

APPENDIX J – IMPACT TABLES

Preferred Alternative: The proposed development includes the following:

- 185 residential Zone 1 erven (approx. 120m² erven) for IRDP housing;
- 3 Open Space Zone I erven;
- 1 Institutional Zone I (Crèche);
- 1 Institutional Zone II (Church)
- roads situated in the 10m road reserves will be 5,5m and 5,0m wide, and associated infrastructure and services

It is therefore the intention to subdivide and rezone an area of ±5.9ha of said portion of land for the purpose of establishing a housing project

New 160 mm and 110 mm diameter uPVC Class 12 water pipelines will be installed within the road reserves 1,0 m from the erf boundary. The water network will be connected (at five places) to the existing 150 / 75 mm Ø main supply water pipeline situated east of the proposed development adjacent to Boundary Road and Main Street.

New 160 mm diameter uPVC 400 KPa sewerage pipelines be installed for the internal sewer network, 1,50 m from the erf boundary. The sewer network will connect at various places to the existing 250 mm diameter outfall sewer running through the development.

A 375mm Ø / 450mm Ø underground stormwater pipe system with grid inlets will be constructed in the road reserve to ensure sufficient drainage from the area. Storm water of the section of Mercury Street drains via the roads to catch pits, from where it is drains through underground stormwater pipelines. The stormwater discharges into existing stormwater pond to the north-eastern side of the site. Storm water of the surrounding Viking Crescent and section of Mercury Street drains via the roads to catch pits (end of road), from where it drains through underground stormwater pipes. The stormwater discharges into existing stormwater pond to the north-eastern side of the site. No subsoil storm water drainage system exists next to the existing roads.

The following external stormwater attenuation dams and networks is proposed to be upgraded:

- An earth berm/cut-off channel is recommended along the south-west boundary of the proposed development to prevent runoff from the larger catchment area to enter the development properties.
- Catchment A (new facility): A new attenuation facility (with new fencing) is proposed for the new development area which will reduce up to the 1 in 100-year post-developed peak runoff to the 1 in 2-year pre-developed runoff. An emergency overflow will also form part of the design of the storage facility should a storm exceeding the 1 in 100-year storm occur.

Catchment B (existing facility): The existing attenuation facility will be extended, an emergency overflow be constructed, and the extended facility be fenced off. The existing detention facility at the intersection of Minor Road 7664 and Main Road 00533 will be expanded from 300m² to 880 m² on the same footprint in between to road and residential erven, which includes the widened towards the Main Road and also be extended in a southeast direction by approximately 20m. The depth of the facility will be increased from 1,35m to 2,5m. By extending and deepening the existing facility, the capacity could be increased to 1400m³. The overflow will be in the form of a shaped open channel towards the unlined side drain of Main Road 00533. The runoff will be conveyed across Minor Road 7664 by means of the new Ø600mm pipe culvert. No further upgrades of this stormwater system nor any work to the system to the ocean are required.

GEOGRAPHICAL AND PHYSICAL

SOIL EROSION AND DUST

Preferred Alternative:	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Soil erosion and dust. the proposed development must comply with the NEM: AQA and National Dust Control Regulations, 2026. These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such quantities and concentrations that the dust, or dust fallout, has a detrimental effect on the environment, including human health.
Nature of impact:	Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site.
Extent and duration of impact:	Extent 1 & Duration 5 (permanent)
Consequence of impact or risk:	Clearing and excavation activities can result in erosion and dust.
Magnitude	2
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)
Degree to which the impact can be reversed:	Completely reversible (R)
Indirect impacts:	Disturbance to surface area can result in erosion and dust generation
Cumulative impact prior to mitigation:	Exposing soil may lead to erosion and dust generation if not mitigated.
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:	• Access to roads and other areas must be controlled to avoid disturbance of areas outside the development footprint. Personnel should be restricted to the immediate construction areas only. • Monitor construction areas frequently for signs of erosion and if signs of erosion are detected implement repair and preventative measures immediately. • Undertake dust suppression as needed. • Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion. • Undertake storm water management measures as required.

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:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

Alternative:	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Soil erosion and dust. the proposed development must comply with the NEM: AQA and National Dust Control Regulations, 2026. These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such quantities and concentrations that the dust, or dust fallout, has a detrimental effect on the environment, including human health.
Nature of impact:	Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site.
Extent and duration of impact:	Extent 1 & Duration 5 (permanent)
Consequence of impact or risk:	Clearing and excavation activities can result in erosion and dust.
Magnitude	2
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)
Degree to which the impact can be reversed:	Completely reversible (R)
Indirect impacts:	Disturbance to surface area can result in erosion and dust generation
Cumulative impact prior to mitigation:	Exposing soil may lead to erosion and dust generation if not mitigated.
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:	Access to roads and other areas must be controlled to avoid disturbance of areas

	outside the development footprint. Personnel should be restricted to the immediate construction areas only. • Monitor construction areas frequently for signs of erosion and if signs of erosion are detected implement repair and preventative measures immediately. • Undertake dust suppression as needed. • Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion. • Undertake storm water management measures as required.
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:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

WATER POLLUTION

Preferred Alternative:	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:	Construction could result in the pollution of surface water and eventually result in ground water pollution. Storm water contamination will result in surface water pollution. Construction activities such as excavation and clearing of vegetation and or diesel and oil spills could impact surface and ground water quality.
Extent and duration of impact:	Extent 3 (Within a 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.
Magnitude	6
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	Partly destroyed 2 (PR)
Degree to which the impact can be reversed:	Partly reversible 6-89% (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)	44 - 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:	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)	27 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Impact of operational activities on surface and underground water pollution.
Potential impact and risk:	Impact of operational activities on surface and underground water pollution.
Nature of impact:	Hazardous material spills could result in the pollution of surface water and eventually result in ground water pollution. Storm water contamination will result in surface water pollution.
Extent and duration of impact:	Extent 3 (Within a 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.
Magnitude	6
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	Partly destroyed 2 (PR)
Degree to which the impact can be reversed:	Partly reversible 6-89% (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)	44 - 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:	Diesel and oil spills affecting ground and surface water quality.
Significance rating of impact after mitigation	27 – Low

(e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.
Alternative:	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:	Construction could result in the pollution of surface water and eventually result in ground water pollution. Storm water contamination will result in surface water pollution. Construction activities such as excavation and clearing of vegetation and or diesel and oil spills could impact surface and ground water quality.
Extent and duration of impact:	Extent 3 (Within a 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.
Magnitude	6
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	Partly destroyed 2 (PR)
Degree to which the impact can be reversed:	Partly reversible 6-89% (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)	44 - 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:	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)	27 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Impact of operational activities on surface and underground water pollution.
Potential impact and risk:	Impact of operational activities on surface and underground water pollution.

Nature of impact:	Hazardous material spills could result in the pollution of surface water and eventually result in ground water pollution. Storm water contamination will result in surface water pollution.
Extent and duration of impact:	Extent 3 (Within a 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.
Magnitude	6
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	Partly destroyed 2 (PR)
Degree to which the impact can be reversed:	Partly reversible 6-89% (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)	44 - 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:	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)	27 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

DISTURBANCE TO SUBSURFACE GEOLOGICAL LAYERS

Preferred Alternative:	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 1 & Duration 2 (2-5 years)
Consequence of impact or risk:	Excavation activities can disturb subsurface geological layers.
Magnitude	2
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)

Degree to which the impact can be reversed:	0% (IR)
Indirect impacts:	Disturbance to surface area can result in erosion and dust generation
Cumulative impact prior to mitigation:	It is not anticipated that the impact will be high as the affected substrata is very shallow and the integrity of the underlying ground structures will thus not be sacrificed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	10 – 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
Proposed 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. 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.
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)	10 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

Alternative:	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 1 & Duration 2 (2-5 years)
Consequence of impact or risk:	Excavation activities can disturb subsurface geological layers.
Magnitude	2
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)
Degree to which the impact can be reversed:	0% (IR)
Indirect impacts:	Disturbance to surface area can result in erosion and dust generation

Cumulative impact prior to mitigation:	It is not anticipated that the impact will be high as the affected substrata is very shallow and the integrity of the underlying ground structures will thus not be sacrificed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	10 – 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
Proposed 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. 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.
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)	10 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

WASTE IMPACTS

Preferred Alternative:	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Waste Impacts
Nature of impact:	General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2
Consequence of impact or risk:	Pollution and nuisance.
Magnitude:	4
Probability of occurrence:	3
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:	Reversible

Indirect impacts:	Impacts on ecological functioning of river. Impacts on fauna.
Cumulative impact prior to mitigation:	• Dumping; • Windblown litter causing nuisance; • Pollution / degradation of the natural environment.
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
Proposed mitigation:	All waste generated on site shall be collected and disposed of at a registered landfill facility; All safe disposal certificates and waste manifests from service providers to be kept and maintained; All staff to receive training on correct waste management practices.
Residual impacts:	None
Cumulative impact post mitigation:	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	18 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Waste Impacts
Nature of impact:	Improved waste collection and service provision.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2
Consequence of impact or risk:	Pollution and nuisance.
Probability of occurrence:	4
Degree to which the impact may cause irreplaceable loss of resources:	3
Degree to which the impact can be reversed:	1 -Resource will not be lost (R)
Indirect impacts:	Reversible
Cumulative impact prior to mitigation:	Impacts on ecology.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	• Dumping; • Windblown litter causing nuisance; • Pollution / degradation of the natural environment.
Degree to which the impact can be avoided:	24 -Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	All waste generated on site shall be collected and disposed of at a registered landfill facility; All safe disposal certificates and waste manifests from service providers to be kept and maintained;

	All staff to receive training on correct waste management practices.
Residual impacts:	None
Cumulative impact post mitigation:	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	18 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

Alternative:	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Waste Impacts
Nature of impact:	General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2
Consequence of impact or risk:	Pollution and nuisance.
Magnitude:	4
Probability of occurrence:	3
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:	Reversible
Indirect impacts:	Impacts on ecological functioning of river. Impacts on fauna.
Cumulative impact prior to mitigation:	• Dumping; • Windblown litter causing nuisance; • Pollution / degradation of the natural environment.
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
Proposed mitigation:	All waste generated on site shall be collected and disposed of at a registered landfill facility; All safe disposal certificates and waste manifests from service providers to be kept and maintained; All staff to receive training on correct waste management practices.
Residual impacts:	None
Cumulative impact post mitigation:	None

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	18 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Waste Impacts
Nature of impact:	Improved waste collection and service provision.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 2
Consequence of impact or risk:	Pollution and nuisance.
Probability of occurrence:	4
Degree to which the impact may cause irreplaceable loss of resources:	3
Degree to which the impact can be reversed:	1-Resource will not be lost (R)
Indirect impacts:	Reversible
Cumulative impact prior to mitigation:	Impacts on ecology.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	• Dumping; • Windblown litter causing nuisance; • Pollution / degradation of the natural environment.
Degree to which the impact can be avoided:	24 -Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	All waste generated on site shall be collected and disposed of at a registered landfill facility; All safe disposal certificates and waste manifests from service providers to be kept and maintained; All staff to receive training on correct waste management practices.
Residual impacts:	None
Cumulative impact post mitigation:	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	18 – Low
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

NOISE

Preferred alternative	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Impact of noise on surrounding environment, especially the surrounding residential area. The Western Cape Noise Control Regulations (Provincial Notice 200/2013) is applicable
Nature of impact:	Environmental noise pollution. Nuisance impacts could relate to the increase noise and disturbance associated with the proposed development, e.g. noise, traffic etc.

	Construction activities and construction personnel on the sites, and construction vehicles moving to and from the sites would cause an increase in noise in the area, which may impact negatively upon the adjoining landowners.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Magnitude	2
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 (distinct possibly)
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:	Completely reversible (R) - This will not be a long-term impact nor will it have an impact on the natural processes. It is thus 100% reversible.
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)	15 – 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:	- Working hours will be restricted to normal working hours. - All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels. - All plant and machinery are to be fitted with adequate silencers. - No sound amplification equipment such as sirens, loud hailers or hooters may be used on site, after normal working hours, except in emergencies. - If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	15 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

Alternative	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Impact of noise on surrounding environment, especially the surrounding residential area. The Western Cape Noise Control Regulations (Provincial Notice 200/2013) is applicable
Nature of impact:	Environmental noise pollution. Nuisance impacts could relate to the increase noise and disturbance associated with the proposed development, e.g. noise, traffic etc. Construction activities and construction personnel on the sites, and construction vehicles moving to and from the sites would cause an increase in noise in the area, which may impact negatively upon the adjoining landowners.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Magnitude	2
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 (distinct possibly)
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:	Completely reversible (R) - This will not be a long-term impact nor will it have an impact on the natural processes. It is thus 100% reversible.
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)	15 – 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:	- Working hours will be restricted to normal working hours. - All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels. - All plant and machinery are to be fitted with adequate silencers. - No sound amplification equipment such as sirens, loud hailer or hooters may be used on site, after normal working hours, except in emergencies. - If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	15 - Low
OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

SOCIO-ECONOMIC, HEALTH AND NUISANCE IMPACT

Preferred Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The surrounding land users/ owners will be exposed to the presence of the construction machinery.
Nature of impact:	Nuisance and air quality impacts as a result of dust and exhaust fumes
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to nuisance and air quality impacts as a result of dust and exhaust fumes
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	Nuisance and air quality impacts as a result of dust and exhaust fumes
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	• Proposed construction activities must be limited to development footprint site. • Dust must be managed and control on site. • All construction vehicles must be serviced to prevent access exhaust emissions and noise.
Residual impacts:	Health impacts
Cumulative impact post mitigation:	The surrounding environment will not be affected by construction activities
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low

OPERATIONAL PHASE	
Potential impact and risk:	Development will provide much needed housing opportunities
Nature of impact:	Health impacts as a result of the housing and better living conditions.
Extent and duration of impact:	Permanent
Consequence of impact or risk:	Health impacts as a result of the housing and better living conditions.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Positive
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	None
Residual impacts:	None
Cumulative impact post mitigation:	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Positive impacts
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to construction phase.

Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The surrounding land users/ owners will be exposed to the presence of the construction machinery.
Nature of impact:	Nuisance and air quality impacts as a result of dust and exhaust fumes
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to nuisance and air quality impacts as a result of dust and exhaust fumes
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	

Cumulative impact prior to mitigation:	Nuisance and air quality impacts as a result of dust and exhaust fumes
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	• Proposed construction activities must be limited to development footprint site. • Dust must be managed and control on site. • All construction vehicles must be serviced to prevent access exhaust emissions and noise.
Residual impacts:	Health impacts
Cumulative impact post mitigation:	The surrounding environment will not be affected by construction activities
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Development will provide much needed housing opportunities
Nature of impact:	Health impacts as a result of the housing and better living conditions.
Extent and duration of impact:	Permanent
Consequence of impact or risk:	Health impacts as a result of the housing and better living conditions.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Positive
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	None
Residual impacts:	None
Cumulative impact post mitigation:	None

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Positive impacts
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to construction phase.

VISUAL IMPACT

Preferred Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The surrounding land users/ owners will be exposed to the presence of the construction machinery
Nature of impact:	Visual impacts
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction vehicles and development equipment.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	The surrounding land users/ owners will be exposed to construction vehicles and development equipment.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Proposed construction activities must be limited to development footprint site.
Residual impacts:	Visual impacts
Cumulative impact post mitigation:	The surrounding environment will not be affected by construction activities
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Visual impacts
Nature of impact:	Change in landscape from open areas to urban development.
Extent and duration of impact:	Permanent

Consequence of impact or risk:	Change in landscape from open areas to urban development.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	None
Degree to which the impact can be managed:	None
Degree to which the impact can be mitigated:	None
Proposed mitigation:	None
Residual impacts:	None
Cumulative impact post mitigation:	None
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:	Similar to construction phase.

Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	The surrounding land users/ owners will be exposed to the presence of the construction machinery
Nature of impact:	Visual impacts
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction vehicles and development equipment.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	The surrounding land users/ owners will be exposed to construction vehicles and development equipment.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low

Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Proposed construction activities must be limited to development footprint site.
Residual impacts:	Visual impacts
Cumulative impact post mitigation:	The surrounding environment will not be affected by construction activities
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Visual impacts
Nature of impact:	Change in landscape from open areas to urban development.
Extent and duration of impact:	Permanent
Consequence of impact or risk:	Change in landscape from open areas to urban development.
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	None
Degree to which the impact can be managed:	None
Degree to which the impact can be mitigated:	None
Proposed mitigation:	None
Residual impacts:	None
Cumulative impact post mitigation:	None
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:	Similar to construction phase.

TRAFFIC IMPACT

Preferred Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	28 - Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	- Proposed construction activities must be limited to development footprint site. - Existing roads must be used. - All roads must be swept and kept clean of mud that may be disposed on tarmac as a result of construction vehicles entering and leaving the site
Residual impacts:	Traffic Impacts
Cumulative impact post mitigation:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Extent and duration of impact:	Permanent

Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	Cannot be avoided.
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Existing roads and accesses is sufficient to accommodated the development traffic.
Residual impacts:	None
Cumulative impact post mitigation:	None
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:	Similar to construction phase.

Alternative:	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Extent and duration of impact:	Extent 3 & Duration 2 (2-5 years)
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Significance rating of impact prior to mitigation	28 - Low

(e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	• Proposed construction activities must be limited to development footprint site. • Existing roads must be used. • All roads must be swept and kept clean of mud that may be disposed on tarmac as a result of construction vehicles entering and leaving the site
Residual impacts:	Traffic Impacts
Cumulative impact post mitigation:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	24 – Low
OPERATIONAL PHASE	
Potential impact and risk:	Traffic Impacts
Nature of impact:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Extent and duration of impact:	Permanent
Consequence of impact or risk:	The surrounding land users/ owners will be exposed to construction and delivery vehicle traffic
Magnitude	2
Probability of occurrence:	4 (most likely)
Degree to which the impact may cause irreplaceable loss of resources:	2 (PR)
Degree to which the impact can be reversed:	2 (PM)
Indirect impacts:	
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	Cannot be avoided.
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Existing roads and accesses is sufficient to accommodated the development traffic.
Residual impacts:	None

Cumulative impact post mitigation:	None
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:	Similar to construction phase.

Stormwater

Preferred alternative	Stormwater Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	There is currently no formal stormwater infrastructure on the proposed development area. The existing Stompneus Bay residential area adjacent to the proposed development area do have stormwater infrastructure which drains in a northern direction and discharges into an existing attenuation facility situated at the intersection of Main Road 00533 and the Minor Road 7664. The attenuation facility of the existing residential area currently has two inlet pipes and no outlet pipe. It is assumed that the pond empties by a combination of infiltration and evaporation. According to the construction details, the section of road adjacent to the existing Stompneus Bay residential area will have an unlined side drain on the side of the road, adjacent to the existing attenuation facility. A Ø600mm pipe culvert is proposed to cross Minor Road 7664 to drain the road runoff from the side drain in a northern direction towards the ocean. It is proposed that the outflow and emergency overflow from the new attenuation facility be discharged into the downstream existing attenuation facility as this is the natural lowest point and the current pre-developed runoff is also discharged into this pond. In order to further reduce the volume of runoff being discharged to the existing attenuation facility, it was decided to size the proposed attenuation facility for the 1:100 year storm event and to limit the outflow towards the existing attenuation facility to the 1:2 year pre-developed flows. The proposed attenuation facility was also be designed with an emergency overflow should a larger storm event occur than the 1:100 year event. It is proposed that the existing attenuation facility be cleared from grub and rubble and be enlarged to provide more capacity within the facility. To restrict the outflow of the proposed facility, an Ø250mm outlet pipe at a slope of 1:250 to the existing facility is proposed. The outlet pipe will only discharge the pre-developed 1 in 2 year runoff towards the existing facility. Although the facility is designed for the 1:100 year storm event,

	an emergency overflow is also proposed, should a larger storm event occur, or to serve as a backup should the outflow pipe be blocked or damaged. The overflow is proposed as an open channel which could be lined with amorfex to prevent erosion along the Minor Road 7664 up to the existing facility. The existing attenuation facility will be widened towards the Main Road and also be extended in a southeast direction by approximately 20m. The depth of the facility could also be increased from 1.35m to 2.5m. By extending and deepening the existing facility, the capacity could be increased to 1400m³. As there is no existing stormwater system to connect to, an outlet pipe for the existing facility will have to be constructed to discharge into the ocean. This will trigger an environmental approval process and since the quality of stormwater might vary between dry periods and wet periods it cannot be guaranteed that the stormwater discharging into the ocean will be pollution free. Therefore, alternative methods were investigated to empty the attenuation facility such as infiltration and evaporation. Based on an average infiltration rate of 100mm/hour since the in-situ material was classified as sand(180mm/h) and calcrete(12mm/h), the infiltration over the extended surface area of 250m²(for an almost empty pond) will be 600m³ per day, or 7ℓ/s. Evaporation rates from the nearest meteorological station were obtained from the Department of Water and Sanitation. The nearest station is G1E007 at Langebaan Road with 27 years of data. The graph below summarizes the rainfall and evaporation depths per month for a hydrological year. Based on the average evaporation over the surface area of the pond, the annual evaporation per year is calculated as 1552.8m³. The extended capacity of the existing facility in combination with the infiltration and evaporation of the facility should provide sufficient storage during storm events. It is recommended that the existing fencing also be extended around the facility to prevent people from entering the area and that safety signage be installed. The facility currently has no formal overflow. Although the runoff in the facility should infiltrate at a fairly quick rate, an emergency overflow is proposed in the event of a major storm where the runoff rate exceeds the infiltration rate, and the facility is already to full capacity. The overflow is proposed at the northern corner of the facility. The overflow can be in the form of a shaped open channel towards the unlined side drain of Main Road 00533. The runoff will be conveyed across Minor Road 7664 by means of the new Ø600mm pipe culvert and from
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	there the runoff should be able to drain along the road towards the ocean. This will ensure that the runoff drains away from the existing dwellings adjacent to the facility.
Nature of impact:	Environmental noise and dust pollution. Nuisance impacts could relate to the increase noise, dust and disturbance associated with the proposed development, e.g. noise, traffic etc. Construction activities and construction personnel on the sites, and construction vehicles moving to and from the sites would cause an increase in noise in the area, which may impact negatively upon the adjoining landowners.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Magnitude	2
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 (distinct possibly)
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:	Completely reversible (R) - This will not be a long-term impact nor will it have an impact on the natural processes. It is thus 100% reversible.
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)	15 – 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:	• Working hours will be restricted to normal working hours. • All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels. • All plant and machinery are to be fitted with adequate silencers. • No sound amplification equipment such as sirens, loud hailer or hooters may be used on site, after normal working hours, except in emergencies. • If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance
Significance rating of impact after mitigation	15 - Low

(e.g. Low, Medium, Medium-High, High, or Very-High)	
OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

Alternative	Socio-Economic Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	There is currently no formal stormwater infrastructure on the proposed development area. The existing Stompneus Bay residential area adjacent to the proposed development area do have stormwater infrastructure which drains in a northern direction and discharges into an existing attenuation facility situated at the intersection of Main Road 00533 and the Minor Road 7664. The attenuation facility of the existing residential area currently has two inlet pipes and no outlet pipe. It is assumed that the pond empties by a combination of infiltration and evaporation. According to the construction details, the section of road adjacent to the existing Stompneus Bay residential area will have an unlined side drain on the side of the road, adjacent to the existing attenuation facility. A Ø600mm pipe culvert is proposed to cross Minor Road 7664 to drain the road runoff from the side drain in a northern direction towards the ocean. It is proposed that the outflow and emergency overflow from the new attenuation facility be discharged into the downstream existing attenuation facility as this is the natural lowest point and the current pre-developed runoff is also discharged into this pond. In order to further reduce the volume of runoff being discharged to the existing attenuation facility, it was decided to size the proposed attenuation facility for the 1:100 year storm event and to limit the outflow towards the existing attenuation facility to the 1:2 year pre-developed flows. The proposed attenuation facility was also be designed with an emergency overflow should a larger storm event occur than the 1:100 year event. It is proposed that the existing attenuation facility be cleared from grub and rubble and be enlarged to provide more capacity within the facility. To restrict the outflow of the proposed facility, an Ø250mm outlet pipe at a slope of 1:250 to the existing facility is proposed. The outlet pipe will only discharge the pre-developed 1 in 2 year runoff towards the existing facility. Although the facility is designed for the 1:100 year storm event, an emergency overflow is also proposed, should a larger storm event occur, or to serve as a backup should the outflow pipe be blocked or damaged.

	The overflow is proposed as an open channel which could be lined with amorfex to prevent erosion along the Minor Road 7664 up to the existing facility. The existing attenuation facility will be widened towards the Main Road and also be extended in a southeast direction by approximately 20m. The depth of the facility could also be increased from 1.35m to 2.5m. By extending and deepening the existing facility, the capacity could be increased to 1400m³. As there is no existing stormwater system to connect to, an outlet pipe for the existing facility will have to be constructed to discharge into the ocean. This will trigger an environmental approval process and since the quality of stormwater might vary between dry periods and wet periods it cannot be guaranteed that the stormwater discharging into the ocean will be pollution free. Therefore, alternative methods were investigated to empty the attenuation facility such as infiltration and evaporation. Based on an average infiltration rate of 100mm/hour since the in-situ material was classified as sand(180mm/h) and calcrete(12mm/h), the infiltration over the extended surface area of 250m²(for an almost empty pond) will be 600m³ per day, or 7ℓ/s. Evaporation rates from the nearest meteorological station were obtained from the Department of Water and Sanitation. The nearest station is G1E007 at Langebaan Road with 27 years of data. The graph below summarizes the rainfall and evaporation depths per month for a hydrological year. Based on the average evaporation over the surface area of the pond, the annual evaporation per year is calculated as 1552.8m³. The extended capacity of the existing facility in combination with the infiltration and evaporation of the facility should provide sufficient storage during storm events. It is recommended that the existing fencing also be extended around the facility to prevent people from entering the area and that safety signage be installed. The facility currently has no formal overflow. Although the runoff in the facility should infiltrate at a fairly quick rate, an emergency overflow is proposed in the event of a major storm where the runoff rate exceeds the infiltration rate, and the facility is already to full capacity. The overflow is proposed at the northern corner of the facility. The overflow can be in the form of a shaped open channel towards the unlined side drain of Main Road 00533. The runoff will be conveyed across Minor Road 7664 by means of the new Ø600mm pipe culvert and from there the runoff should be able to drain along the road towards the ocean. This will ensure that the
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	runoff drains away from the existing dwellings adjacent to the facility.
Nature of impact:	Environmental noise and dust pollution. Nuisance impacts could relate to the increase noise, dust and disturbance associated with the proposed development, e.g. noise, traffic etc. Construction activities and construction personnel on the sites, and construction vehicles moving to and from the sites would cause an increase in noise in the area, which may impact negatively upon the adjoining landowners.
Extent and duration of impact:	Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)
Magnitude	2
Consequence of impact or risk:	Nuisance
Probability of occurrence:	3 (distinct possibly)
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:	Completely reversible (R) - This will not be a long-term impact nor will it have an impact on the natural processes. It is thus 100% reversible.
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)	15 – 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:	- Working hours will be restricted to normal working hours. - All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels. - All plant and machinery are to be fitted with adequate silencers. - No sound amplification equipment such as sirens, loud hailer or hooters may be used on site, after normal working hours, except in emergencies. - If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority
Residual impacts:	Nuisance
Cumulative impact post mitigation:	Nuisance
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	15 - Low

OPERATIONAL PHASE	
Potential impact and risk:	Not applicable to operational phase.
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Similar to impacts associated with construction phase.

TERRESTRIAL BIODIVERSITY IMPACTS FOR BOTH ALTERNATIVES

Development Construction	TERRESTRIAL BIODIVERSITY IMPACTS
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Terrestrial Biodiversity Impacts
Nature of impact:	Discussion: Based on the floristic composition of the site presented, it is agreed that the site does not contain representative Saldanha Granite Strandveld, but is most likely secondary regrowth after disturbance that is also degraded. Of the mapped CBA area, approximately 800m² consist of degraded vegetation that does not represent Saldanha Granite Strandveld Vegetation structure and the rest are disturbed areas. The CBA is contested, in which regard we wish to note that in certain cases, very small fragments of CBA are often outliers from the process of developing the BSP and can be considered as errors which is clear in this site mapped CBA as visible in the image below. Most of the mapped CBA area is also existing cleared and residential erven which further strengthen this conclusion. The rest of the development area was correctly mapped as no CBA or ESA. None of the species listed in the Screening Tool Report were recorded on site. Biodiversity Spatial Plan (BSP) Reasons recorded SA Vegetation Type (0.57), Threatened SA Vegetation Type (0.11), Threatened Vertebrate (0.92), Water resource protection (0.08), Bontebok Extended Distribution Range, Saldanha Granite Strandveld (CN) and Watercourse protection - South Western Coastal Belt. The proposed development will not impact on the BSP reasons because the floristic composition of the site presented on the site does not contain representative Saldanha Granite Strandveld, but is most likely secondary regrowth after disturbance that is also degraded. Threatened Vertebrate were also not recorded on site and their habitat is not on site. Nor does the site or bigger area be part of any bontebok herds and therefore the Bontebok Extended Distribution Range is not affected or impacted. No water courses of freshwater ecological features were mapped on site, or in close proximity or its regulated zones and therefore the Watercourse protection - South Western Coastal Belt is not affected or impacted.
Extent and duration of impact:	Extent 1 (footprint) & Duration 1
Magnitude:	Minor
Consequence of impact or risk:	Loss or impacts on indigenous vegetation
Probability of occurrence:	Improbable

Degree to which the impact may cause irreplaceable loss of resources:	Irreversible
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	Disturbance to surface area can result in impacts on indigenous vegetation
Cumulative impact prior to mitigation:	Habitat fragmentation, loss of ecological connectivity and erosion
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Partly mitigatable
Proposed mitigation:	Should any faunal SCC be encountered during construction, these must be recorded (i.e. be photographed, GPS co-ordinates taken) and photographs placed on iNaturalist Any faunal species that may die as a result of construction activities must be recorded (i.e. be photographed, GPS co-ordinates taken) and these records placed on iNaturalist. In addition to all mitigations listed above a clause must be included in contracts for ALL personnel working on site stating that: "no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass." A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC. Fauna chance-find protocol, restrictions on night lighting, pet control during construction, and alien-plant clearing must be included in EMPr.
Residual impacts:	It is not anticipated that the impact will be high.
Cumulative impact post mitigation:	It is not anticipated that the impact will be high.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very low
OPERATIONAL PHASE	
Potential impact and risk:	Impact on terrestrial biodiversity
Nature of impact:	None. Area will be developed
Extent and duration of impact:	None. Area will be developed
Magnitude:	None. Area will be developed
Consequence of impact or risk:	None. Area will be developed
Probability of occurrence:	None. Area will be developed

Degree to which the impact may cause irreplaceable loss of resources:	None. Area will be developed
Degree to which the impact can be reversed:	None. Area will be developed
Indirect impacts:	None. Area will be developed
Cumulative impact prior to mitigation:	None. Area will be developed
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None. Area will be developed
Degree to which the impact can be avoided:	None. Area will be developed
Degree to which the impact can be managed:	None. Area will be developed
Degree to which the impact can be mitigated:	None. Area will be developed
Proposed mitigation:	None. Area will be developed
Residual impacts:	None. Area will be developed
Cumulative impact post mitigation:	None. Area will be developed
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None. Area will be developed
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Impact on indigenous vegetation
Nature of impact:	Similar to that in the development phase.

IMPACT TABLES-NO-GO

GEOGRAPHICAL AND PHYSICAL SOIL EROSION AND DUST

Preferred alternative	Geographical and Physical Impacts
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Not applicable
OPERATIONAL PHASE	
Potential impact and risk:	Soil erosion
Nature of impact:	Storm water channels prone to erosion.
Extent and duration of impact:	Extent 2 & Duration 3 (5 – 15 years)
Consequence of impact or risk:	Possible pollution of surface and ground water.
Magnitude	4 (will cause a slight impact on processes)
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:	Erosion and impact on surrounding environment.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	36-Medium

Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	3
Proposed mitigation:	NA
Residual impacts:	Soil erosion.
Cumulative impact post mitigation:	Soil erosion.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	36 – Medium
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	Not applicable