



Impact Assessment for Alternatives


Alternative:	Preferred
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Potential impacts on geographical and physical aspects:	
Nature of impact:	Soil compaction as a result of the construction. Please note all buildings are on stilts so this impact is minimal. However, the units, residential dwelling and boardwalk will result in a hard surface than a natural environment.
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Possible erosion from water runoff if not managed properly
Probability of occurrence:	High
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources anticipated
Cumulative impact prior to mitigation:	Storm Water runoff resulting in erosion
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	<p>Typical sustainable drainage systems, often referred to as SuDS, and the associated stormwater infrastructure and management thereof take the following key principles into account:</p> <ul style="list-style-type: none"> Storing runoff and releasing it slowly (attenuation) Harvesting and using the rainwater Allowing water to soak into the ground (infiltration) Slowly transporting (conveying) water on the surface Allowing sediments to settle out by controlling the flow of the water <p>Each of the above and how they are accommodated/included in the proposed stormwater system are discussed below:</p> <p>Storing runoff: This will be achieved in two ways. Firstly, all runoff from the roofs on the development will be harvested and stored in rainwater tanks next to each unit.</p> <p>Secondly, the remaining surface water from grassed areas, parkings, etc. will be discharged into surrounding vegetation.</p> <p>Harvesting and using the rain close to where it falls: As discussed above, all runoff from the roofs will be harvested by collecting and storing in rain water tanks.</p> <p>Some developments also encourage infiltration within the parking areas through the use of permeable paving, etc.</p> <p>Filtering out pollutants: All rainwater from the roofs is to be harvested. This water will be treated on-site prior to use as a potable water. This treatment would remove any pollutants in this water. Water discharging from the remaining surface areas, namely grassed and parking areas, etc., will be discharged onto the vegetation.</p> <p>Any exposed earth must be rehabilitated by planting suitable vegetation to protect the exposed soils;</p> <p>The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas;</p>
Residual impacts	No impact is expected after mitigation measures are set in place to redirect water runoff
Cumulative impact post mitigation:	No impact is expected after mitigation measures are set in place to redirect water runoff
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on biological aspects:	
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Nature of impact:	Disturbance and removal of trees within the natural forest. Loss of vegetation.
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Reduced habitat and ecological corridors impact on fauna and flora
Probability of occurrence:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Loss of fauna and flora due to habitat loss
Cumulative impact prior to mitigation:	Disturbance of natural habitat of birds and small mammals . Loss of ecological corridors
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which impact can be avoided;	Medium
Degree to which impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>Empty pockets within the forest were identified with the assistance of the biodiversity specialist. All units were placed during the planning phase to mitigated disturbance and removal of large trees. The SDP placed all units along the margin of the CBA1 area.</p> <p>All units and the board walk are placed on stilts above the forest floor encouraging vegetation growth and animal movement beneath these structures.</p> <p>It is imperative that impacts on the continuity of ecological processes and corridors be taken into consideration irrespective of the type of land use proposed or envisaged in the region as a whole.</p> <p>An onsite nursery needs to be established and a plant rescue needs to be carried out prior to any construction activities occurring on site.</p> <p>Suitable forest floor vegetation, including tree recruits in the form of nursery-grown or rescued seedlings, from the same undisturbed forest type environment in the vicinity, should be established on the forest floor, especially in the canopy gaps. (This will be augmented by natural seed dispersal processes.)</p>
Residual impacts:	Loss of trees in the forest
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impact on biological aspects:	
Nature of impact:	Positive impact – Installation of a closed sewage treatment plant
Extent and duration of impact:	During the lifespan of the project
Consequence of impact or risk:	Low
Probability of occurrence:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Disturbance of forest floor vegetation
Cumulative impact prior to mitigation:	Pollution of the receiving environment if system is not maintained regularly.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which impact can be avoided;	High
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	The sewage treatment plant must be assembled off-site and installed by the company supplying the product. Service of the treatment plant must occur every six (6) months and must be undertaken by a trained and accredited dealer to ensure the system is operating sufficiently to prevent pollution of the receiving environment due to failure.
Residual impacts:	Loss of forest floor vegetation
Cumulative impact post mitigation:	None

Potential impact on biological aspects:	
Nature of impact:	Impact on forest tree roots using pad foundations
Extent and duration of impact:	During the construction phase
Consequence of impact or risk:	Damaging tree roots of trees not to be removed may have a negative impact on forest trees when installing services, and foundations
Probability of occurrence:	High
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	High
Indirect impacts:	Health and stability of the forest trees can be impacted
Cumulative impact prior to mitigation:	Disturbance of natural forest vegetation not earmarked for removal
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which impact can be avoided:	Medium some damage may occur
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
	<p>To minimize disturbance of tree roots during installing utilities for development alternatives are explored outside of root zone first. If not possible, tunnelling is done by hand. (Figure 1) This method requires patience where care is taken to keep roots intact, and not cut them. Tunnelling is preferably done by hand or smaller hand tools to prevent roots being severed by mechanical equipment. This is done on cooler days, to avoid exposing root during hot, dry weather. Trenches are backfilled with soil as soon as possible to reduce exposure and soaked with water on the same day. If trench is kept open for a longer period, roots are wrapped in hessian until trench is backfilled. If roots need to be cut, no roots larger than 2,5cm are cut.</p> <p>Pad foundations are used instead of strip or raft foundation, to allow for Pad to be moved around tree roots when necessary and reduce the potential impact on the root system. (Figure 12 and 13).</p> <p>No heavy machinery allowed on site, all work to be carried out by hand.</p>
Proposed mitigation:	When installing services this can be done as per the picture below to protect tree roots.
	 <p>Figure 15</p>  <p>Figure 16 Pad foundations</p>

	
	Figure 17 Tree roots were protected by pad foundations.
Residual impacts:	Loss of trees in the forest
Cumulative impact post mitigation:	Loss of trees in the forest
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential noise impacts:	
Nature of impact:	Impacts associated with general building construction noise
Extent and duration of impact:	Only during construction phase
Probability of occurrence:	High
Degree to which the impact can be reversed:	None
Degree to which the impact may cause irreplaceable loss of resources:	None
Degree to which the impact can be avoided:	None
Degree to which impact can be managed:	Only operate during construction hours
Cumulative impact prior to mitigation:	No cumulative impact foreseen
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Construction work and noise generation only allowed during weekday working hours
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impacts on socio-economic aspects:	
Nature of impact:	Creation of temporary employment opportunities through construction
Extent and duration of impact:	Throughout the construction and operational phase of the project
Probability of occurrence:	High
Degree to which the impact can be reversed:	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	N/A
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A

OPERATIONAL PHASE

Potential impact and risk:	
Potential impacts on socio-economic aspects:	
Nature of impact:	Job creation, Increase of revenue in area- Positive Impact. No negative impacts on the socio-economic aspects are foreseen as the proposed construction will create work opportunities during construction and operational phases.
Extent and duration of impact:	During the lifespan of the project

Consequence of impact risk:	No risk. More employment in area.
Probability of occurrence:	High
Degree to which the impact can be reversed:	Not a negative impact on socio-economic aspects
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable
Cumulative impact prior to mitigation:	Not applicable
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Not applicable
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	Not applicable
Proposed mitigation:	Not applicable
Cumulative impact post mitigation:	Not applicable
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Not applicable

Potential noise impacts:	
Nature of impact:	Noise impacts associated with accommodation and tourism
Extent and duration of impact:	During the life Span of the proposed development
Probability of occurrence:	High
Degree to which the impact can be reversed:	None
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	No cumulative impact foreseen
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Notifications for guest to adhere to no noise and loud music after a certain time at night.
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential visual impacts:	
Nature of impact:	Visual impact of development
Extent and duration of impact:	Short term (construction phase) Medium term (operation phase)
Probability of occurrence:	Possible (the impact may occur - between a 25% to 50% chance of occurrence)
Degree to which the impact can be reversed:	Partly reversible
Degree to which the impact may cause irreplaceable loss of resources:	Marginal
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>On-site treatments might include:</p> <ul style="list-style-type: none"> • Visual and ecological planting patterns of indigenous vegetation to achieve landscape patterns that emulate in part existing mixes of tree and grass cover in the surrounding landscape. • Minimising exposure of work areas to sensitive receptors. • Preparing an internal landscape plan for rehabilitation areas. <p>At viewer location treatments include:</p> <ul style="list-style-type: none"> • Landscape design and plantings for affected locations. This will require an appropriately qualified person to visit the affected locations and develop a landscape plan to screen or filter views of the project areas. <p>Design fundamentals are general design principles that can be used for all forms of activity or development, regardless of the resource value being addressed. Applying the following three fundamentals will assist with mitigation measures:</p> <ul style="list-style-type: none"> • Proper siting or location. • Reducing unnecessary disturbance. • Repeating the elements of form, line, colour and texture of the surrounding landscape. <p>Design strategies are more specific activities that can be applied to</p>

	address visual design problems. The following strategies will not necessarily apply to every proposed activity or project: <ul style="list-style-type: none"> • Colour selection • Earthwork • Vegetative manipulation • Structures • Reclamation/Restoration • Linear alignment design considerations
Cumulative impact post mitigation:	Low after mitigation.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-Low

Potential traffic impacts:	
Nature of impact:	<p>Traffic impacts on area and existing roads.</p> <p>Access to the application area is obtained via an access servitude road that runs over Wilderness Erf 2002. These access servitudes are accessed directly off the public road 'Remskoek Street' that runs along the northern boundary of Hoekwil Erf 317. This road is also the access road to the 'The Map of Africa' lookout point.</p>
Extent and duration of impact:	Throughout the lifespan of the project
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	<p>Existing Traffic: The current traffic consists of property owners of neighbouring properties, people accessing Remskoek street and tourists visiting the Map of Africa.</p> <p>The dwelling and 4 accommodation units will not create a substantial increase on traffic and the establishment will not be at full capacity all the time.</p> <p>No mitigation needed.</p>
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A

Alternative:	Alternative 1
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Potential impacts on geographical and physical aspects:	
Nature of impact:	Soil compaction as a result of the construction. Please note all buildings are on stilts so this impact is minimal. However, the units, residential dwelling and boardwalk will result in hard surface in than natural environment.
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Possible erosion from water runoff if not managed properly
Probability of occurrence:	High

Degree to which the impact can be reversed:	High	
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources anticipated	
Cumulative impact prior to mitigation:	Storm Water runoff rustling in erosion	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium	
Degree to which the impact can be avoided:	Medium	
Degree to which impact can be managed:	High	
Degree to which the impact can be mitigated:	High	
Proposed mitigation:	<p>Typical sustainable drainage systems, often referred to as SuDS, and the associated stormwater infrastructure and management thereof take the following key principles into account:</p> <ul style="list-style-type: none"> • Storing runoff and releasing it slowly (attenuation) • Harvesting and using the rainwater • Allowing water to soak into the ground (infiltration) • Slowly transporting (conveying) water on the surface • Allowing sediments to settle out by controlling the flow of the water <p>Each of the above and how they are accommodated/included in the proposed stormwater system are discussed below:</p> <ol style="list-style-type: none"> 3. Storing runoff: This will be achieved in two ways. Firstly, all runoff from the roofs on the development will be harvested and stored in rainwater tanks next to each unit. 4. Secondly, the remaining surface water from grassed areas, parkings, etc. will be discharged into surrounding vegetation. <p>2. Harvesting and using the rain close to where it falls: As discussed above, all runoff from the roofs will be harvested by collecting and storing in rain water tanks. Some developments also encourage infiltration within the parking areas through the use of permeable paving, etc.</p> <p>3. Filtering out pollutants: All rainwater from the roofs is to be harvested. This water will be treated on-site prior to use as a potable</p>	

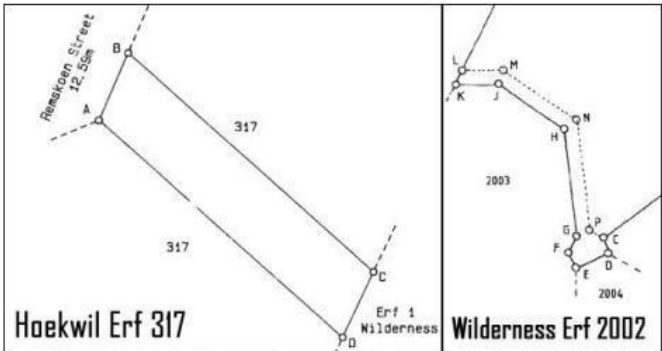
	<p>water. This treatment would remove any pollutants in this water. Water discharging from the remaining surface areas, namely grassed and parking areas, etc., will be discharged onto the vegetation.</p> <ul style="list-style-type: none"> Any exposed earth must be rehabilitated by planting suitable vegetation to protect the exposed soils; The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas;
Residual impacts	No impact is expected after mitigation measures are set in place to redirect water runoff
Cumulative impact post mitigation:	No impact is expected after mitigation measures are set in place to redirect water runoff
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Potential impact on biological aspects:	
Nature of impact:	Disturbance and removal of trees within the natural forest. Loss of vegetation. Five self-catering units will increase the disturbance area
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Reduced habitat and ecological corridors impact on fauna and flora
Probability of occurrence:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Loss of fauna and flora due to habitat loss
Cumulative impact prior to mitigation:	Disturbance of natural habitat of birds and small mammals . Loss of ecological corridors
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which impact can be avoided;	Medium
Degree to which impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>Empty pockets within the forest were identified with the assistance of the biodiversity specialist. All units were placed during the planning phase to mitigated disturbance and removal of large trees. The SDP placed all units along the margin of the CBA1 area.</p> <p>All units and the board walk are placed on stilts above the forest floor encouraging vegetation growth and animal movement beneath these structures.</p> <p>It is imperative that impacts on the continuity of ecological processes and corridors be taken into consideration irrespective of the type of land use proposed or envisaged in the region as a whole.</p> <p>An onsite nursery needs to be established and a plant rescue needs to be carried out prior to any construction activities occurring on site.</p> <p>Suitable forest floor vegetation, including tree recruits in the form of nursery-grown or rescued seedlings, from the same undisturbed forest type environment in the vicinity, should be established on the forest floor, especially in the canopy gaps. (This will be augmented by natural seed dispersal processes.)</p>
Residual impacts:	Loss of trees in the forest
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Potential impact on biological aspects:	
Nature of impact:	Installation of a septic tank
Extent and duration of impact:	During the lifespan of the project

Consequence of impact or risk:	Low
Probability of occurrence:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Disturbance of forest floor vegetation
Cumulative impact prior to mitigation:	Pollution of the receiving environment including possible pollution of the groundwater. Increased services required from municipality and placed into the municipal waste stream
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which impact can be avoided;	High
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	None as it is not sure that the municipality can service the site due to the steep access road.
Residual impacts:	Loss of forest floor vegetation
Cumulative impact post mitigation:	None
Potential impact on biological aspects:	
Nature of impact:	Impact on Forest Tree roots using pillar foundations
Extent and duration of impact:	During the construction phase
Consequence of impact or risk:	Damaging tree roots of trees not to be removed may have a negative impact on forest trees when installing services, and foundations
Probability of occurrence:	High
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	High
Indirect impacts:	Health and stability of the forest trees can be impacted
Cumulative impact prior to mitigation:	Disturbance of natural forest vegetation not earmarked for removal
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which impact can be avoided;	Medium some damage may occur
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	<p>To minimize disturbance of tree roots during installing utilities for development alternatives are explored outside of root zone first. If not possible, tunnelling is done by hand. (Figure 1) This method requires patience where care is taken to keep roots intact, and not cut them. Tunnelling is preferably done by hand or smaller hand tools to prevent roots being severed by mechanical equipment. This is done on cooler days, to avoid exposing root during hot, dry weather. Trenches are backfilled with soil as soon as possible to reduce exposure and soaked with water on the same day. If trench is kept open for a longer period, roots are wrapped in hessian until trench is backfilled. If roots need to be cut, no roots larger than 2,5cm are cut.</p> <p>Pillar foundations are used instead of strip or raft foundation, to allow for pillar to be moved around tree roots when necessary and reduce the potential impact on the root system. (Figure 2 and 3).</p> <p>No heavy machinery allowed on site, all work to be carried out by hand.</p> <p>When installing services this can be done as per the picture below to protect tree roots.</p>

	 <p data-bbox="1086 551 1166 577">Figure 1</p>  <p data-bbox="995 831 1262 857">Figure 2 pillar foundations</p>  <p data-bbox="847 1106 1410 1133">Figure3 Tree roots were protected by pillar foundations</p>
Residual impacts:	Loss of trees in the forest
Cumulative impact post mitigation:	Loss of trees in the forest
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential noise impacts:	
Nature of impact:	Impacts associated with general building construction noise
Extent and duration of impact:	Only during construction phase
Probability of occurrence:	High
Degree to which the impact can be reversed:	None
Degree to which the impact may cause irreplaceable loss of resources:	None
Degree to which the impact can be avoided:	None
Degree to which impact can be managed:	Only operate during construction hours
Cumulative impact prior to mitigation:	No cumulative impact foreseen
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Construction work and noise generation only allowed during weekday working hours
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Potential impacts on socio-economic aspects:	
Nature of impact:	Creation of temporary employment opportunities through construction

Extent and duration of impact:	Throughout the construction and operational phase of the project
Probability of occurrence:	High
Degree to which the impact can be reversed:	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	N/A
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
OPERATIONAL PHASE	
Potential impact and risk:	
Potential impacts on socio-economic aspects:	
Nature of impact:	Job creation, Increase of revenue in area- Positive impact. No negative impacts on the socio-economic aspects are foreseen as the proposed construction will create work opportunities during construction and operational phases.
Extent and duration of impact:	During the lifespan of the project
Consequence of impact risk:	No risk. More employment in area.
Probability of occurrence:	High
Degree to which the impact can be reversed:	Not a negative impact on socio-economic aspects
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable
Cumulative impact prior to mitigation:	Not applicable
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Not applicable
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	Not applicable
Proposed mitigation:	Not applicable
Cumulative impact post mitigation:	Not applicable
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Not applicable
Potential noise impacts:	
Nature of impact:	Noise impacts associated with accommodation and tourism
Extent and duration of impact:	During the life Span of the proposed development
Probability of occurrence:	High
Degree to which the impact can be reversed:	None
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	No cumulative impact foreseen
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Notifications for guest to adhere to no noise and loud music after a certain time at night.
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Potential visual impacts:	
Nature of impact:	Visual impact of development
Extent and duration of impact:	Throughout the lifespan of the project
Probability of occurrence:	Low
Degree to which the impact can be reversed:	High

Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	High
Proposed mitigation:	<p>The proposed development will hardly be visible from neighbouring properties and the N2 as it was placed within the forest and designed to blend with the natural environment.</p> <p>Low lighting and using colours that blend into the natural environment during the design phase.</p> <p>Only removal of vegetation within the footprint areas as the vegetation remaining will also act as a natural buffer.</p>
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Potential traffic impacts:	
Nature of impact:	<p>Traffic impacts on area and existing roads.</p> <p>Access to the application area is obtained via an access servitude road that runs over Wilderness Erf 2002. These access servitudes are accessed directly off the public road 'Remskoek Street' that runs along the northern boundary of Hoekwil Erf 317. This road is also the access road to the 'The Map of Africa' lookout point.</p>  <p style="text-align: center;">FIGURE 7: EXISTING SERVITUDES - SG DIAGRAM EXTRACTS</p>
Extent and duration of impact:	Throughout the lifespan of the project
Probability of occurrence:	Medium
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	<p>Existing Traffic: The current traffic consists of property owners of neighbouring properties, people accessing Remskoek street and tourists visiting the Map of Africa.</p> <p>The dwelling and 4 accommodation units will not create a substantial increase on traffic and the establishment will not be at full capacity all the time.</p> <p>No mitigation needed.</p>
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	
Nature of impact:	None
Extent and duration of impact:	N/A
Consequence of impact or risk:	N/A
Probability of occurrence:	N/A

Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	N/A
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	N/A
Residual impacts:	N/A
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	N/A
No-Go Alternative Impact Summary	
The site will remain as is derelict. As per NEM:BA alien vegetation removal will be on going. Access to the site will be prohibited to try and ensure no informal settlement or vagrants occupy the site, as this can pose a health and fire risk to area.	

Alternative:	Alternative 2
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Potential impacts on geographical and physical aspects:	
Nature of impact:	Soil compaction as a result of the construction of the guest house
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Possible erosion from water runoff if not managed properly
Probability of occurrence:	High
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources anticipated
Cumulative impact prior to mitigation:	Storm Water runoff resulting in erosion
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium
Degree to which impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>Typical sustainable drainage systems, often referred to as SuDS, and the associated stormwater infrastructure and management thereof take the following key principles into account:</p> <ul style="list-style-type: none"> Storing runoff and releasing it slowly (attenuation) Harvesting and using the rainwater Allowing water to soak into the ground (infiltration) Slowly transporting (conveying) water on the surface Allowing sediments to settle out by controlling the flow of the water <p>Any exposed earth must be rehabilitated by planting suitable vegetation to protect the exposed soils;</p>
Residual impacts	Low soil erosion impact is expected after mitigation measures are set in place to redirect water runoff. However, due to this alternative not being on stilts there may be increased risk of runoff velocity and an increased need for engineered stormwater drainage systems.
Cumulative impact post mitigation:	Soil erosion may still occur during high rainfall periods.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Medium

Potential impact on biological aspects:	
Nature of impact:	Disturbance and removal of trees within the natural forest. Loss of vegetation.
Extent and duration of impact:	Throughout the lifespan of the project
Consequence of impact or risk:	Reduced habitat and ecological corridors impact on fauna and flora
Probability of occurrence:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Loss of fauna and flora due to habitat loss
Cumulative impact prior to mitigation:	Disturbance of natural habitat of birds and small mammals. Loss of ecological corridors
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High
Degree to which impact can be avoided;	Low - Medium
Degree to which impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	This impact is difficult to mitigate for this alternative as a single large structure is proposed. This makes it difficult to cordon off protected trees and keep the development within identified "empty pockets" of the forest.
Residual impacts:	There may be an increased loss of protected trees and faunal habitat due to the above.
Cumulative impact post mitigation:	Habitat fragmentation and loss of a minor portion of ecological corridor.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Medium

Potential impact on biological aspects:	
Nature of impact:	Use of a conservancy tank for sewage
Extent and duration of impact:	During the lifespan of the project
Consequence of impact or risk:	Medium
Probability of occurrence:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	With mitigation this impact can be low
Indirect impacts:	Disturbance of forest floor vegetation Access issues for the municipality due to the steep access road.
Cumulative impact prior to mitigation:	Pollution of the receiving environment if system is not maintained regularly. The conservancy tank may not be emptied regularly due to access issues, leading to ground pollution.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Medium
Degree to which impact can be avoided;	High
Degree to which impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Service of the conservancy tank must occur every six (6) months and must be undertaken by a trained and accredited dealer to ensure the system is operating sufficiently to prevent pollution of the receiving environment due to failure. Increased construction to ensure a pump system is installed to pump sewage to the conservancy tank in Remskoien Road.
Residual impacts:	Increased loss of forest floor vegetation than originally desired.
Cumulative impact post mitigation:	Loss of protected vegetation and faunal habitat

Potential noise impacts:	
Nature of impact:	Impacts associated with general building construction noise

Extent and duration of impact:	Only during construction phase
Probability of occurrence:	High
Degree to which the impact can be reversed:	None
Degree to which the impact may cause irreplaceable loss of resources:	None
Degree to which the impact can be avoided:	None
Degree to which impact can be managed:	Only operate during construction hours
Cumulative impact prior to mitigation:	No cumulative impact foreseen
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Construction work and noise generation only allowed during weekday working hours
Cumulative impact post mitigation:	No cumulative impacts are foreseen after mitigation measures are implemented
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Potential impacts on socio-economic aspects:	
Nature of impact:	Creation of temporary employment opportunities through construction
Extent and duration of impact:	Throughout the construction and operational phase of the project
Probability of occurrence:	High
Degree to which the impact can be reversed:	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	N/A
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	N/A
Cumulative impact post mitigation:	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A

Potential impacts on visual impact aspects:	
Nature of impact:	Visual Impact
Extent and duration of impact:	Short term (construction phase) short term (operational phase)
Probability of occurrence:	Improbable (the chance of the impact occurring is extremely low - less than a 25% chance of occurrence)
Degree to which the impact can be reversed:	Partly reversible
Degree to which the impact may cause irreplaceable loss of resources:	Marginal
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	<p>On-site treatments might include:</p> <ul style="list-style-type: none"> • Visual and ecological planting patterns of indigenous vegetation to achieve landscape patterns that emulate in part existing mixes of tree and grass cover in the surrounding landscape. • Minimising exposure of work areas to sensitive receptors. • Preparing an internal landscape plan for rehabilitation areas. <p>At viewer location treatments include:</p> <ul style="list-style-type: none"> • Landscape design and plantings for affected locations. This will require an appropriately qualified person to visit the affected locations and develop a landscape plan to screen or filter views of the project areas. <p>Design fundamentals are general design principles that can be used for all forms of activity or development, regardless of the resource value being addressed. Applying the following three fundamentals will assist with mitigation measures:</p> <ul style="list-style-type: none"> • Proper siting or location. • Reducing unnecessary disturbance. • Repeating the elements of form, line, colour and texture of the

	<p>surrounding landscape.</p> <p>Design strategies are more specific activities that can be applied to address visual design problems. The following strategies will not necessarily apply to every proposed activity or project:</p> <ul style="list-style-type: none"> • Colour selection • Earthwork • Vegetative manipulation • Structures • Reclamation/Restoration • Linear alignment design considerations
Cumulative impact post mitigation:	Very low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Very low

Summary of all Alternatives impacts

Preferred Alternative		Alternative 1		Alternative 2	
Positive	Negative	Positive	Negative	Positive	Negative
Less disturbance of natural environment	Disturbance of vegetation is minimal as a result of placing the footprints on the margin of the CBA1 area in open areas only 1105m ² coverage with the remainder of the property to remain natural	More tourist accommodation provided, slight increase in disturbance of natural vegetation	Disturbance of vegetation is minimal as a result of placing the footprints on the margin of the CBA1 area in open areas only 1784m ² coverage with the remainder of the property to remain natural	Less disturbance of natural environment than other two alternatives	No protection of sensitive flora as structure will not follow specialist recommendations.
Less use of natural resources (water, electricity), rain water tanks will be installed.	Loss of habitat, is minimal as a result of placing the footprints on the margin of the CBA1 area in open areas only 1105m ² coverage with the remainder of the property to remain natural	Slight increase in use of natural resources (water, electricity) as the result of the additional unit, rain water tanks will be installed.	Loss of habitat, is minimal as a result of placing the footprints on the margin of the CBA1 area in open areas only 1784m ² coverage with the remainder of the property to remain natural	Rainwater tanks will be installed.	Slight increase in use of natural resources (water, electricity) as opposed to the Preferred Alternative in order to accommodate the same number of guests as Alternative.
Preferred alternative has a 1105m ² coverage, with the remainder of the property to remain natural	Fragmentation of ecological corridors, however the placement of the units on the margin of CBA1 area has reduced this impact.	Alternative 1 has 1784m ² coverage, with the remainder of the property to remain natural	Fragmentation of ecological corridors, however the placement of the units on the margin of CBA1 area has reduced this impact.	Reduced coverage compared to the other two alternatives.	Fragmentation of ecological corridors, however the placement of the unit on the margin of CBA1 area has reduced this impact.
<p>Currently there is no sewer reticulation in close proximity to the site. In light of this it is proposed that a closed sewage treatment plant referred to as the Clarus Fusion® will be installed on the site.</p> <p>Some benefits of the Fusion sewage treatment plant are:</p> <ul style="list-style-type: none"> • Superior performance as evidenced in widespread usage in Japan, USA 			<p>Currently there is no sewer reticulation in close proximity to the site. In light of this for this alternative it is proposed that a conservancy tank system is be used. This might pose a problem to the municipality as the access road is very steep and we are uncertain if the Honeysucker will be able to access the site.</p> <p>Furthermore, even though low, it will impact on the municipalities</p>		<p>Currently there is no sewer reticulation in close proximity to the site. In light of this for this alternative it is proposed that a conservancy tank system is be used. This might pose a problem to the municipality as the access road is very steep and we are uncertain if the Honeysucker will be able to access the site.</p> <p>Furthermore, even though low, it will impact on the municipalities</p>

<p>etc.</p> <ul style="list-style-type: none"> • Factory assembled and delivered to site for direct installation with no site assembly. • Installed underground integrating magnificently into the environment. • Compact and space efficient with minimal civil works required. • Fully enclosed slow and quiet process which minimises unpleasant odours. • Plentiful supply of oxygenation despite low power consumption • Low running costs. 			wastewater treatment system with increased wastewater needing to be processed.		wastewater treatment system with increased wastewater needing to be processed.
Less resource usage as a result of only 4 self-catering chalets.			Increased resource usage like water and electricity as a result of an additional unit		Increased resource usage like water and electricity as a result of accommodating the same number of guests as Alternative 1
This alternative has a 1105m ² footprint			This alternative has a 1784m ² footprint	Unknown footprint area at this stage	
<p>The 4x cottages will be of steel, glass, wood and be constructed on stilts about 4-5m above ground levels to be very light on the environment.</p> <p>The maximum height for the proposed dwelling will be ±8m above NGL or as determined by the Municipality.</p> <p>From the parking areas and the main dwelling house, there will be wooden</p>	The development visual intensity will be low.	<p>The 5x cottages will be of steel, glass, wood and be constructed on stilts about 4-5m above ground levels to be very light on the environment.</p> <p>The maximum height for the proposed dwelling will be ±8m above NGL or as determined by the Municipality.</p> <p>From the parking areas and the main dwelling house, there will be wooden</p>	The development visual intensity will be medium - low.	<p>The maximum height for the proposed dwelling will be ±8m above NGL or as determined by the Municipality.</p> <p>From the parking areas and the main dwelling house, there will be wooden decking walkways and a swimming pool.</p> <p>The development visual intensity will be very low.</p>	Parking area will be constructed from an impermeable material – additional stormwater management will be required.

<p>decking walkways 0.5m above the forest floor meandering through the trees to the cottages. Please note that this is a raised boardwalk on stilts.</p> <p>The raised structures will ensure that vegetation on the forest floor is encouraged to re-establish during rehabilitation underneath the units.</p>		<p>decking walkways 0.5m above the forest floor meandering through the trees to the cottages. Please note that this is a raised boardwalk on stilts.</p> <p>The raised structures will ensure that vegetation on the forest floor is encouraged to re-establish during rehabilitation underneath the units.</p>			
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