represent			
		labour and source local materi		
Assessment		Nithout mitigation		With mitigation
Nature	Negative		Positive	_
Duration	Short term	Impact will last between 1	Short term	Impact will last between 1
		and 2 years		and 2 years
Extent	Local	Extending across the site	Local	Extending across the site
		and to nearby settlements		and to nearby settlements
Intensity	Low	Natural and/or social	Low	Natural and/or social
		functions and/or processes		functions and/or
		are slightly altered		processes are slightly
				altered
Probability	Improbable	Conceivable, but only in	Definite	There are sound scientific
		extreme circumstances,		reasons to expect that the
		and/or might occur for this		impact will occur
		project although this has		
		rarely been known to result		
		elsewhere		

Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Not relevant		Not relevant	
Resource	Not relevant		Not relevant	
irreplaceability				
Significance		Negligible	L	ow positive (+)
Comment on		oposed development being or		
significance	impacts betw	impacts between without mitigation and with mitigation. However, as the impact would		
	be positive for the local community to be employed during construction, mitigation is			
	recommended to ensure this occurs.			
Cumulative	Minor upliftme	ent for the local community.		
impacts				

# Impacts foreseen during the Operational Phase for the Alternative A (Preferred Alternative) and Alternative B:

Impact         Visual / Sense of place           Description of impact         Visual impacts of structures / aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting           Mitigable         Medium         Mitigation exists and will notably reduce significance of impacts           Potential         ❖ Municipal by-laws need to be adhered to.	<del>)</del>
impactlighting, especially outdoor lightingMitigableMediumMitigation exists and will notably reduce significance of impacts	)
Mitigable Medium Mitigation exists and will notably reduce significance of impacts	
Potential  Municipal by-laws need to be adhered to	
• Monicipal by laws nood to be deficied to.	
mitigation ❖ Re-vegetation and Landscaping of open space areas with suitable indigen	OUS
vegetation.	
Systematic removal and follow-up operations of invasive alien plants.	
❖ Adhere to the Landscape Plan.	
Outside lighting should be designed and limited to minimise impacts on fauna.	
outside lighting should be directed away from any sensitive areas. Fluorescent c	
mercury vapor lighting should be avoided, and sodium vapor (green/red) lig	ghts
should be used wherever possible	
Assessment Without mitigation With mitigation	
Nature Negative Negative Low	
Duration         Permanent         Impact may be         Medium         Impact will last between	2
permanent, or in excess Term and 15 years	
of 20 years	
<b>Extent</b> Local Extending across the site Local Extending across the site	
and to nearby settlements and to nearby settlemen	ts
Intensity Low Natural and/or social Negligible Natural and/or social	
functions and/or functions and/ or process	ses
processes are slightly are negligibly altered	
altered Consider the first test and the second state of the second st	
Probability Probable It is most likely that the Improbable Conceivable, but only in	
impact will occur extreme circumstances, and/or might occur for the	oic.
project although this has	115
rarely been known to resi	ı ıl+
elsewhere	OII
Confidence Medium Determination is based on Medium Determination is based o	n
common sense and common sense and	
general knowledge general knowledge	
Reversibility Partly reversible the impact is reversible Completely the impact can be	
but more intense reversible reversed with the	
mitigation measures are implementation of minor	
required mitigation measures.	
Resource Not relevant Not	
irreplaceability relevant	
Significance Low negative (-) Negligible	
Comment on Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of secu	ırity
significance to property owners. Therefore, outdoor lighting is essential, but should be implemented	
a way which does not cause negative impacts to neighbours.	
Cumulative Without mitigation the development would not be meeting design guidelines enforce	d
impacts by the municipality. Specifically design guidelines for the local area.	

Project Phase	Operation
Impact	Stormwater Management
Description of	Accelerated erosion / pollution into sub-surface water.
impact	
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts

#### **Potential** A sustainable stormwater design must be implemented to prevent excessive run-off that mitigation will lead to erosion of the surrounding landscape. Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, inter alia, should be considered: Rainwater harvesting tanks must be installed; Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site; Use of permeable paving to encourage infiltration into the soil; and Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site. Without mitigation With mitigation Assessment Nature Negative Low Negative Duration Short term Impact will last Brief Impact will not last longer than 1 year between 1 and 2 years Limited to the site and Extending only as far as the Extent Limited Very Limited its immediate development site area surroundings Intensity Natural and/or social Natural and/or social Low Negligible functions and/or functions and/ or processes processes are slightly are negligibly altered altered Probability Probable It is most likely that the Conceivable, but only in Improbable impact will occur extreme circumstances. and/or might occur for this project although this has rarely been known to result elsewhere Confidence Medium Determination is based Medium Determination is based on on common sense and common sense and general general knowledge knowledge Reversibility Completely Partly the impact is reversible the impact can be reversed but more intense reversible reversible with the implementation of mitigation measures are minor mitiaation measures. required The resource is not The resource is not Resource Low Low irreplaceability damaged irreparably damaged irreparably or is

	or is not scarce	not scarce
Significance	Low negative (-)	Negligible
Comment on significance	stormwater associated with an increased and other infrastructure). Stormwater is typ volumes (and associated high energy) cau the erosion of the bed and banks. In this res	opments is the generation of large volumes of area of impermeable surfaces (i.e. roads, roofs sically conveyed into watercourses, where high use degradation of watercourses, mainly due to expect given the steep slopes within the property, and outside of the development footprint, it is
Cumulative	Without mitigation this impact could result i	
impacts	stormwater flow.	

Project Phase		Operation
Impact		Eradication of Alien Vegetation
Description of		Impacts on biodiversity / natural habitats / increased fire risk
impact		
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts

Potential mitigation	*	All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.
	*	Rehabilitation of disturbed areas, as well as previously invaded areas, should promote
		establishment of site-appropriate indigenous species.
	*	An Alien Control Plan should be implemented to systematically remove and control alien plant species.
	*	Follow-up operations must be done.
	*	Minimise disturbance to the natural vegetation using low impact manual labour techniques.
	**	Reduce fire hazard on site

Assessment		Without mitigation		With mitigation
Nature	Negative		Positive	<u> </u>
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource irreplaceability	Not relevant		Not relevant	
Significance	Medium negative (-)  Medium positive (+)			
Comment on	An approved AIP Control Plan is in place, and much of the property has already been legally			
significance	eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts		gation this impact could result in us vegetation.	the spread of o	alien invasive plants and the loss

Project Phase		Operation				
Impact	Landscaping					
Description of	Habitat I	oss for terrestrial wildlife, fro	agmentation of	ecological corridor		
impact						
Mitigable	Low	Mitigation will slightly redu	uce the signific	ance of impacts		
Potential	The Landscape	Plan must be implemented	d and adhered	l to.		
mitigation	Areas that are r	not required for developme	ent purposes sh	ould remain natural with		
	indigenous veg	etation.				
	<ul> <li>All alien invasive</li> </ul>	❖ All alien invasive plants must be removed from the site on an on-going basis.				
	❖ All landscaping must comprise of flora species indigenous to the region. The sole use of					
	exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.					
Assessment	Without mitigation With mitigation			With mitigation		
Nature	Negative		Positive			
Duration	Brief	Impact will not last	Permanent	Impact may be permanent,		
		longer than 1 year		or in excess of 20 years		
Extent	Limited	Limited to the site and	Very Limited	Extending only as far as the		
		its immediate		development site area		
		surroundings				

Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Definite	There are sound scientific reasons to expect that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	Negligible Low positive (+)			
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

## Impacts foreseen during the Construction Phase for Alternative C:

Project Phase	Construction				
Impact		Loss of natural fynbos vegetation			
Description of		Loss of fynbos vegetation, and I	habitat loss fo	r terrestrial wildlife.	
impact					
Mitigable	High Mitigation exists and will notably reduce significance of impacts				
Potential	Exclude development from areas of indigenous natural vegetation, in this case, the				
mitigation		icket/forest at the bottom (south			
		proposal indicates a lapa within this zone, which should be excluded from the			
		ment plan.			
		with the local fire protection age		-	
	_	ement plan for the site. Note that			
	the prob	pable natural vegetation in pre	viously cultivo	ated areas on site, is NOT fire-	
	prone. E	Exclusion of fire will probably l	lead to prom	notion of more mesic thicket	
	vegetati	on and exclusion of secondary fy	ynbos, but this	is supported by the ecological	
	assessme	ent of the site as likely having hist	torically been	mesic thicket.	
	<ul><li>Compile</li></ul>	and implement an alien manag	ement plan, v	vhich highlights control priorities	
	· ·	as and provides a programme fo	· · · · · · · · · · · · · · · · · · ·		
Assessment		Without mitigation		With mitigation	
Nature	Negative	<b>3</b>	Low negativ		
Duration	Permanent	Impact may be permanent,	Permanent	Impact may be permanent,	
		or in excess of 20 years		or in excess of 20 years	
Extent	Very	Extending only as far as the	Very	Extending only as far as the	
	limited	development site area	limited	development site area	
Intensity	Medium	Natural and/or social	Low	Natural and/or social	
		functions and/or processes		functions and/or processes	
		are notably altered		are somewhat altered	
Probability	Certain /	There are sound scientific	Certain /	There are sound scientific	
	Definite	reasons to expect that the	Definite	reasons to expect that the	
Confidence	High	impact will definitely occur	High	impact will definitely occur	
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the	
		CAISIS TO VEHILY THE CISSESSITICITY		assessment	
Reversibility	Medium	The affected environment will	High	The affected environmental	
,	7410 010111	only recover from the impact	19	will be able to recover from	
		with significant intervention		the impact	
Resource	Low	The resource is not damaged	Low	The resource is not	
irreplaceability		irreparably or is not scarce		damaged irreparably or is	
				not scarce	
Significance		Medium negative (-)		Low negative (-)	
Comment on		ion on site (within the proposed			
significance		or condition and consists of seco			
		presentative of the natural habi			
		ural mesic thicket or low forest th	nat is in a goo	a natural condition. The lapa is	
Cumpulariti	proposed in		ulativa affaat		
Cumulative	ine impacty	would result in insignificant cumu	native effects		
impacts					

Project Phase		Construction		
Impact		Loss of natural mesic thicket/forest vegetation		
Description of	Loss c	Loss of mesic thicket/forest vegetation and habitat loss for terrestrial wildlife.		
impact				
Mitigable	Medium	Mitigation exists and may reduce significance of impacts		

## Potential mitigation

- Strictly control any possible erosion from upslope areas. There should be no erosion or runoff effects on the mesic thicket/forest areas.
- Undertake regular monitoring to detect erosion or other degrading impacts early so that they can be controlled.
- Where possible, retain well-developed thicket patches within the upper parts of the site. These have a high diversity of woody plant species, including several that occur within existing mesic thicket.
- Once construction is complete, rehabilitate previously disturbed areas to a state where natural successional processes can operate. Based on current processes occurring on site, this is very likely to lead to further thicket development within these areas.
- Future garden development on site should use only site-appropriate indigenous species. It is recommended that thicket species that currently occur on site be used for future gardens. This will result in mostly thicket-type vegetation developing, but this should be allowed to the extent that it doesn't compromise any fire-protection considerations.
- Exclude development from areas of indigenous natural vegetation, in this case, the mesic thicket/forest at the bottom (southern side) of the site. The current development proposal indicates a lapa within this zone, which should be excluded from the development plan.
- Consult with the local fire protection agency regarding whether to implement a fire management plan for the site. Note that the natural vegetation occurring on site, and the probable natural vegetation in previously cultivated areas on site, is NOT fire-prone. Exclusion of fire will probably lead to promotion of more mesic thicket vegetation and exclusion of secondary fynbos, but this is supported by the ecological assessment of the site as likely having historically been mesic thicket.
- Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.

Assessment		Without mitigation		With mitigation
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and surrounding wider landscape	Limited	Limited to the site and its immediate surroundings
Intensity	High	Natural and/ or social functions and/ or processes are significantly altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Probable	It is most likely that the impact will occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Irreversible	the impact is irreversible, and no mitigation measures exist	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures
Resource irreplaceability	Medium	the resource is damaged irreparably but is represented elsewhere	Medium	the resource is damaged irreparably but is represented elsewhere
Significance		High negative (-)	N	Medium negative (-)
Comment on significance	Damage to this area of thicket (in combination with the existing powerline servitude) could potentially affect the connectivity of the entire landscape, as well as buffer areas associated with the Garden Route National Park. The potential impact affects a small proportion of the vegetation but could have wider ecological implications.			

PO Box 1252, Sedgefield, 6573

	Note that if any impact did occur, then the probability would be definite and the significance of the impact would then be HIGH. The most important mitigation is therefore to minimise the possibility of the risk occurring
Cumulative impacts	The impact could result in cumulative effects in the wider landscape.

Drain at Phase		Construction			
Project Phase Impact		Loss of individuals of protected tree species			
	l and of a				
Description of impact	Loss of a small number of small individuals of protected tree species found on site.				
Mitigable	High Mitigation exists and will notably reduce significance of impacts				
Potential	❖ Do not disturb natural woodland where there is a continuous canopy of forest trees,				
mitigation	and protect forest margin areas so that forest interiors maintain existing microhabitat				
	conditions and structural integrity.				
		es need to be removed or prune	ed then a nerr	mit is required according to the	
	-	Forests Act.	за птетта реп	Till is required, decorating to the	
			de te die e de	and a second and a second and the second	
		sary, plant additional milkwood		· · · · · · · · · · · · · · · · · · ·	
		oing. These can be planted a	-	· · · · · · · · · · · · · · · · · · ·	
	species,	but the proportions and compo	sition should r	eflect habitat that would have	
	occurred	d naturally at this site.			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negativ	re	
Duration	Permanent	Impact may be permanent,	Medium	Impact will last between 2	
		or in excess of 20 years	Term	and 15 years	
Extent	Very	Extending only as far as the	Very	Extending only as far as the	
	limited	development site area	limited	development site area	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
		functions and/or processes		functions and/ or processes	
		are slightly altered		are negligibly altered	
Probability	Probable	It is most likely that the	Possible	Has occurred here or	
		impact will occur		elsewhere and could	
				therefore occur	
Confidence	High	Substantive supportive data	High	Substantive supportive data	
		exists to verify the assessment		exists to verify the	
				assessment	
Reversibility	High	The affected environmental	High	The affected environmental	
		will be able to recover from		will be able to recover from	
		the impact		the impact	
Resource	Low	The resource is not damaged	Low	The resource is not	
irreplaceability		irreparably or is not scarce		damaged irreparably or is	
				not scarce	
Significance		Low negative (-)		egligible negative (-)	
Comment on		nly a small number of small indiv			
significance		e have introduced through natu			
	natural prop	pagation. They were only found	d within the s	econdary vegetation and are	
	juveniles. Ne	evertheless, they are protected u	under nationa	l legislation and must therefore	
	be protecte	d or be dealt with appropriately	<b>'.</b>		
		,			
	The potential impact affects a very small proportion of the overall known population of				
	· ·	and the proportion affected of	· ·	• •	
O				<del>-</del>	
Cumulative	ine impact	would result in insignificant cumu	native effects		
impacts					

Project Phase	Construction				
Impact		Loss of habitat for		al species	
Description of	Disturbance			t is suspected habitat for flagged	
impact	animal speci	ies. This includes all natural th	nicket habitat o	on site, none of which is within the	
	proposed de	evelopment footprint, but wh	nich may possi	bly be affected by the proposed	
	development.				
Mitigable	Medium	Mitigation exists and will red	duce sianificar	nce of impacts	
Potential				o the proposed development site.	
mitigation			•	sic thicket/forest areas. In all areas	
				ed areas after construction should	
				tly drive the secondary vegetation	
	-	thicket development.		, , , , , , , , , , , , , , , , , , , ,	
		·	construction r	must not be permitted by any	
		_		d off and no access allowed.	
		•		continuous canopy of forest trees,	
				ors maintain existing microhabitat	
	-	ns and structural integrity.			
			ed thicket nata	ches within the upper parts of the	
		·	•	ecies, including several that occur	
		isting mesic thicket.	body plant spe	cies, incloding several man occur	
Assessment		/ithout mitigation		With mitigation	
Nature	Negative	milooi miligalion	Negative	Williamigation	
Duration	Permanent	Impact may be	Permanent	Impact may be permanent, or	
		permanent, or in excess		in excess of 20 years	
		of 20 years		,	
Extent	Limited	Limited to the site and its	Very limited	Extending only as far as the	
		immediate surroundings		development site area	
Intensity	Low	Natural and/or social	Negligible	Natural and/or social functions	
		functions and/or processes are slightly		and/ or processes are negligibly altered	
		altered		difered	
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
,		elsewhere and could	, , , , , , ,	extreme circumstances, and/or	
		therefore occur		might occur for this project	
				although this has rarely been	
				known to result elsewhere	
Confidence	Medium	Determination is based	Medium	Determination is based on	
		on common sense and general knowledge		common sense and general knowledge	
Reversibility	Irreversible	the impact is irreversible,	Irreversible	the impact is irreversible, and	
,		and no mitigation		no mitigation measures exist	
		measures exist		-	
Resource	Medium	the resource is damaged	Medium	the resource is damaged	
irreplaceability		irreparably but is		irreparably but is represented	
		represented		elsewhere	
Significance		elsewhere		logligible peggive ( )	
Significance		.ow negative (-)		legligible negative (-)	
Comment on significance	=			overall habitat available for these	
Jigimicance	-			uals. Nevertheless, the threatened	
		• •	•	ss of habitat, which is reflected in	
				habitat, however small, continues	
				More importantly at the current	
		-		etwork of habitat and loss of the	
	nabitat on si	te could break migration rou	ites and habito	at connectivity.	

Cumulative	The potential impact affects a negligible proportion of the overall habitat available for
impacts	wildlife.

Project Phase		Con	struction	
Impact		Disturbance to fauna an		
Description of			-	by animals, fragmentation of
impact		nfrastructure, secondary impac		
Mitigable	Medium Mitigation exists and will notably reduce significance of impacts			
Potential mitigation	<ul> <li>Where fencing is required, wildlife gaps in the perimeter fence must be installed at appropriate intervals and be of a suitable dimension to allow for the movement of small animals.</li> <li>In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated.</li> <li>The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put up to enforce this.</li> <li>Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal species which are more dependent on auditory signals for life processes.</li> <li>No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard.</li> <li>Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.</li> <li>Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly</li> </ul>			
		ently inspected for fauna prior	to backfilling.	
Assessment		Vithout mitigation		With mitigation
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Low	Natural and/or social functions and/or processes are slightly altered
Probability	Probable	It is most likely that the impact will occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance		Low negative (-)		Low negative (-)

Comment on significance	Damage to areas of thicket (in combination with the existing powerline servitude) could potentially affect the connectivity of the entire landscape, as well as buffer areas
	associated with the Garden Route National Park. The potential impact affects a small proportion of the vegetation but could have wider ecological implications.
Cumulative	The potential impact affects a negligible proportion of the overall habitat available for
impacts	wildlife.

Project Phase		Const	ruction		
Impact	Waste Pollution				
Description of	Pollution of buffer zone and natural areas caused by waste generated by the				
impact	construction process.				
Mitigable	High	Mitigation exists and will consid	derably reduce	e significance of impacts	
Potential		anagement must be a priority			
mitigation		ly and responsibly. Refuse bins			
		ry storage of domestic waste s		•	
		us waste such as metal wires a			
		off site as soon as possible. Unde	er no circumsto	inces may domestic waste be	
		on site or buried on open pits.			
		on and recycling of different wo			
		ls, fuels, chemical and human w	aste in and ar	ound the Project Area must be	
		d and controlled.			
		mixing may not be performed ide drum or pan type concr			
		tely contained and isolated fr			
		I from site.	om me naior	di environment, before being	
		the recommended Health and	Safety standar	rds must be provided Portable	
		ust be emptied regularly to prev			
		pumped dry to prevent leak			
		I from site.		,	
		registered disposal facility is n	ot available c	close to the Project Area, the	
		tor shall provide a method state			
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low negative	<del></del>	
Duration	Short term	Impact will last between 1	Brief	Impact will not last longer	
		and 2 years		than 1 year	
Extent	Very	Extending only as far as the	Very	Extending only as far as the	
	Limited	development site area	Limited	development site area	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social	
		functions and/or processes		functions and/ or processes	
		are slightly altered		are negligibly altered	
Probability	Possible	Has occurred here or	Improbable	Conceivable, but only in	
		elsewhere and could		extreme circumstances,	
		therefore occur		and/or might occur for this	
				project although this has	
				rarely been known to result	
Confidence	A A o oliv voo	Determination is based on	Medium	elsewhere  Determination is based on	
Confidence	Medium		Medium		
		common sense and general knowledge		common sense and general knowledge	
Reversibility	Completely	the impact can be reversed	Completely	the impact can be reversed	
Reversioning	reversible	with the implementation of	reversible	with the implementation of	
	10 40131010	minor mitigation measures.	10 10131010	minor mitigation measures.	
Resource	Negligible	No loss of resources	Negligible	No loss of resources	
irreplaceability	i rogligibio	1101033 01103001003	i togligible	110 1033 01 103001003	
Significance		Negligible Negligible		Negligible	
Comment on	Construction		sianificant aua		
	Construction activities are likely to generate significant quantities of solid waste that could pollute the buffer zone and natural areas.				
significance					

Cumulative	The impact would result in insignificant cumulative effects.
impacts	

Project Phase	Construction				
Impact	Construction Vehicles				
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.				
Mitigable	High	Mitigation exists and will consid	derably reduce	e significance of impacts	
Potential	<ul><li>Construct</li></ul>	tion activities must be confined			
mitigation	unnecess	sary disturbance the surrounding	g environment		
	<ul> <li>No vehicles are to park or operate within "no-go" areas.</li> <li>Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site.</li> <li>Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones.</li> <li>The contractors used for the project should have spill kits available to ensure that any</li> </ul>				
Assessment		spills are clean-up and discarde Without mitigation		With mitigation	
Nature	Negative		Low negative		
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year	
Extent	Very Limited	Extending only as far as the development site area	Very Limited	Extending only as far as the development site area	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Possible Has occurred here or elsewhere and could therefore occur  Has occurred here or elsewhere and could therefore occur  Improbable Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere				
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability	Negligible	No loss of resources	Negligible	No loss of resources	
Significance		Negligible		Negligible	
Comment on		f vehicles could result in spillage		drocarbons (fuel and oil) and	
significance		o unnecessary disturbance of no			
Cumulative	The impact v	vould result in insignificant cumu	ulative effects.		
impacts					

Project Phase	Construction			
Impact	Erosion Management			
Description of	Potential erosion during clearance of the site and increased stormwater runoff			
impact				
Mitigable	High Mitigation exists and will considerably reduce the significance of impacts			
Potential	Ensure that construction activities do not cause any preferential flow paths and			
mitigation	concentrated surface runoff during rainfall events.			

- Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.
- Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.
- Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.
- \* Revegetate exposed areas once construction has been completed.
- Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.

	associated crosion.				
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very Limited	Extending only as far as the development site area	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable	It is most likely that the impact will occur	Possible	Has occurred here or elsewhere and could therefore occur	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Negligible	No loss of resources	
Significance	Low negative (-) Negligible				
Comment on significance	Steep slopes on the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented.				
Cumulative impacts	Without mitigation this impact could result in potential erosion on site caused by stormwater.				

Project Phase		Construction
Impact		Disturbance / removal of topsoil
Description of		Disturbance of topsoil, potential soil erosion and the loss of topsoil
impact		
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts
Potential	❖ Are	as that are disturbed through building activities (such as the excavations for
mitigation	knc exp Org foo The Stoo simi it m	elines) should be suitably rehabilitated without delay. Failure to do so will have a ock-on effect on biodiversity in the form of an increase in wind erosion, soil posure and a loss of the soil micro-organisms that are essential for plant growth, ganic matter, such as roots and humus/topsoil should be removed from the tprint of structures and stockpiled separately for landscaping purposes. stockpiling of topsoil for use in rehabilitation is required. ckpiles must not exceed 1.5m in height, must be covered with shade cloth or illar, to prevent erosion and any invasive alien species that begin to grow within just be removed. disturbance during the removal of alien invasive plants must be minimised as ch as possible.

	The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be				
		or this purpose if it is without see		geration on site can be	
Assessment		Without mitigation		With mitigation	
Nature	Negative		Low Negative		
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Very Limited	Extending only as far as the development site area	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	
Probability	Probable	It is most likely that the impact will occur	Possible	Has occurred here or elsewhere and could therefore occur	
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge	
Reversibility	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Negligible	No loss of resources	
Significance	Low negative (-) Negligible				
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.				
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.				

Project Phase	Construction				
Impact		Noise p	ollution		
Description of		Noise caused by n	nachinery and stat	ff	
impact		·			
Mitigable	Low	Mitigation does not exist; or mi of impacts	tigation will slightly	reduce the significance	
Potential mitigation	<ul> <li>Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.</li> <li>Machinery may be fitted with silences to dampen noise.</li> <li>Staff must be reminded that they are working within a residential area and noise levels must be kept low.</li> </ul>				
Assessment		Without mitigation	W	ith mitigation	
Nature	Negative		Negative		
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year	
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings	
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	

Probability	Probable	It is most likely that the impact	Probable	It is most likely that the		
		will occur		impact will occur		
Confidence	Medium	Determination is based on	Medium	Determination is based		
		common sense and general knowledge		on common sense and general knowledge		
Reversibility	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.		
Resource	Not		Not relevant			
irreplaceability	relevant					
Significance		Low negative (-) Negligible				
Comment on	Some extent of noise pollution during construction is expected; however, with mitigation					
significance	the impact will be reduced.					
Cumulative	No cumulative impacts exist.					
impacts						

Project Phase		Со	nstruction		
Impact			ual impact		
Description of	Visual & aesthetic consequences of the proposed project				
impact	)	There is the left of			
Mitigable	Medium	Mitigation exists and will notal			
Potential		•	•	ne construction phase to protect	
mitigation		itural vegetation, to control the			
				on thereof must be undertaken by the must be part of the design team	
	(includ	,	The brief of the	ne landscape architect (LA) must	
			naineers and	architects to ensure that sensitive	
	(	earthwork and building desig	n developme	ent occurs, which will allow for	
		educing the construction and o	•	·	
				borist and planners in establishing eening and taking this information	
	into the design development of the civil and building works.  o The LA must prepare a landscape plan, design development thereof and				
	monitoring implementation and thereafter maintenance. The plan must include				
	the tree survey and what trees are, what indigenous vegetation is, to be				
	retained, what is to be removed, the planting of indigenous trees, new trees and				
	shrub planting along roadways and in open spaces in the built areas and a				
	guideline document for private gardens within the development.				
Assessment		Without mitigation		With mitigation	
Nature	Negative	1	Negative		
Duration	Short	Impact will last between 1	Short term	Impact will last between 1 and	
	term	and 2 years		2 years	
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements	
Intensity	Low	Natural and/or social	Negligible	Natural and/ or social functions	
		functions and/or processes	1,1099.210	and/ or processes are	
		are slightly altered		negligibly altered	
Probability	Definite	There are sound scientific	Possible	Has occurred here or	
		reasons to expect that the		elsewhere and could therefore	
		impact will occur		occur	
Confidence	Medium	Determination is based on	Medium	Determination is based on	
		common sense and general		common sense and general	
		knowledge		knowledge	

Reversibility	Partly	the impact is reversible but	Completely	the impact can be reversed
	reversible	more intense mitigation	reversible	with the implementation of
		measures are required		minor mitigation measures.
Resource	Not		Not relevant	
irreplaceability	relevant			
Significance		Low negative (-) Negligible		Negligible
Comment on	The proposal is sensitive towards the character of the area and attempts to create			area and attempts to create a
significance	unique sense of place that will blend in and compliment the ambience of the surrounding			the ambience of the surrounding
	area.			
Cumulative	No cumulo	ative impacts exist.		
impacts				

Project Phase		Constru	ction			
Impact		Employment				
Description of	Empowerme	nt of the local community memb	ers living in th	ne area relating to temporary		
impact		employment o	pportunities			
Mitigable	Medium	Mitigation only exists to ensure	that the posit	ive impact is followed		
		through.				
Potential		ng social structures and cor	nmunication	channels to ensure social		
mitigation	represent					
		abour and source local material	s as far as po			
Assessment		Without mitigation		With mitigation		
Nature	Negative		Positive			
Duration	Short term	Impact will last between 1	Short term	Impact will last between 1		
		and 2 years		and 2 years		
Extent	Local	Extending across the site and	Local	Extending across the site		
Indoneih e	Love	to nearby settlements	Lave	and to nearby settlements  Natural and/or social		
Intensity	Low	Natural and/or social functions and/or processes	Low	functions and/or processes		
		are slightly altered		are slightly altered		
Probability	Improbable	Conceivable, but only in	Definite	There are sound scientific		
Trobubility	Improbable	extreme circumstances,	Demine	reasons to expect that the		
		and/or might occur for this		impact will occur		
	project although this has					
	rarely been known to result					
		elsewhere				
Confidence	Medium	Determination is based on	Medium	Determination is based on		
		common sense and general		common sense and		
		knowledge		general knowledge		
Reversibility	Not relevant		Not			
			relevant			
Resource	Not relevant		Not			
irreplaceability			relevant			
Significance	Negligible Low positive (+)					
Comment on		oposed development being on o				
significance		een without mitigation and with				
	be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.					
Cumulative		ent for the local community.				
impacts		an for the local commonly.				
impucis						

## Impacts foreseen during the Operational Phase for Alternative C:

Project Phase	Operation			
Impact	Visual / Sense of place			
Description of	Visual impacts of structures / aesthetic consequences due to incorrect or excessive			
impact	lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will not	tably reduce s	ignificance of impacts
Potential	<ul> <li>Municipal by</li> </ul>	-laws need to be adhered to	).	
mitigation	Re-vegetatio	n and Landscaping of op	en space are	eas with suitable indigenous
	vegetation.			
		emoval and follow-up operat	ions of invasive	e alien plants.
		e Landscape Plan.		
				nimise impacts on fauna. All
				nsitive areas. Fluorescent and
	-		ded, and sodi	ium vapor (green/red) lights
		ed wherever possible		14(*))
Assessment		nout mitigation	) I I I	With mitigation
Nature	Negative	Lanca and Lancau Inc.	Negative Lov	
Duration	Permanent	Impact may be	Medium	Impact will last between 2
		permanent, or in excess	Term	and 15 years
Extent	Loopl	of 20 years	Loogl	Futon dia a grana the site
extent	Local	Extending across the site	Local	Extending across the site
Intensity	Low	and to nearby settlements  Natural and/or social	Negligible	and to nearby settlements  Natural and/ or social
intensity	LOW	functions and/or	Negligible	functions and/ or processes
		processes are slightly		are negligibly altered
		altered		die riegligiery direred
Probability	Probable	It is most likely that the	Improbable	Conceivable, but only in
,		impact will occur	'	extreme circumstances,
				and/or might occur for this
				project although this has
				rarely been known to result
				elsewhere
Confidence	Medium	Determination is based on	Medium	Determination is based on
		common sense and		common sense and
		general knowledge		general knowledge
Reversibility	Barely	the impact is unlikely to	Completely	the impact can be
	reversible	be reversed even with	reversible	reversed with the
		intense mitigation		implementation of minor
D	Niskuslavisusk	measures	NI-4	mitigation measures.
Resource	Not relevant		Not	
irreplaceability Significance	Low negative (-) relevant Negligible			Nogligible
Comment on			V gostbatia bi	Negligible
significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security			
significance	to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours.			
Cumulative	Without mitigation the development would not be meeting design guidelines enforced			
impacts				
inipacis	by the municipality. Specifically design guidelines for the local area.			

Project Phase	Operation		
Impact		Stormwater Management	
Description of	Accelerated erosion / pollution into sub-surface water.		
impact			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts	

## Potential mitigation

- A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape.
- Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, inter alia, should be considered:
  - o Rainwater harvesting tanks must be installed;
  - Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;
  - o Use of permeable paving to encourage infiltration into the soil; and
  - Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.

	and prevent its discharge from the site.			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 2 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very Limited	Extending only as far as the development site area
Intensity	Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Probable	It is most likely that the impact will occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource irreplaceability	Low	Marginal loss, the resource is not damaged irreparably or is not scarce	Low	Marginal loss, the resource is not damaged irreparably or is not scarce
Significance		ow negative (-)	Negligible	
Comment on significance	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.			
Cumulative	Without mitigation this impact could result in potential erosion on the site caused by			
impacts	stormwater flow.			

Project Phase	Operation			
Impact	Eradication of Alien Vegetation			
Description of impact	Impacts on biodiversity / natural habitats / increased fire risk			
Mitigable	High Mitigation exists and will considerably reduce significance of impa			nificance of impacts
Potential mitigation	<ul> <li>All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.</li> <li>Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.</li> <li>An Alien Control Plan should be implemented to systematically remove and control alien plant species.</li> <li>Follow-up operations must be done.</li> <li>Minimise disturbance to the natural vegetation using low impact manual labour techniques.</li> <li>Reduce fire hazard on site.</li> </ul>			
Assessment		Without mitigation		With mitigation
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Definite	There are sound scientific reasons to expect that the impact will occur	Improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Barely reversible	the impact is unlikely to be reversed even with intense mitigation measures	Completely reversible	the impact can be reversed with the implementation of minor mitigation measures.
Resource	Not		Not	
irreplaceability	relevant		relevant	
Significance	Medium negative (-)  Medium positive (+)			
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

Project Phase	Operation			
Impact	Landscaping			
Description of	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
impact				
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential	The Landscape Plan must be implemented and adhered to.			
mitigation	Areas that are not required for development purposes should remain natural with indigenous vegetation.			
	❖ All alien invasive plants must be removed from the site on an on-going basis.			
	All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.			
Assessment	Without mitigation		With mitigation	

Nature	Negative		Positive	
Duration	Brief	Impact will not last longer than 1 year	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Very Limited	Extending only as far as the development site area
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Highly unlikely / None	Expected never to happen	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	Negligible			Low positive (+)
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			