

GEOGRAPHICAL AND PHYSICAL

GEOLOGY

Alternative: LA1 & LA2	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Construction activities can affect the underlying geological layers on site to some extent.
Nature of impact:	Disturbance to subsurface geological layers.
Extent and duration of impact:	Extent 2 & Duration 5
Consequence of impact or risk:	The impact of the development will cause a slight impact on processes. The removal of soil would be required for the erection of the feedlot. The severity of the impact would be dependent on the amount of soil that would need to be removed for the installation of the structure. A detailed plan for the proposed structure can be found in Appendix B3. Construction of the storm water cut-off channels and collection dam would require the removal and shaping of soil to construct the desired channels and dam, which will negatively impact subsurface layers.
Probability of occurrence:	5 - Impact will occur regardless of any prevention measures.
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Disturbance to surrounding subsurface geological layers.
Cumulative impact prior to mitigation:	Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity of it can be managed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	55 - Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Moderate
Degree to which the impact can be mitigated:	2-Partly, but impact on subsurface geological layers during excavations is inevitable.
Proposed mitigation:	Mitigation and management for affecting geology is to ensure that removal of soil is kept to a minimum – removal of soil should only be in areas where infrastructure will be established and must be clearly demarcated before and during construction.
Residual impacts:	Impact on subsurface geological layers during excavations is inevitable.
Cumulative impact post mitigation:	Impact on subsurface geological layers during excavations is inevitable.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	50 - Medium
OPERATIONAL PHASE	
Potential impact and risk:	Maintenance activities can affect the underlying geological layers on site to some extent.
Nature of impact:	Disturbance to subsurface geological layers
Extent and duration of impact:	Extent 1 (footprint) & Duration 2 (two to five years)
Consequence of impact or risk:	Construction and excavation activities can affect the underlying geological layers on site to some extent.
Probability of occurrence:	2 (Improbable: some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	1-Resource will not be lost (R)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Disturbance to surrounding subsurface geological layers.
Cumulative impact prior to mitigation:	Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity of it can be managed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
Degree to which the impact can be avoided:	Moderate
Degree to which the impact can be managed:	Moderate
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Demarcation and work within demarcated areas only.
Residual impacts:	Impact on subsurface geological layers during excavations is inevitable.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high as the affected substrata is deep

	and the integrity of the underlying ground structures will not be sacrificed.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Decommissioning activities can affect the underlying geological layers on site to some extent.
Nature of impact:	Disturbance to subsurface geological layers
Extent and duration of impact:	Extent 1 (footprint) & Duration 2 (two to five years)
Consequence of impact or risk:	Construction and excavation activities can affect the underlying geological layers on site to some extent.
Probability of occurrence:	2 (Improbable: some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	1-Resource will not be lost (R)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Disturbance to surrounding subsurface geological layers
Cumulative impact prior to mitigation:	It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Demarcation and work within demarcated areas only.
Residual impacts:	It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low

SURFACE AND GROUND WATER POLLUTION

Alternative LA1 & LA2	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Impact of construction activities on surface and underground water pollution.
Nature of impact:	<p>A non-perennial drainage line is located on the northern boundary of proposed development. The drainage line feeds into the Vink River (perennial river) located approximately 300m west of the proposed development. Both of these aquatic systems have been classified as CBA's.</p> <p>The natural elevation profile of the proposed development area indicates that runoff is likely to flow in a south-westerly direction parallel to the drainage line. It is therefore unlikely that runoff from the development site is to directly enter the drainage line.</p> <p>This however does not prevent contractors from impacting on the adjacent sensitive areas.</p>
Extent and duration of impact:	Extent 3 (Within 20 km radius of the centre of the site) & Duration 2 (2 – 5 years)
Consequence of impact or risk:	Possible pollution of surface and ground water. Low impact - Will cause a slight impact on processes.
Probability of occurrence:	4 - Highly probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Pollution of water resources.
Cumulative impact prior to mitigation:	Diesel and oil spills affecting ground and surface water quality.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	36 - Medium significance
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)

Proposed mitigation:	<ul style="list-style-type: none"> • Undertake construction activities only in identified and specifically demarcated areas; • Clearly demarcate no-go areas; • Prohibit activities that could result in the pollution / destruction of these habitats; • Provision of environmental awareness training and waste management training; • Construction of water cut-off channels and storm water management.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	Diesel and oil spills affecting ground and surface water quality.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Impact of maintenance activities on surface and underground water pollution.
Nature of impact:	<p>The soil study indicated that the high clay content of the site will prevent any nutrient contained leaching into the soil. The site also flows towards the required run off collection dams. The windrows are more than 235m from the side of the Middelstekloof River.</p> <p>Kraals in the feedlot are cleaned every 30 days of full feed. The surface will be hard and the dry manure is to be easily gathered with a tractor/loader in the middle passage and transported to the sides of the feedlot. The collected manure will form part of the raw product included in the composting process.</p>
Extent and duration of impact:	Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)
Consequence of impact or risk:	Possible pollution of surface and ground water.
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2-Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Pollution of water resources.
Cumulative impact prior to mitigation:	Leaching of nutrients into the soil potentially polluting surface or groundwater resources.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	64 - High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Mitigation measures included in EMP, attached as Appendix H, shall be adhered to. This includes the implementation of SOPs developed to ensure that the facility's operations have the least negative impact possible.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	Leaching of nutrients into the soil is not anticipated - regular monitoring of test boreholes is required to ensure detection of potential pollution.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Impact of construction activities on surface and underground water pollution
Nature of impact:	Diesel and oil spills affecting ground and surface water.
Extent and duration of impact:	Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)
Consequence of impact or risk:	Possible pollution of surface and ground water.
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2-Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Pollution of water resources
Cumulative impact prior to mitigation:	Diesel and oil spills affecting ground and surface water quality.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	64 - High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High

Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	Diesel and oil spills affecting ground and surface water quality.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low

EMISSIONS AND AIR QUALITY

Alternative LA1 & LA2	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Emissions and impact on air quality
Nature of impact:	Not applicable to the planning, design and development phase.
OPERATIONAL PHASE	
Potential impact and risk:	Emissions and impact on air quality
Nature of impact:	Emissions from the process are: <ul style="list-style-type: none"> • Dust from the incoming products. • Dust from the windrow piles and turning of windrows. • Fumes (methane) from the composting process. • Odours from the windrows.
Extent and duration of impact:	Extent 3 (local) & Duration 5 (permanent)
Consequence of impact or risk:	Air pollution
Probability of occurrence:	4 (Highly probable (HP))
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Air pollution can cause a variety of environmental effects, such as acid rain, eutrophication, effects on wildlife, ozone depletion, crop and forest damages, global climate change etc. However, the emissions from the proposed development will be negligible on a global scale.
Cumulative impact prior to mitigation:	Negative impact on surrounding air quality.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	48 – Medium
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Emissions and impact on air quality.
Nature of impact:	Not applicable to the planning, design and development phase.

COMPACTION OF SOIL

Alternative LA1 & LA2	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Compaction of soil.
Nature of impact:	Compaction of soil is required for surfaces used for composting activities as well as the feedlot.
Extent and duration of impact:	Extent 2 (on site or within 100 m of the site) & Duration 5 (will not cease)
Consequence of impact or risk:	Soil compaction will contribute to the loss of soil functionality; as such compaction will cause a slight impact on processes.
Probability of occurrence:	4 - Highly Probable (HP)

Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed.
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The compaction of the topsoil would further reduce the likelihood of salts leaching from the profile to contaminate groundwater. The compaction will also prevent the nutrients and salts from the manure and urine to penetrate the soil and contaminate the groundwater.
Cumulative impact prior to mitigation:	Loss of soil functionality on the development footprint or within 100m of the site.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	44 - Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High - can be managed to occur only on the development footprint.
Degree to which the impact can be mitigated:	2 - Partly.
Proposed mitigation:	Demarcation and work within demarcated areas only.
Residual impacts:	Loss of soil functionality on the development areas.
Cumulative impact post mitigation:	The compaction of the topsoil would further reduce the likelihood of salts leaching from the profile to contaminate groundwater. The compaction will also prevent the nutrients and salts from the manure and urine to penetrate the soil and contaminate the groundwater.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	40 - Medium
OPERATIONAL PHASE	
Potential impact and risk:	Compaction of soil.
Nature of impact:	Maintenance of hardened surfaces required for composting activities as well as the feedlot.
Extent and duration of impact:	Extent 2 (on site or within 100 m of the site) & Duration 5 (will not cease)
Consequence of impact or risk:	Soil compaction will contribute to the loss of soil functionality; as such compaction will cause a slight impact on processes.
Probability of occurrence:	4 - Highly Probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed.
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The compaction of the topsoil would further reduce the likelihood of salts leaching from the profile to contaminate groundwater. The compaction will also prevent the nutrients and salts from the manure and urine to penetrate the soil and contaminate the groundwater.
Cumulative impact prior to mitigation:	Loss of soil functionality on the development footprint or within 100m of the site.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	44 - Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High - can be managed to occur only on the development footprint.
Degree to which the impact can be mitigated:	2 - Partly.
Proposed mitigation:	Demarcation and work within demarcated areas only.
Residual impacts:	Loss of soil functionality on the development areas.
Cumulative impact post mitigation:	The compaction of the topsoil would further reduce the likelihood of salts leaching from the profile to contaminate groundwater. The compaction will also prevent the nutrients and salts from the manure and urine to penetrate the soil and contaminate the groundwater.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	40 - Medium
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Compaction of soil.
Nature of impact:	Compaction of soil resulting from the removal of structures and rehabilitation of disturbed areas.
Extent and duration of impact:	Extent 1 (footprint) & Duration 2 (two to five years)
Consequence of impact or risk:	Removal of structures would require the use of heavy machinery contribution to the compaction of soil.
Probability of occurrence:	2 - (Improbable: some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Hardening of surfaces.

Cumulative impact prior to mitigation:	Loss of soil functionality.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Demarcation and work within demarcated areas only.
Residual impacts:	Loss of soil functionality.
Cumulative impact post mitigation:	Loss of soil functionality.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low

INCREASE IN STORM WATER /WASTE WATER RUN-OFF

Alternative LA1	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Increase in storm water / waste water run-off.
Nature of impact:	Hardening of surfaces due to the development of the compost facility and feedlot will cause an increase in storm water / waste water runoff from the site.
Extent and duration of impact:	Extent 2 (on site within 100 m of the site) & Duration 5 (permanent)
Consequence of impact or risk:	Additional storm water runoff may lead to erosion in adjacent areas of the farm. The additional storm water may also lead to the flooding of adjacent areas.
Probability of occurrence:	2 (Improbable: some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	2-Resource may be partly destroyed (PR) storm water run-off may cause partial loss of other resources
Degree to which the impact can be reversed:	Completely reversible (R)
Indirect impacts:	Additional storm water runoff may lead to erosion / flooding in adjacent areas of the farm.
Cumulative impact prior to mitigation:	Additional storm water runoff may lead to erosion / flooding in adjacent areas of the farm.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 - Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	1- Completely mitigatable (CM)
Proposed mitigation:	A storm water management plan is included in the site development plan (Appendix B1). All storm water / waste water from the compost areas and feedlot will gravitate through the cut-off channels as depicted in the SDP towards the collection dam. The collected water will then be re-used in the composting process to moisten the windrows.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Increase in storm water / waste water run-off.
Nature of impact:	Increase in storm water and waste water run-off from hardened surfaces of the compost area and feedlot.
Extent and duration of impact:	Extent 1 (footprint) & Duration 5 (permanent)
Consequence of impact or risk:	Flooding from the development area could result in the pollution of surface and groundwater resources. Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Probability of occurrence:	2 - Improbable: some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of livestock and compost windrows due to flooding/erosion events.
Cumulative impact prior to mitigation:	Flooding from the development area could result in the pollution of surface and groundwater resources.

	Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 - Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	A storm water management plan is included in the site development plan (Appendix B1). All storm water / waste water from the compost areas and feedlot will gravitate through the cut-off channels as depicted in the SDP towards the collection dam. The collected water will then be re-used in the composting process to moisten the windrows.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 - Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Increased storm water / waste water run-off.
Nature of impact:	Not Applicable.

Alternative LA2	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Increase in storm water / waste water run-off.
Nature of impact:	Hardening of surfaces due to the development will cause an increase in storm water runoff from the site. The natural elevation profile of the proposed development area indicates that runoff is likely to flow in a south-westerly direction parallel to the drainage line.
Extent and duration of impact:	Extent 2 (on site or within 100 m of the site) & Duration 5 (permanent)
Consequence of impact or risk:	Flooding from the development area could result in the pollution of surface and groundwater resources. Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Probability of occurrence:	3 - Probable (P)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of livestock and compost windrows due to flooding/erosion events.
Cumulative impact prior to mitigation:	Flooding from the development area could result in the pollution of surface and groundwater resources. Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	33 - Medium
Degree to which the impact can be avoided:	Moderate
Degree to which the impact can be managed:	Moderate
Degree to which the impact can be mitigated:	2- Partly mitigatable (PM)
Proposed mitigation:	A storm water plan to be developed to accommodate the additional storm water / waste water based on the size of the development area and the annual rainfall for the area. A collection dam with sufficient capacity along with a storm water alignment system to be developed for this layout alternative.
Residual impacts:	Due to the size of this proposed and the potential risk associated with the impacts it is not foreseen that this layout should be considered.
Cumulative impact post mitigation:	Loss of livestock and compost windrows due to flooding/erosion events, should the storm water run-off plan not be developed for this layout.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	30 - Medium
OPERATIONAL PHASE	
Potential impact and risk:	Increase in storm water / waste water run-off.
Nature of impact:	Hardening of surfaces due to the development will cause an increase in storm water runoff from the site. The natural elevation profile of the proposed

	development area indicates that runoff is likely to flow in a south-westerly direction parallel to the drainage line.
Extent and duration of impact:	Extent 2 (on site or within 100 m of the site) & Duration 5 (permanent)
Consequence of impact or risk:	Flooding from the development area could result in the pollution of surface and groundwater resources. Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Probability of occurrence:	3 - Probable (P)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of livestock and compost windrows due to flooding/erosion events.
Cumulative impact prior to mitigation:	Flooding from the development area could result in the pollution of surface and groundwater resources. Erosion of adjacent areas could result in damage to property and impacts on sensitive environments located on the property.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	33 - Medium
Degree to which the impact can be avoided:	Moderate
Degree to which the impact can be managed:	Moderate
Degree to which the impact can be mitigated:	2- Partly mitigatable (PM)
Proposed mitigation:	A storm water plan to be developed to accommodate the additional storm water / waste water based on the size of the development area and the annual rainfall for the area. A collection dam with sufficient capacity along with a storm water alignment system to be developed for this layout alternative.
Residual impacts:	Due to the size of this proposed and the potential risk associated with the impacts it is not foreseen that this layout should be considered.
Cumulative impact post mitigation:	Loss of livestock and compost windrows due to flooding/erosion events, should the storm water run-off plan not be developed for this layout.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	30 - Medium
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Increase in storm water / waste water run-off.
Nature of impact:	Not Applicable.

ECOLOGICAL AND BIOLOGICAL

IMPACT ON FAUNA

Alternative LA1 & LA2	Biological Aspect Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Impact on Fauna.
Nature of impact:	Not Applicable.
OPERATIONAL PHASE	
Potential impact and risk:	Impact on Fauna.
Nature of impact:	Human/Wildlife Interactions.
Extent and duration of impact:	Extent 1 (footprint) & Duration 5 (permanent)
Consequence of impact or risk:	Attraction of un-wanted naturally occurring wild animals to the vicinity as a result of composting and feedlot activities.
Probability of occurrence:	3 - Probable
Degree to which the impact may cause irreplaceable loss of resources:	1 - Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Shift in distribution of certain animals entering the area due to their opportunistic nature and the potential scavenging opportunities the compost facility and feedlot pose.
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> • Human/wildlife interactions • Damage to property • Attraction of nuisance (un-wanted) animals
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 - Low
Degree to which the impact can be avoided:	High

Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	1 - Completely mitigatable (CM)
Proposed mitigation:	Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	14 - Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Impact on fauna.
Nature of impact:	Not Applicable.

IMPACT ON SENSITIVE ENVIRONMENTS (RIVERS, WETLANDS ETC)

Alternative LA1 & LA2	Biological Aspect Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Impact on sensitive environments (rivers, wetlands etc)
Nature of impact:	Feedlot and compost facility within 100m from a watercourse.
Extent and duration of impact:	Extent 1 (footprint) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Polluted water entering the non-perennial water course with impacts to the river quality and ecological functioning.
Probability of occurrence:	2 - Improbable (I)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of significantly impacted upon habitat.
Cumulative impact prior to mitigation:	Pollution of the river system due to the possible risk of contaminated storm water from the feedlot and compost facilities entering the river systems generally result in significant impacts and degradation of the freshwater ecological system and functioning. The potentially affected river reach is characterised by a fairly incised single channel, approximately 10 to 20m wide, which has a bed comprising mostly cobbles and sand.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	1 - Completely mitigatable (CM)
Proposed mitigation:	The desktop buffer that was generated by the WRC Buffer Tool for the protection of drainage lines within the proposed impacted area itself was a modelled buffer width of 55m for the construction phase. This buffer width was then refined by applying the site based components of the WRC Buffer Tool, through which a site-specific recommended buffer width of 26m for the construction phase. Construction activities will have a buffer area of 43m which is significantly more than the 26m buffer assessed.
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	3 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Impact on sensitive environments (rivers, wetlands etc)
Nature of impact:	Feedlot and compost facility within 100m from a watercourse.
Extent and duration of impact:	Extent 3 Local (Within a 20 km radius of the centre of the site) & Duration 4 Long term (>15 years)
Consequence of impact or risk:	Pollution of the river system due to the possible risk of contaminated storm water from the feedlot and compost facilities entering the river systems generally result in significant impacts and degradation of the freshwater ecological system and functioning.

	The potentially affected river reach is characterised by a fairly incised single channel, approximately 10 to 20m wide, which has a bed comprising mostly cobbles and sand.
Probability of occurrence:	2 - Improbable (I)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of habitat and ecological support areas.
Cumulative impact prior to mitigation:	Loss of habitat.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	30 - Medium
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	1- Completely mitigatable (CM)
Proposed mitigation:	The desktop buffer that was generated by the WRC Buffer Tool for the protection of drainage lines within the proposed impacted area itself was a modelled buffer width of 55m for the construction phase and 205m for the operational phase. This buffer width was then refined by applying the site based components of the WRC Buffer Tool, through which a site-specific recommended buffer width of 26m for the construction phase and 100m for the operational phase. The 100m buffer area is to manage the risk of nutrient inputs as a result of the bordering feedlot into the freshwater ecosystem. However, there is an elevated area between the feedlot infrastructure and the non-perennial river and the topography and slope of storm water flow is away from the non-perennial river towards the compost facility.
Residual impacts:	Loss of habitat.
Cumulative impact post mitigation:	Storm water infrastructure was designed outside the 1: 100 year flood line area to capture all contaminated storm water. The soil quality is classified as impermeable and therefore sufficient to be used to line the compost area, feedlot and related services and areas in order to prevent ground water pollution. A borehole down-stream of the collection ponds is proposed to collect possible ground water for monitoring purposes.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Impact on sensitive environments (rivers, wetlands etc)
Nature of impact:	All the facilities are situated on disturbed areas and not on any sensitive areas. The decommissioning activities will only take place on disturbed areas.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Degradation of water course
Probability of occurrence:	1 - Very improbable (VP)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Loss of significantly impacted upon habitat.
Cumulative impact prior to mitigation:	Loss of significantly impacted upon habitat.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	7 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	1- Completely mitigatable (CM)
Proposed mitigation:	Work within site boundaries with no decommissioning activities outside the boundary of the proposed development.
Residual impacts:	Loss of significantly impacted upon habitat.
Cumulative impact post mitigation:	Possible impact on habitats.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	3 - Low

SOCIO-ECONOMIC

INCREASE IN JOBS

Alternative LA1 & LA2	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	
Nature of impact:	Temporary construction jobs will be created. The locals may not have sufficient skills to utilize the employment opportunities and “others (work force and job seekers)” may be employed from outside the community.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Influx of contract workers due to lack of skills. Influx of job seekers due to jobs created. Littering.
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	NA – Positive
Degree to which the impact can be reversed:	NA – Positive
Indirect impacts:	NA – Positive
Cumulative impact prior to mitigation:	NA – Positive
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low (positive)
Degree to which the impact can be avoided:	NA – Positive
Degree to which the impact can be managed:	NA – Positive
Degree to which the impact can be mitigated:	NA – Positive
Proposed mitigation:	Local contractors, employing or seeking to employ local (historically disadvantaged individuals (HDIs) from the region who are suitably qualified, should get preference. The municipality, local community and local community organizations should be informed of the project and potential job opportunities by the developer.
Residual impacts:	NA – Positive
Cumulative impact post mitigation:	NA – Positive
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low (positive)
OPERATIONAL PHASE	
Potential impact and risk:	Increased jobs
Nature of impact:	The facility will employ seven permanent workers (two at compost facility, four at feedlot and remaining farm and one Site/Farm manager) that will maintain and secure the facilities.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	NA - Positive
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	NA – Positive
Degree to which the impact can be reversed:	NA – Positive
Indirect impacts:	NA – Positive
Cumulative impact prior to mitigation:	NA – Positive
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low (positive)
Degree to which the impact can be avoided:	NA – Positive
Degree to which the impact can be managed:	NA – Positive
Degree to which the impact can be mitigated:	NA – Positive
Proposed mitigation:	NA - Positive
Residual impacts:	NA – Positive
Cumulative impact post mitigation:	NA – Positive
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low (positive)
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Increased jobs

Nature of impact:	Not Applicable.
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INCREASE IN TRAFFIC

Alternative LA1 & LA2	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2 (2 – 5 years)
Consequence of impact or risk:	The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.
Probability of occurrence:	2 (some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	1-Resource will not be lost (R)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Cumulative impact prior to mitigation:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Avoid peak traffic hours (07h00 – 08h00 and 17h00 – 18h00) as far as possible
Residual impacts:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Cumulative impact post mitigation:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	<ul style="list-style-type: none"> • The Abattoir by-products (blood, “pensmis”, and minimal carcasses) are gathered on the Abattoir property in the industrial area of Robertson. • This is transported in dedicated blood tanks (honey suckers) and skip trucks daily to the application site. The number of trips are/will be: <ul style="list-style-type: none"> ❖ Honey suckers with blood: once per day ❖ 8 ton skip trucks (truck with tank on top): approx. every second day ❖ No trips on weekends, except in emergency cases ❖ Sheep will be transported in livestock trucks to/from the site once a day.
Extent and duration of impact:	Extent 3 (Within 20 km from the centre of the site) & Duration 5 (Will not cease)
Consequence of impact or risk:	Dusts, noise and the obstruction of DR 1377 may occur.
Probability of occurrence:	2 - Improbable (I)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The two to three additional trips daily will not have an additional substantial impact if compared to the surrounding environment: <ul style="list-style-type: none"> ❖ The R60 carries many trucks between Robertson and Worcester and the railway line runs adjacent to the road; ❖ DR 1384 (tar road) between the R60 and the lime quarry carries many and much heavier trucks to and from the quarry to the lime industry adjacent to the R60; ❖ The lime factory/industry itself creates much noise and dust from their 20/25 ton trucks alongside the R60; and ❖ DR 1377 (gravel road) between Rooiberg Cellar and Nuy carries many trucks from wine farmers, sheep/cattle farmers, and a brewery on a daily basis.
Cumulative impact prior to mitigation:	The increase in traffic volumes at certain times of day will add to the existing

	traffic volumes. The two to three trips per day required by the facility will not have an additional substantial impact if compared to the surrounding environment and existing traffic volumes.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	<ul style="list-style-type: none"> • Abattoir by-products are transported in dedicated blood tanks (honey suckers) and skip trucks daily to the application site. The number of trips are/will be: <ul style="list-style-type: none"> ❖ Honey suckers with blood: once per day ❖ 8 ton skip trucks (truck with tank on top): approx. every second day ❖ No trip on weekends, except in emergency cases ❖ Sheep will be transported in livestock trucks to/from the site once a day. • Most of the trip length will be on tar road (R60 and DR 1384), with only 2km on DR 1377 (gravel) that will create dust. • The two to three additional trips daily will not have an additional substantial impact if compared to the surrounding environment: <ul style="list-style-type: none"> ❖ The R60 carries many trucks between Robertson and Worcester and the railway line runs adjacent to the road; ❖ DR 1384 (tar road) between the R60 and the lime quarry carries many and much heavier trucks to and from the quarry to the lime industry adjacent to the R60; ❖ The lime factory/industry itself creates much noise and dust from their 20/25 ton trucks alongside the R60; and ❖ DR 1377 (gravel road) between Rooiberg Cellar and Nuy carries many trucks from wine farmers, sheep/cattle farmers, and a brewery on a daily basis. • The two gates to the application site were placed approximately 20m inside the boundary of the application site to prevent any obstructions by trucks in road DR 1377.
Residual impacts:	The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the proposed number of trips is relatively low in comparison to surrounding environments, this cumulative impact is not significant.
Cumulative impact post mitigation:	The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the proposed number of trips is relatively low in comparison to surrounding environments, this cumulative impact is not significant.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The decommissioning machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2 (2 – 5 years)
Consequence of impact or risk:	The decommissioning machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.
Probability of occurrence:	2 (some possibility, but low likelihood)
Degree to which the impact may cause irreplaceable loss of resources:	1-Resource will not be lost (R)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Cumulative impact prior to mitigation:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	Avoid peak traffic hours (07h00 – 08h00 and 17h00 – 18h00) as far as possible
Residual impacts:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.

Cumulative impact post mitigation:	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low

NOISE

Alternative LA1 & LA2	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Noise due to construction machinery
Nature of impact:	Noise due to construction machinery during the construction/development phase. Construction machinery may cause noise disturbance to the directly adjacent land users/ owners. It is not anticipated that the noise will be considerable and will only be temporary. Noise due to construction activities is unlikely to cause a nuisance to adjacent residential areas (approximately 2km away).
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 - Probable (P)
Degree to which the impact may cause irreplaceable loss of resources:	1 - Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Nuisance
Cumulative impact prior to mitigation:	Nuisance
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	9 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2- Partially mitigatable (PM)
Proposed mitigation:	Machinery and vehicles should be regularly maintained to prevent excessive noise. All machinery and work activities must adhere to the requirements of the noise regulations.
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	7 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Noise impacts
Nature of impact:	A compost turner, front loader and tractor on site will contribute to noise, but are all agricultural related implements that are associated with buffer areas.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 - Probable (P)
Degree to which the impact may cause irreplaceable loss of resources:	1 - Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Nuisance
Cumulative impact prior to mitigation:	Nuisance
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	9 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2- Partially mitigatable (PM)
Proposed mitigation:	Machinery and vehicles should be regularly maintained to prevent excessive noise. All machinery and work activities must adhere to the requirements of the noise regulations.
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	7 - Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Noise due to decommissioning machinery
Nature of impact:	Noise due to decommissioning machinery during the decommissioning phase. Decommissioning machinery may cause noise disturbance to the directly adjacent land users/ owners. It is not anticipated that the noise will be considerable and will only be temporary. Noise due to decommissioning activities is unlikely to cause a nuisance to adjacent neighbours.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Nuisance
Probability of occurrence:	1 - Very improbable (VP)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Nuisance
Cumulative impact prior to mitigation:	Nuisance
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	9 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2- Partially mitigatable (PM)
Proposed mitigation:	Machinery and vehicles should be regularly maintained to prevent excessive noise. All machinery and work activities must adhere to the requirements of the noise regulations.
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	7 - Low

FLIES

Alternative LA1 & LA2	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Flies.
Nature of impact:	Not applicable.
OPERATIONAL PHASE	
Potential impact and risk:	Flies.
Nature of impact:	Flies attracted as a result of the feedlot and composting activities.
Extent and duration of impact:	Extent 3 (local) & Duration 5 (permanent)
Consequence of impact or risk:	Nuisance
Probability of occurrence:	4 - Highly probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Nuisance
Cumulative impact prior to mitigation:	Nuisance
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	48 – Medium
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	<ul style="list-style-type: none"> • All by-products are covered immediately on delivery which reduces the numbers of flies to a large extent. • The composting process will control the spread of diseases through correct management of temperature and ph. No larva/eggs/worms/bacteria can live in the desirable 55°C within the windrows. • The rows are covered with dry kraal manure from the feedlot that reduce the

	<p>smell, prevent the attraction of flies and are not favourable for flies to lay eggs as it is too dry and warm for them.</p> <ul style="list-style-type: none"> In addition, the rows are also treated with chemicals such as Neoprene from Coopers which is aimed at killing the eggs and larvae of the flies. Baycidal and Temprid from Bayer are also used to kill the flies and larvae. Quik Bayt is dry crystals which attracts and kills flies on contact and are placed at several points around the site. The sheep and manure will attract flies that live in the plants/fynbos in the surrounding area, but will be managed by providing fly traps at the feedlot, similar to the 19+ pheromone fly traps hanging on the fence alongside the composting facility. This will be replaced on a regularly basis. In addition, the sheep and manure will be treated as explained above. <p>The implementation of the existing Standard Operating Procedures (SOPs) for the composting facility as well as the SOPs of the feedlot will mitigate the impacts effectively. These will be monitored regularly. Problems experienced / complaints received will be recorded in a complaints register and addressed when required.</p>
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Flies.
Nature of impact:	Not applicable.

ODOURS

Alternative LA1 & LA2	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Odours
Nature of impact:	Not applicable.
OPERATIONAL PHASE	
Potential impact and risk:	Odours
Nature of impact:	Odours from the feedlot and composting activities.
Extent and duration of impact:	Extent 3 (local) & Duration 5 (permanent)
Consequence of impact or risk:	Nuisance
Probability of occurrence:	4 - Highly probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	1- Resource will not be lost (R)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Nuisance
Cumulative impact prior to mitigation:	Nuisance
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	48 – Medium
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2-Partly mitigatable (PM)
Proposed mitigation:	<ul style="list-style-type: none"> The balance of PH, temperature, air, moisture are critical parameters to ensure correct fermentation/digestion without causing odour or any other problems in the composting facility. These are monitored by the farm manager on a daily basis. Bemlab results for testing compost samples shows a good quality compost with a desirable C:N ratio. Any abattoir product that is brought to the site is covered immediately, except for blood that needs to be soaked for 1 hour before turning and covering. Standard operating procedures have been adapted to ensure that no deliveries leave the abattoir after 15:30 so that it can be received and covered before the end of the shift on the farm. Blood is brought daily to the application site, in comparison with previously when the tanker was filled before delivery to the application site. The blood is

	<p>also top up with water at the abattoir that has reduced the smell considerably.</p> <ul style="list-style-type: none"> • The manager stays on the farm, approximately 120 meters from the application site and monitors the odours on a daily basis. • The nearest residential uses within prevailing wind direction are 2km away and will not be adversely affected. • Three or more official inspections were conducted over the past months by officials from various authorities and none of them have complained about any offensive smells, even though this was one of the aspects they were inspected specifically. <p>The implementation of the existing Standard Operating Procedures (SOPs) for the composting facility as well as the SOPs of the feedlot will mitigate the impacts effectively. These will be monitored regularly. Problems experienced / complaints received will be recorded in a complaints register and addressed when required.</p>
Residual impacts:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high if the mitigation measures are adhered to.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Odours
Nature of impact:	Not applicable.

HERITAGE AND CULTURAL HISTORIC

IMPACT ON ARCHAEOLOGICAL ETC

Alternative LA1 & LA2	Cultural-Historical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The potential impact of the proposed development on archaeological, paleontological and heritage remains.
Nature of impact:	The potential impact of the proposed development on archaeological, paleontological and heritage remains
Extent and duration of impact:	Extent 1 (Footprint) & Duration 5 (Will not cease)
Consequence of impact or risk:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Cumulative impact prior to mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.
Residual impacts:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Cumulative impact post mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
OPERATIONAL PHASE	
Potential impact and risk:	The potential impact of the proposed development on archaeological, paleontological and heritage remains.

Nature of impact:	The potential impact of the proposed development on archaeological, paleontological and heritage remains
Extent and duration of impact:	Extent 1 (Footprint) & Duration 5 (Will not cease)
Consequence of impact or risk:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Cumulative impact prior to mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.
Residual impacts:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Cumulative impact post mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	The potential impact of the proposed development on archaeological, paleontological and heritage remains.
Nature of impact:	The potential impact of the proposed development on archaeological, paleontological and heritage remains
Extent and duration of impact:	Extent 1 (Footprint) & Duration 5 (Will not cease)
Consequence of impact or risk:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.
Cumulative impact prior to mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.
Residual impacts:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Cumulative impact post mitigation:	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low

VISUAL/SENSE OF PLACE

Alternative LA1	Cultural-Historical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Visual impact of construction.
Nature of impact:	The construction activities for the proposed developments will have a temporary visual impact on the landscape.
Extent and duration of impact:	Extent 3 (Local) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Unightly construction camp/s and activities on construction site.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Temporary visual impact on the landscape.
Cumulative impact prior to mitigation:	Temporary visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Proposed construction activities must be limited to development footprint site. Construction camp must be neatly fenced and construction site must be neat and tidy.
Residual impacts:	Temporary visual impact on the landscape.
Cumulative impact post mitigation:	Temporary visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Visual impact
Nature of impact:	The feedlot steel structure (See Appendix B3) will be seen from Road R60, similar to the existing stores on Ptn 6 and the neighbouring farm. The compost facility has an agricultural feel with no negative visual impacts.
Extent and duration of impact:	Extent 3 (Local) & Duration 5 (permanent)
Consequence of impact or risk:	Visual impact
Probability of occurrence:	4 - Highly probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Visual impact on the landscape.
Cumulative impact prior to mitigation:	Visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	56 - Medium-High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Landscape plan
Residual impacts:	Visual impact on the landscape.
Cumulative impact post mitigation:	Visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	20 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Visual impact of decommissioning.
Nature of impact:	The decommissioning activities for the proposed developments and decommissioning will have a temporary visual impact on the landscape.
Extent and duration of impact:	Extent 3 (Local) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Unightly activities on decommissioning site.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)

Indirect impacts:	Temporary visual impact on the landscape.
Cumulative impact prior to mitigation:	Temporary visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Proposed decommissioning activities must be limited to development footprint site. Decommissioning site must be neat and tidy.
Residual impacts:	Temporary visual impact on the landscape.
Cumulative impact post mitigation:	Temporary visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low

Alternative LA2	Cultural-Historical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Visual impact of construction.
Nature of impact:	The construction activities for the proposed developments will have a temporary visual impact on the landscape.
Extent and duration of impact:	Extent 3 (Local) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Unightly construction camp/s and activities on construction site.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Temporary visual impact on the landscape.
Cumulative impact prior to mitigation:	Temporary visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Proposed construction activities must be limited to development footprint site. Construction camp must be neatly fenced and construction site must be neat and tidy.
Residual impacts:	Temporary visual impact on the landscape.
Cumulative impact post mitigation:	Temporary visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Visual impact
Nature of impact:	In this layout the feedlot is located toward the back of the property. This however is not a feasible position due to the dependency of activities between the composting and feedlot processes. The compost facility has an agricultural feel with no negative visual impacts.
Extent and duration of impact:	Extent 3 (Local) & Duration 5 (permanent)
Consequence of impact or risk:	Visual impact
Probability of occurrence:	4 - Highly probable (HP)
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	2 - Partly reversible (PR)
Indirect impacts:	Visual impact on the landscape.
Cumulative impact prior to mitigation:	Visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	56 - Medium-High
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High

Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Landscape plan
Residual impacts:	Visual impact on the landscape.
Cumulative impact post mitigation:	Visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	20 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Visual impact of decommissioning.
Nature of impact:	The decommissioning activities for the proposed developments and decommissioning will have a temporary visual impact on the landscape.
Extent and duration of impact:	Extent 3 (Local) & Duration 1 (0 – 1 years)
Consequence of impact or risk:	Unightly activities on decommissioning site.
Probability of occurrence:	2 - some possibility, but low likelihood
Degree to which the impact may cause irreplaceable loss of resources:	2 - Resource may be partly destroyed (PR)
Degree to which the impact can be reversed:	Partly reversible (PR)
Indirect impacts:	Temporary visual impact on the landscape.
Cumulative impact prior to mitigation:	Temporary visual impact on the landscape.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	16 – Low
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	2 - Partly mitigatable (PM)
Proposed mitigation:	Proposed decommissioning activities must be limited to development footprint site. Decommissioning site must be neat and tidy.
Residual impacts:	Temporary visual impact on the landscape.
Cumulative impact post mitigation:	Temporary visual impact on the landscape.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	8 – Low