

PROJECT IMPACT ASSESSMENT, SIGNIFICANCE AND MITIGATION MEASURES SUMMARY

The following impact rating approach used by EnviroAfrica CC is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Environmental activities or aspects are identified, based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a -value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every positive impact is allocated a +value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criterion, the scores are averaged to determine the final impact rating see Table 1 below.

EnviroAfrica then further assesses environmental significance, based on the nature of the impact, as per the score and colour key which forms part of Table 1 below. This results in impacts having either a low (indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance, and a low (light blue), medium (blue) or a high (dark blue) positive significance

Note: i. As a baseline, impact rating values/scores are allocated taking the **worst case** scenario into account i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account *i.e.*, the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

IMPACT ASSESSMENT



SIGNIFICANCE CRITERIA	Very High	High	Medium	Low	Negligible (very low)
Value	16	8	4	2	1
Probability (likelihood) (P)		Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Low likelihood/unlikely for impact to occur.
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site
Duration (D)	Permanent The impact is expected to have a permanent impact, with very little to no rehabilitation possible	Long-Term The impact is expected to last for a long time after construction with rehabilitation expected to be 15-50 years. Impact is reversible but only with long-term mitigation	Medium-term The impact is expected to last for some time after construction with rehabilitation expected to be 5 - 15 years. Impact is reversible but only with on-going mitigation	Short-term The impact is expected to last for a relatively short time with rehabilitation expected to be 2-5 years. The impact is reversible through natural process and/or some mitigation.	Very short/ temporary The impact is expected to be temporary and last for a very short time with rehabilitation expected to be less than 2 years. The impact is easily reversible through natural process and/or some mitigation.
Magnitude (Intensity/ Severity) (M)	It is expected that the activity will have a very severe to permanent impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	It is expected that the activity will have a severe impact on the surrounding environment. Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	It is expected that the activity will have an impact on the surrounding environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the activity will have a perceptible impact on the surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the impact will have little or no effect on the integrity of the surrounding environment
Receiving environment (Consequence): (RE)	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation

ENVIRONMENTAL RATING SIGNIFICANCE KEY:

Negative Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Very Significant	Very High	-11 to -16
Significant	High	-7 to <-11
Increasing Significance	Medium	-4 to <-7
	Low	-2 to <-4
Insignificant	Very Low	-1 to <-2

Positive Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Significant	High	10 to 16
Increasing Significance	Medium	4 to <10
	Low	1 to <4

Environmental Significance Rating Methodology (rating criteria and significance key)

IMPACT ASSESSMENT



Table 2: Impact assessment table for Preferred alternative

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation/ Intervention (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
CONSTRUCTION PHASE					
1	Impact on Cultural, Archaeological, and Heritage Resources	Loss and/or damage to potential archaeological and historical sites within the construction footprint	Negligible	Should any heritage remains or other heritage resources be exposed during excavations or any other actions on site, this must immediately be reported to Heritage Western cape. Heritage remains or other heritage resources uncovered or disturbed during earthworks must not be further disturbed until the necessary written approval has been obtained from Heritage Western cape.	Negligible
2	Terrestrial biodiversity	Clearance of indigenous vegetation and loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> - The river and wetland areas located to the west and north-west outside of the proposed site must be regarded as no-go areas. All construction work must be kept more than 32m from the Olifants River. - A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase and ensure the riparian zone to the west and north-west of the proposed dam is not impacted in any way by the construction of the proposed dam. - Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO. - An integrated waste management approach must be implemented during construction. - 	Very Low (Negative)
3	Socio-economic	Creation of construction phase employment opportunities.	Low (Positive)	<ul style="list-style-type: none"> - Employ as many local residents over other people as is possible 	Low-medium (Positive)
4	Dust	Dust may be generated during the construction of	Medium (Negative)	<ul style="list-style-type: none"> - Reasonable measures must be taken to minimize the generation of dust as a result of construction activities to the satisfaction of the ECO and Local Authority 	Low (Negative)



Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation/ Intervention (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
		the proposed development.		including <i>inter alia</i> , spraying water when dust is generated and enforcing the appropriate speed limits on roads.	
5	Freshwater	Pollution of Olifants River by construction materials and construction-related sediment load increases. Damage to riparian area located west and north-west from proposed dam site	High (Negative)	<ul style="list-style-type: none"> Limit construction work to the dry season and pave the toe of the dam. Keep construction work more than 32m away from the Olifants River, preferably within the development footprint of the proposed dam Stormwater management infrastructure must be provided and maintained along the farm roads next to the vineyards. The Contractor must take appropriate on-going and active measures to prevent erosion resulting from his own construction activities as well as implement storm water control measures to the satisfaction of the ECO. Inspect and maintain erosion and sediment controls regularly. 	Low (Negative)
6	Visual	Eyesore caused by construction activities on site	Low (Negative)	N/A	Low (Negative)
7	Traffic	Increase in construction vehicles and machinery	Medium (Negative)	<p>The Contractor must control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes. In addition, such vehicles and plant must be routed and operated so as to minimise disruption to regular users of the routes. On public roads adjacent to the Site, vehicles must adhere to municipal and provincial traffic regulations.</p> <p>All temporary access routes must be rehabilitated at the end of the contract to the satisfaction of the ECO, if required.</p> <p>Method Statements for any new access/ haul roads must be submitted for prior approval by the ECO.</p>	Low (Negative)



Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation/ Intervention (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
8	Noise	- Noise generated by construction work	Low (Negative)	- Keep to normal working hours	Low (Negative)
9	Solid waste	- Increase in waste and litter	Medium (Negative)	<ul style="list-style-type: none"> - No on-site burying or dumping of any waste materials, vegetation, litter or refuse is allowed. - The Contractor must provide problem-animal and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids must be kept firmly on the bins at all times. Bins must not be allowed to become overfull and must be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Engineer and the ECO has approved. - All solid waste must be disposed of off-site at an approved landfill site in terms of section 20 of the Environment Conservation Act (Act No. 73 of 1989). The Contractor must supply the ECO with a certificate of disposal. All hazardous waste must be disposed of at a licensed hazardous waste site. - The Contractor must make provision for workers to clean up the Contractor's camp and working areas on a daily basis so that no litter is left lying around and so that the site remains in a neat and tidy state. The Contractor must remove from site the refuse collected at least once a week. - The Contractor must be responsible for the establishment of a refuse control system that is acceptable to the ECO. - Solid waste disposal arrangements must be made in advance and cleared with the ECO before construction starts 	Low (Negative)
10	Sewage	Pollution of land and the Olifants River owing to insufficient number of toilets and / or	High (Negative)	<ul style="list-style-type: none"> - A minimum of one toilet must be provided per 15 persons - If portable/chemical toilets are to be used (in agreement with the landowner/ person in control of the land): 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation/ Intervention (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
		inappropriate disposal of sewage		<ul style="list-style-type: none"> - The toilets must be within easy reach of the working area and be in good working condition and cleaned on a daily basis. Toilet paper must be provided. The toilets must be emptied on a weekly basis or when full or when instructed by the ECO on site; - Disposal arrangements must be made in advance and cleared with the ECO before construction starts. Sanitation provision and servicing must be to the satisfaction of the ECO; - The Contractor must ensure that toilets are emptied prior to any builders' holidays, and/or weekends; - Toilets must be of a neat construction and must be provided with doors and locks and must be secured to help in preventing them from blowing over; and - The toilets must all be placed more than 32m from the Olifants River - 	
11	Geotechnical	Dam structural deficiencies	High (Negative)	<ul style="list-style-type: none"> - Import suitable material to the proposed site for the foundation of the proposed dam as per the geotechnical report. - Use a homogeneous wall profile in combination with a waterproof liner as the sealing mechanism 	Low (Negative)
OPERATIONAL PHASE					
1	Freshwater Resources	Stormwater contamination, seepage and increased agricultural return flow, resulting in eutrophication.	High (Negative)	<ul style="list-style-type: none"> • Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. • Leave a small volume of water of 0.3m to 0.4m deep after the irrigation season so that the dam can continue to provide at least 	Low (Positive)

				<p>some aquatic habitat, albeit for waterfowl and a very limited range of other aquatic organisms.</p> <ul style="list-style-type: none"> • Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. • The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. • Stormwater management infrastructure should be provided and maintained along the farm roads next to the vineyards. • Agricultural return flow caused by over-irrigation must be prevented through the usage of electronically controlled systems designed to measure the moisture content of soils to adjust and regulate the volume of water that is to be irrigated with so that only the right amount of water is irrigated with. 	
2	Terrestrial biodiversity	Loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> • Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. • Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. • The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. 	
3	Socio-economic	- Increase in the water security of the farm and consequent increase in	Medium (Positive)	N/A	

		job security for the existing employees of the farm			
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Table 3: Impact assessment table for Design Alternative No. 1

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
CONSTRUCTION PHASE					
1	Impact on Cultural, Archaeological, and Heritage Resources	Loss and/or damage to potential archaeological and historical sites within the construction footprint	Negligible	Should any heritage remains or other heritage resources be exposed during excavations or any other actions on site, this must immediately be reported to Heritage Western cape. Heritage remains or other heritage resources uncovered or disturbed during earthworks must not be further disturbed until the necessary written approval has been obtained from Heritage Western cape.	Negligible
2	Terrestrial biodiversity	Clearance of indigenous vegetation and loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> - The river and wetland areas located to the west and north-west outside of the proposed site must be regarded as no-go areas. All construction work must be kept more than 32m from the Olifants River. - A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase and ensure the riparian zone to the west and north-west of the proposed dam is not impacted in any way by the construction of the proposed dam. 	Very Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<ul style="list-style-type: none"> - Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO. - An integrated waste management approach must be implemented during construction. - 	
3	Socio-economic	Creation of construction phase employment opportunities.	Low (Positive)	<ul style="list-style-type: none"> - Employ as many local residents over other people as is possible 	Low-medium (Positive)
4	Dust	Dust may be generated during the construction of the proposed development.	Medium (Negative)	<ul style="list-style-type: none"> - Reasonable measures must be taken to minimize the generation of dust as a result of construction activities to the satisfaction of the ECO and Local Authority including <i>inter alia</i>, spraying water when dust is generated and enforcing the appropriate speed limits on roads. 	Low (Negative)
5	Freshwater	Pollution of Olifants River from construction materials and construction-related sediment load increases. Damage to riparian area located west and north-west from proposed dam site	High (Negative)	<ul style="list-style-type: none"> • Limit construction work to the dry season and pave the toe of the dam. • Keep construction work more than 32m away from the Olifants River, preferably within the development footprint of the proposed dam • Stormwater management infrastructure must be provided and maintained along the farm roads next to the vineyards. • The Contractor must take appropriate on-going and active measures to prevent erosion resulting from his own construction activities as well as implement storm water control measures to the satisfaction of the ECO. • Inspect and maintain erosion and sediment controls regularly. 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
6	Visual	Visual impact of construction activities on site	Low (Negative)	N/A	Low (Negative)
7	Traffic	Increase in construction vehicles and machinery	Medium (Negative)	<p>The Contractor must control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes. In addition, such vehicles and plant must be routed and operated so as to minimise disruption to regular users of the routes. On public roads adjacent to the Site, vehicles must adhere to municipal and provincial traffic regulations.</p> <p>All temporary access routes must be rehabilitated at the end of the contract to the satisfaction of the ECO, if required.</p> <p>Method Statements for any new access/ haul roads must be submitted for prior approval by the ECO.</p>	Low (Negative)
8	Noise	- Noise will be generated during the construction phase.	Low (Negative)	- Keep to normal working hours	Low (Negative)
9	Solid waste	- Increase in waste and litter	Medium (Negative)	<ul style="list-style-type: none"> - No on-site burying or dumping of any waste materials, vegetation, litter or refuse is allowed. - The Contractor must provide problem-animal and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids must be kept firmly on the bins at all times. Bins must not be allowed to become overfull and must be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Engineer and the ECO has approved. - All solid waste must be disposed of off-site at an approved landfill site in terms of section 20 of the Environment 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<p>Conservation Act (Act No. 73 of 1989). The Contractor must supply the ECO with a certificate of disposal. All hazardous waste must be disposed of at a licensed hazardous waste site.</p> <ul style="list-style-type: none"> - The Contractor must make provision for workers to clean up the Contractor's camp and working areas on a daily basis so that no litter is left lying around and so that the site remains in a neat and tidy state. The Contractor must remove from site the refuse collected at least once a week. - The Contractor must be responsible for the establishment of a refuse control system that is acceptable to the ECO. - Solid waste disposal arrangements must be made in advance and cleared with the ECO before construction starts 	
10	Sewage	Pollution of land and the Olifants River owing to insufficient number of toilets and / or inappropriate disposal of sewage	High (Negative)	<ul style="list-style-type: none"> - A minimum of one toilet must be provided per 15 persons - If portable/chemical toilets are to be used (in agreement with the landowner/ person in control of the land): - The toilets must be within easy reach of the working area and be in good working condition and cleaned on a daily basis. Toilet paper must be provided. The toilets must be emptied on a weekly basis or when full or when instructed by the ECO on site; - Disposal arrangements must be made in advance and cleared with the ECO before construction starts. Sanitation provision and servicing must be to the satisfaction of the ECO; - The Contractor must ensure that toilets are emptied prior to any builders' holidays, and/or weekends; 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<ul style="list-style-type: none"> - Toilets must be of a neat construction and must be provided with doors and locks and must be secured to help in preventing them from blowing over; and - The toilets must all be placed more than 32m from the Olifants River - 	
11	Geotechnical	Dam deficiencies structural	High (Negative)	<ul style="list-style-type: none"> - Import suitable material to the proposed site for the foundation of the proposed dam as per the geotechnical report. - Use a homogeneous wall profile in combination with a waterproof liner as the sealing mechanism 	Low (Negative)
OPERATIONAL PHASE					
12	Freshwater Resources	Stormwater contamination, seepage and increased agricultural return flow, resulting in eutrophication.	High (Negative)	<ul style="list-style-type: none"> • Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. • Leave a small volume of water of 0.3m to 0.4m deep after the irrigation season so that the dam can continue to provide at least some aquatic habitat, albeit for waterfowl and a very limited range of other aquatic organisms. • Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. • The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. • Stormwater management infrastructure should be provided and maintained along the farm roads next to the vineyards. 	Low (Positive)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<ul style="list-style-type: none"> Agricultural return flow caused by over-irrigation must be prevented through the usage of electronically controlled systems designed to measure the moisture content of soils to adjust and regulate the volume of water that is to be irrigated with so that only the right amount of water is irrigated with. 	
13	Terrestrial biodiversity	Clearance of indigenous vegetation and loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. 	Low (Positive)
14	Socio-economic	Increase in the water security of the farm and consequent increase in job security for the existing employees of the farm	Low-Medium (Positive)		

Table 4: Impact Assessment table for Design Alternative No. 3

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
CONSTRUCTION PHASE					
1	Impact on Cultural, Archaeological, and Heritage Resources	Loss and/or damage to potential archaeological and historical sites within the construction footprint	Negligible	Should any heritage remains or other heritage resources be exposed during excavations or any other actions on site, this must immediately be reported to Heritage Western cape. Heritage remains or other heritage resources uncovered or disturbed during earthworks must not be further disturbed until the necessary written approval has been obtained from Heritage Western cape.	Negligible
2	Terrestrial biodiversity	Clearance of indigenous vegetation and loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> - The river and wetland areas located to the west and north-west outside of the proposed site must be regarded as no-go areas. All construction work must be kept more than 32m from the Olifants River. - A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase and ensure the riparian zone to the west and north-west of the proposed dam is not impacted in any way by the construction of the proposed dam. - Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO. - An integrated waste management approach must be implemented during construction. - 	Very Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
3	Socio-economic	Creation of construction phase employment opportunities.	Low (Positive)	- Employ as many local residents over other people as is possible	Low-medium (Positive)
4	Dust	Dust may be generated during the construction of the proposed development.	Medium (Negative)	- Reasonable measures must be taken to minimize the generation of dust as a result of construction activities to the satisfaction of the ECO and Local Authority including <i>inter alia</i> , spraying water when dust is generated and enforcing the appropriate speed limits on roads.	Low (Negative)
5	Freshwater	Pollution of Olifants River from construction materials and construction-related sediment load increases. Damage to riparian area located west and north-west from proposed dam site	High (Negative)	<ul style="list-style-type: none"> • Limit construction work to the dry season and pave the toe of the dam. • Keep construction work more than 32m away from the Olifants River, preferably within the development footprint of the proposed dam • Stormwater management infrastructure must be provided and maintained along the farm roads next to the vineyards. • The Contractor must take appropriate on-going and active measures to prevent erosion resulting from his own construction activities as well as implement storm water control measures to the satisfaction of the ECO. • Inspect and maintain erosion and sediment controls regularly. 	Low (Negative)
6	Visual	Visual impact of construction activities on site	Low (Negative)	N/A	Low (Negative)
7	Traffic	Increase in construction vehicles and machinery	Medium (Negative)	The Contractor must control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes. In addition, such vehicles and plant must be routed and operated so as to minimise disruption to regular users of the routes. On public roads adjacent to the Site,	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<p>vehicles must adhere to municipal and provincial traffic regulations.</p> <p>All temporary access routes must be rehabilitated at the end of the contract to the satisfaction of the ECO, if required.</p> <p>Method Statements for any new access/ haul roads must be submitted for prior approval by the ECO.</p>	
8	Noise	- Noise will be generated during the construction phase.	Low (Negative)	- Keep to normal working hours	Low (Negative)
9	Solid waste	- Increase in waste and litter	Medium (Negative)	<ul style="list-style-type: none"> - No on-site burying or dumping of any waste materials, vegetation, litter or refuse is allowed. - The Contractor must provide problem-animal and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids must be kept firmly on the bins at all times. Bins must not be allowed to become overfull and must be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Engineer and the ECO has approved. - All solid waste must be disposed of off-site at an approved landfill site in terms of section 20 of the Environment Conservation Act (Act No. 73 of 1989). The Contractor must supply the ECO with a certificate of disposal. All hazardous waste must be disposed of at a licensed hazardous waste site. - The Contractor must make provision for workers to clean up the Contractor's camp and working areas on a daily basis so that no litter is left lying around and so that the site 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				<p>remains in a neat and tidy state. The Contractor must remove from site the refuse collected at least once a week.</p> <ul style="list-style-type: none"> - The Contractor must be responsible for the establishment of a refuse control system that is acceptable to the ECO. - Solid waste disposal arrangements must be made in advance and cleared with the ECO before construction starts 	
10	Sewage	Pollution of land and the Olifants River owing to insufficient number of toilets and / or inappropriate disposal of sewage	High (Negative)	<ul style="list-style-type: none"> - A minimum of one toilet must be provided per 15 persons - If portable/chemical toilets are to be used (in agreement with the landowner/ person in control of the land): - The toilets must be within easy reach of the working area and be in good working condition and cleaned on a daily basis. Toilet paper must be provided. The toilets must be emptied on a weekly basis or when full or when instructed by the ECO on site; - Disposal arrangements must be made in advance and cleared with the ECO before construction starts. Sanitation provision and servicing must be to the satisfaction of the ECO; - The Contractor must ensure that toilets are emptied prior to any builders' holidays, and/or weekends; - Toilets must be of a neat construction and must be provided with doors and locks and must be secured to help in preventing them from blowing over; and - The toilets must all be placed more than 32m from the Olifants River 	Low (Negative)
11	Geotechnical	Dam structural deficiencies	High (Negative)	<ul style="list-style-type: none"> - Import suitable material to the proposed site for the foundation of the proposed dam as per the geotechnical report. 	Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
				- Use a homogeneous wall profile in combination with a waterproof liner as the sealing mechanism	
OPERATIONAL PHASE					
12	Freshwater Resources	Stormwater contamination, seepage and increased agricultural return flow, resulting in eutrophication.	High (Negative)	<ul style="list-style-type: none"> • Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. • Leave a small volume of water of 0.3m to 0.4m deep after the irrigation season so that the dam can continue to provide at least some aquatic habitat, albeit for waterfowl and a very limited range of other aquatic organisms. • Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. • The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. • Stormwater management infrastructure should be provided and maintained along the farm roads next to the vineyards. • Agricultural return flow caused by over-irrigation must be prevented through the usage of electronically controlled systems designed to measure the moisture content of soils to adjust and regulate the volume of water that is to be irrigated with so that only the right amount of water is irrigated with. 	Low (Positive)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
13	Terrestrial biodiversity	Clearance of indigenous vegetation and loss of ecological connectivity	Low (Negative)	<ul style="list-style-type: none"> • Vegetate the new dam wall with indigenous plants under the guidance of an accredited botanist or horticulturalist prior to the next rainy season and maintain an alien vegetation clearing program for the dam wall. • Protect and conserve the remaining few elements of the riparian area located beyond the development footprint by <i>inter alia</i>, maintaining a long-term alien vegetation clearance program to encourage the remaining few indigenous plants to prosper. • The embankments along the river and further up the slope should be stabilised, erosion should be prevented and loose sediments along with stormwater should not be allowed to enter the river. 	Low (Positive)
14	Socio-economic	- Increase in the water security of the farm and consequent increase in job security for the existing employees of the farm	Low-Medium (Positive)		

Table 6: Impact assessment table for 'no-go' alternative



Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
1	N/A			-	
2	N/A			-	
3	N/A			-	
4	N/A				
5	Freshwater Resources			N/A	
6	Socio-economic	- Loss of an opportunity to increase the water security of the farm and consequently to increase job security for the existing employees of the farm -	High (Negative)		High (Negative)
7	Dust	N/A			
8	Visual	N/A			
9	Traffic	N/A			
10	Noise	N/A			

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
11	Waste	N/A			
	Geotechnical	N/A			