

Reference	PRIOR TO MITIGATION										POST MITIGATION								
	Impact Description	Phase	Severity	Extent	Duration	Consequence of Impact	Probability	Confidence	Status	Significance of Impact	Mitigation Measures	Severity	Extent	Duration	Consequence of Impact	Probability	Confidence	Status	Significance of Impact
Construction Phase Impact Assessment																			
	Geology					#N/A				#N/A					#N/A				#N/A
	The sourcing of the material for the construction of the HSPG may have a permanent impact on the mineral potential and geology of the Kalahari Group.	Construction	Low	Low	High	Medium	High	High	Negative	Medium	No mitigation measures are required	Low	Low	High	Medium	High	High	Negative	Medium
	Excavation may influence the underlying Kalahari Group of the site as a void may be created, that will have a steep gradient or stepped walls	Construction	Low	Low	High	Medium	High	High	Negative	Medium	No mitigation measures are required	Low	Low	High	Medium	High	High	Negative	Medium
	Resultant impacts from blasting and vibrations may impact on Kalahari Group	Construction	Low	Low	Low	Low	High	High	Negative	Medium	No mitigation measures are required	Low	Low	Low	Low	High	High	Negative	Medium
	Topography					#N/A				#N/A					#N/A				#N/A
	The development of the Borrow Pit and Quarry will alter the linear dunes and inter-dune straaten of the area	Construction	High	Low	High	High	High	High	Negative	High	Refer to EMPr Topography	Medium	Low	High	Medium	Low	High	Negative	Low
	The development of the HSPG will alter the linear dunes and inter-dune straaten of the area	Construction	High	Low	High	High	Medium	High	Negative	High	Refer to EMPr Topography	Medium	Low	High	Medium	Medium	High	Negative	Medium
	Activities associated with site clearing, topsoil stripping and topsoil stockpiling for the contractor laydown area and development of the HSPG may have an impact on the topography of the area.	Construction	Low	Low	Low	Low	High	High	Negative	Medium	Refer to EMPr Topography	Low	Low	Low	Low	Low	High	Negative	Low
	Soil, Land Use and Land Capability					#N/A				#N/A					#N/A				#N/A
	Activities associated with the extraction of material and development of the HSPG including development and use of access roads will have a direct impact on the dunes found in the area.	Construction	High	Low	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Soi, Land Use and Land Capability	Medium	Low	Low	Low	Low	High	Negative	Low
	Stockpiling and crushing of construction material prior to being transferred into the tipper vehicles can result in the generation of dust and settling of the particulate matter on the surrounding environment (Fauna and Flora).	Construction	Low	Medium	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Soi, Land Use and Land Capability	Low	Low	Low	Low	Low	High	Negative	Low
	The construction of the HSPG will have an impact on the current land use and grazing potential of the area.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Soi, Land Use and Land Capability	Low	Low	Low	Low	Low	High	Negative	Low
	Leakages and spillages of hydrocarbons from vehicles, machinery and equipment as well as the spillage of sewage from chemical toilets could cause deterioration of the soils resulting in a loss of land capability within the immediate area.	Construction	High	Low	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Soi, Land Use and Land Capability	Medium	Low	Low	Low	Low	High	Negative	Low
	Soil contamination though poor management of wastes generated onsite.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Soi, Land Use and Land Capability	Low	Low	Low	Low	Low	High	Negative	Low
	Compaction of soil will concentrate surface water runoff from the site, resulting in downstream erosion, flooding or loss of biodiversity	Construction	Medium	Low	Low	Low	High	High	Negative	Medium	Refer to EMPr Soi, Land Use and Land Capability	Medium	Low	Low	Low	Low	High	Negative	Low

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	Biodiversity					#N/A					#N/A									#N/A
	The development of the HSPG could result in the loss of the already threatened Gordonia Duneveld.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Traffic and transport activities may impact flora and fauna species.	Construction	Low	Medium	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Pumping of groundwater from the proposed property and surrounding areas may have an impact on sensitive ecosystems such as wetlands and may result in a loss of flora and fauna species	Construction	Low	Medium	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Biodiversity	Low	Medium	Low	Low	Low	High	Negative	Low	
		Construction	High	Low	High	High	High	High	Negative	High		Medium	Low	Medium	Medium	Medium	High	Negative	Medium	
	Generation of dust during clearing and excavation activities could result in the loss of biodiversity in the project area.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Generation of noise during excavation activities resulting in the outflow of biodiversity from the project site.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Incorrect management and storage of dangerous goods and chemicals, including waste and sewage, could result in the pollution of soils and watercourses which may impact negatively on plants and subsequently animals.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Fragmentation of the biodiversity as a result of the development can lead to the loss in ecological connectivity of the area.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Biodiversity	Medium	Low	Low	Low	Low	High	Negative	Low	
	The construction of the HSPG may have a direct impact on the protected flora species of the area and may result in the loss / degradation of these species.	Construction	High	Medium	High	High	High	High	Negative	High	Refer to EMPr Biodiversity	Medium	Low	Low	Low	Medium	High	Negative	Medium	
	Fauna species may be disturbed during the construction phase and may need to be relocated away from the proposed HSPG.	Construction	High	Medium	High	High	High	High	Negative	High	Refer to EMPr Biodiversity	Medium	Medium	Low	Medium	Medium	High	Negative	Medium	
	The extract of material (Granite outcrop) required for the construction of the HSPG may have a direct impact on the smaller fauna species (Reptiles, Rodents) due to a loss in habitat.	Construction	High	Low	Low	Medium	High	High	Negative	Medium	Refer to EMPr Biodiversity	Medium	Low	Low	Low	Medium	High	Negative	Medium	
	The project and especially the excavation of road building material have the potential to impact on biodiversity situated within the wetland area.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Biodiversity	Low	Low	Low	Low	Low	High	Negative	Low	
	Facilitation of alien invasive species resulting from excavation activities as people and vehicles are brought onto site. This can cause the displacement of indigenous species, transformation of terrestrial habitats and altering ecosystem functioning and services.	Construction	Medium	Medium	Medium	Medium	Medium	High	Negative	Medium	Refer to EMPr Biodiversity	High	Low	High	High	High	High	Positive	High	

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	Rivers, Wetland and Pans					#N/A				#N/A					#N/A				#N/A
	Alteration in the infiltration of both surface and groundwater may potential alter the flow regime of the wetland	Construction	Low	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr River, Wetland and Pans	Low	Low	Low	Low	Low	High	Negative	Low
	The abstraction of groundwater may affect the flow of water to and from the wetland.	Construction	Low	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr River, Wetland and Pans	Low	Low	Low	Low	Low	High	Negative	Low
	The construction of the HSPG and extraction of materials for the development may alter the water quality of the wetland.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr River, Wetland and Pans	Low	Low	Low	Low	Low	High	Negative	Low
	Flow diversion of the surface water as a result of the construction of HSPG.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr River, Wetland and Pans	Low	Low	Low	Low	Low	High	Negative	Low
	Change from wetland to terrestrial habitat and loss of wetland functions as a result of the construction of HSPG.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr River, Wetland and Pans	Medium	Low	Low	Low	Low	High	Negative	Low
	Direct destruction of wetland through the construction of the HSPG affecting wildlife habitat and flow attenuation functions, organic matter inputs and potential for erosion.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr River, Wetland and Pans	Medium	Low	Low	Low	Low	High	Negative	Low
	Wetland contamination may occur from spillages and leakages of hydrocarbons, contaminated water onsite.	Construction	High	Low	Low	Medium	Low	High	Negative	Low	Refer to EMPr River, Wetland and Pans	Medium	Low	Low	Low	Low	High	Negative	Low
	Hydrology																		
	The compaction of surfaces will modify the infiltration rates which may impact surface water.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Hydrology	Medium	Low	Low	Low	Low	High	Negative	Low
	The alteration/removal of vegetation may modify the infiltration rates which may impact surface water .	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Hydrology	Medium	Low	Low	Low	Low	High	Negative	Low
	Contaminated from hydrocarbon spillages will affect runoff which may impact surface water.	Construction	High	Low	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Hydrology	High	Low	Low	Medium	Low	High	Negative	Low
	The excavation of the material required to develop the HSPG may alter the natural drainage of the area.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Hydrology	Medium	Low	Low	Low	Low	High	Negative	Low
	Geohydrology																		
	Contamination of Groundwater from the construction of the borrow pit and quarry area.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Geohydrology	Medium	Low	Low	Low	Low	High	Negative	Low
	The compaction of surfaces will modify the infiltration rates which may impact groundwater.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Geohydrology	Medium	Low	Low	Low	Low	High	Negative	Low
	Pumping of groundwater from the site and surrounding areas may reduce the natural groundwater recharge.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Geohydrology	Low	Low	Low	Low	Low	High	Negative	Low
	Leakages and spillages of hydrocarbons from vehicles, machinery and equipment as well as the spillage of sewage from chemical toilets could result in the contamination of groundwater.	Construction	Medium	Low	Low	Low	Medium	High	Negative	Medium	Refer to EMPr Geohydrology	Medium	Low	Low	Low	Low	High	Negative	Low

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	Air Quality																		
	The generation of dust (PM10 and dust fallout) from land clearing, blasting, crushing and screening, transport via gravel roads, stockpiles, etc. may impact the air quality.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Dust may impact on the health and safety of employees and the surrounding community through respiratory, visual and aesthetic impacts.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Vehicle activity on the main road from the Upington Airport to the proposed project may generate dust which may impact on air quality.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Emission of NO2, SO2, CO and VOC from vehicles, machinery and equipment.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Impact from dust (PM10 and dust fallout) on biodiversity.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Air quality impacts on residential receptors	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Air Quality	Low	Low	Low	Low	Low	High	Negative	Low
	Noise and Vibrations																		
	Acoustic impacts as a result of the construction of the HSPG on residential receptors	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Noise and Vibrations	Low	Low	Low	Low	Low	High	Negative	Low
	Noise may be generated from blasting, transportation, machinery etc. which may have a negative impact on the surrounding biophysical and socio-economic environment.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Noise and Vibrations	Low	Low	Low	Low	Low	High	Negative	Low
	Vibrations from blasting may result in displacement of sensitive fauna species.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Noise and Vibrations	Low	Low	Low	Low	Low	High	Negative	Low
	Vibrations may cause failure which may impact on the health and safety of employees, as well as the subsidence of topography.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Noise and Vibrations	Low	Low	Low	Low	Low	High	Negative	Low
	Archaeology, Historic and Cultural																		
	The proposed project may have an impact on sites of archaeological, historic and cultural importance/significance which includes three site locations (Site 028,030 and 087).	Construction	High	Low	High	High	High	High	Negative	High	Refer to EMPr Archaeology	Low	Low	Low	Low	Low	High	Negative	Low
	The proposed construction of the oval testing track may have an impact on the archaeological, historic and culturally important items found ± km 7 in the north eastern portion of the farm (Site 011-017/715).	Construction	Medium	Low	Medium	Medium	Low	High	Negative	Low	Refer to EMPr Archaeology	Low	Low	Low	Low	Low	High	Negative	Low
	The identification of buried archaeological sites and unmarked human remains may be uncovered during vegetation clearing, landscaping and earthmoving operations.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Archaeology	Low	Low	Low	Low	Low	High	Negative	Low
	The extraction of granite from the outcropping/inselberg located on the property may have an impact archaeological, historic and culturally important items found (Site 055 and 056).	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Archaeology	Low	Low	Low	Low	Low	High	Negative	Low
	The development of the bad roads may have an impact on the archaeological, historic and culturally important items found in this area (Site 745-749, 750/751 and 753).	Construction	Medium	Low	Low	Low	High	High	Negative	Medium	Refer to EMPr Archaeology	Medium	Low	Low	Low	Low	High	Negative	Low

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	Traffic					#N/A				#N/A					#N/A				#N/A
	The estimated construction period of the HSPG infrastructure is two years could potentially cause a deterioration of the public roads (both paved and unpaved) due to increase vehicle traffic.	Construction	Medium	Medium	Low	Medium	Low	High	Negative	Low	Refer to EMPr Traffic	Medium	Medium	Low	Medium	Low	High	Negative	Low
	Operation of vehicles may increase the occurrences of road accidents around the project site.	Construction	High	Medium	Low	Medium	Low	High	Negative	Low	Refer to EMPr Traffic	High	Medium	Low	Medium	Low	High	Negative	Low
	The construction of the HSPG could result in an increase of road users (including light and heavy weight vehicles) to and from the site.	Construction	Medium	Medium	Low	Medium	Low	High	Negative	Low	Refer to EMPr Traffic	Medium	Medium	Low	Medium	Low	High	Negative	Low
	The north-eastern shoulder sight distance at the proposed access location is below road standard which could pose a risk to health and safety for road users.	Construction	Medium	Medium	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Traffic	Low	Medium	Low	Low	Low	High	Negative	Low
	Visual																		
	The generation of dust during construction of the HSPG may have visual impact within the surrounding area.	Construction	Medium	Medium	Low	Medium	High	High	Negative	Medium	Refer to EMPr Visual	Medium	Medium	Low	Medium	Low	High	Negative	Low
	Visual intrusion associated with construction equipment including the crushing plant and vehicle movement may have an impact to the aesthetics of the area.	Construction	Medium	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Visual	Medium	Low	Low	Low	Low	High	Negative	Low
	Socio-economic																		
	Creation of employment and business opportunities and opportunity for skills development and on-site training.	Construction	High	Medium	Low	Medium	High	High	Positive	Medium	Refer to EMPr Socio-economic	High	High	Low	High	High	High	Positive	High
	Potential impacts on family structures and social networks associated with the presence of construction workers	Construction	Low	Medium	Low	Low	Low	High	Negative	Low	Refer to EMPr Socio-economic	Low	Low	Low	Low	Low	High	Negative	Low
	Safety and security risk associated with presence of construction workers.	Construction	Medium	Medium	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Socio-economic	Low	Low	Low	Low	Low	High	Negative	Low
	Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of grass fires.	Construction	Medium	Medium	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Socio-economic	Low	Low	Low	Low	Low	High	Negative	Low
	Potential noise, dust and safety impacts associated with construction activities and the movement of traffic to and from the site .	Construction	Medium	Medium	Low	Medium	Medium	High	Negative	Medium	Refer to EMPr Socio-economic	Low	Low	Low	Low	Low	High	Negative	Low
	The activities associated with the construction phase, such as establishment of access roads, HSPG and borrow pits etc. May result in the loss of land available for grazing.	Construction	Low	Low	Low	Low	Low	High	Negative	Low	Refer to EMPr Socio-economic	Low	Low	Low	Low	Low	High	Negative	Low