

## Appendix 5 – Impact Assessment Matrix

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria				
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitigation ER	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score
1	Air Quality - Increase in air quality impacts due to construction of the road	Alternative 1	Construction	-1	3	2	3	2	4	-10.0	-1	3	1	3	2	3	-6.8	Medium	2	1	1.13	-7.6
2	Air Quality - Increase in air quality impacts due to construction of the wells	Alternative 1	Construction	-1	2	2	4	2	4	-10.0	-1	2	1	3	2	3	-6.0	Medium	2	1	1.13	-6.8
3	Air Quality - Increase in air quality impacts due to the operation of vehicles on unpaved roads	Alternative 1	Operation	-1	2	2	3	2	4	-9.0	-1	2	2	2	2	3	-6.0	Medium	2	1	1.13	-6.8
4	Air Quality - Increase in air quality impacts due to decommissioning and closure	Alternative 1	Decommissioning	-1	3	2	4	2	4	-11.0	-1	2	2	3	2	3	-6.8	Medium	1	1	1.00	-6.8
5	Noise - Increase in noise levels due to construction of the wells	Alternative 1	Construction	-1	3	2	4	2	4	-11.0	-1	3	2	3	2	3	-7.5	Medium	1	1	1.00	-7.5
6	Noise - Increase in noise levels	Alternative 1	Decommissioning	-1	3	2	4	2	4	-11.0	-1	3	2	3	2	3	-7.5	Medium	1	1	1.00	-7.5
7	Groundwater deterioration and	Alternative 1	Construction	-1	2	2	2	2	2	-4.0	-1	2	2	1	2	1	-1.8	Medium	1	1	1.00	-1.8

	siltation due to contaminated stormwater run-off from the construction area.																					
8	Poor quality leachate may emanate from the construction camp which may have a negative impact on groundwater quality.	Alternative 1	Construction	-1	2	2	3	3	3	-7.5	-1	2	2	2	3	2	-4.5	Medium	2	2	1.25	-5.6
9	Mobilisation and maintenance of heavy vehicle and machinery on-site may cause hydrocarbon contamination of groundwater resources.	Alternative 1	Construction	-1	3	2	4	4	3	-9.8	-1	2	2	4	4	2	-6.0	Medium	2	2	1.25	-7.5
10	Poor storage and management of hazardous chemical substances on-site may cause groundwater pollution.	Alternative 1	Construction	-1	3	2	3	3	3	-8.3	-1	2	2	2	3	2	-4.5	Medium	2	2	1.25	-5.6
11	Poor storage and management of hazardous chemical substances on-site may cause	Alternative 1	Operation	-1	3	2	4	4	3	-9.8	-1	2	2	4	4	2	-6.0	Medium	2	2	1.25	-7.5

	groundwater pollution.																					
12	Leakage of harmful substances from tanks or other equipment may cause groundwater pollution.	Alternative 1	Operation	-1	3	2	4	4	3	-9.8	-1	2	2	4	4	2	-6.0	Medium	2	2	1.25	-7.5
13	Migration of saline groundwater from the deep, fractured aquifer to the overlying, potable aquifer(s) during the borehole closure and decommissioning phase.	Alternative 1	Decommissioning	-1	3	3	5	5	4	-16.0	-1	2	2	4	4	3	-9.0	Medium	2	2	1.25	-11.3
14	Migration of stray gas from the deep, fractured aquifer to the overlying, potable aquifer(s) borehole closure and decommissioning phase.	Alternative 1	Decommissioning	-1	3	3	5	5	4	-16.0	-1	2	2	4	4	3	-9.0	Medium	2	2	1.25	-11.3
15	Hydrology - Loss of watercourse vegetation	Alternative 1	Construction	-1	3	1	1	2	2	-3.5	-1	2	1	1	2	1	-1.5	Low	2	1	1.13	-1.7
16	Erosion	Alternative 1	Construction	-1	3	2	1	2	4	-8.0	-1	2	1	2	2	2	-3.5	Low	2	1	1.13	-3.9
17	Stormwater contamination	Alternative 1	Construction	-1	3	2	2	2	4	-9.0	-1	1	1	2	2	2	-3.0	Medium	2	1	1.13	-3.4
18	Alien and/or	Alternative 1	Construction	-1	3	4	3	3	2	-6.5	-1	2	2	1	2	1	-1.8	Low	2	1	1.13	-2.0

	Invasive Vegetation																					
19	Alterations of the river banks and river bed	Alternative 1	Construction	-1	2	2	2	3	3	-6.8	-1	2	2	1	2	2	-3.5	Medium	2	2	1.25	-4.4
20	Erosion	Alternative 1	Operation	-1	3	2	3	2	2	-5.0	-1	2	2	3	2	1	-2.3	Low	2	2	1.25	-2.8
21	Stormwater contamination	Alternative 1	Operation	-1	2	2	3	3	3	-7.5	-1	2	2	1	2	2	-3.5	Medium	2	2	1.25	-4.4
22	Alien and/or Invasive Vegetation	Alternative 1	Operation	-1	3	4	3	3	3	-9.8	-1	2	2	1	3	2	-4.0	Medium	2	2	1.25	-5.0
23	Erosion	Alternative 1	Decommissioning	-1	2	4	3	2	2	-5.5	-1	2	3	3	2	1	-2.5	Low	2	2	1.25	-3.1
24	Alien and/or Invasive Vegetation	Alternative 1	Decommissioning	-1	3	4	3	3	2	-6.5	-1	2	2	1	2	1	-1.8	Low	2	1	1.13	-2.0
25	Impact on unidentified heritage resources	Alternative 1	Construction	-1	2	5	1	5	1	-3.3	-1	1	2	2	4	2	-4.5	Medium	2	3	1.38	-6.2
26	Impact on burial grounds and graves	Alternative 1	Construction	-1	2	2	5	5	4	-14.0	-1	1	2	2	5	2	-5.0	Medium	2	3	1.38	-6.9
27	Impact on historic to recent sites with possible graves	Alternative 1	Construction	-1	2	2	4	5	3	-9.8	-1	1	2	2	5	2	-5.0	Medium	1	3	1.25	-6.3
28	Impact on structures of medium heritage significance	Alternative 1	Construction	-1	1	2	3	5	3	-8.3	-1	1	2	3	3	2	-4.5	Medium	2	2	1.25	-5.6
29	Impact on palaeontology	Alternative 1	Construction	-1	2	5	4	5	4	-16.0	-1	1	5	2	5	2	-6.5	Medium	2	3	1.38	-8.9
30	Impact on livelihoods	Alternative 1	Construction	-1	2	2	4	4	5	-15.0	-1	2	2	2	3	5	-11.3	High	2	2	1.25	-14.1
31	Impact on livelihoods	Alternative 1	Operation	-1	3	2	5	4	5	-17.5	-1	2	2	4	3	3	-8.3	High	2	2	1.25	-10.3
32	Nuisance factor due to increase in ambient dust and noise levels	Alternative 1	Construction	-1	2	2	3	3	5	-12.5	-1	2	2	3	3	4	-10.0	High	2	1	1.13	-11.3
33	Damage to farm roads, existing services,	Alternative 1	Construction	-1	3	2	5	3	5	-16.3	-1	2	2	4	2	4	-10.0	High	2	1	1.13	-11.3

	and infrastructure																					
34	Damage to farm roads, existing services, and infrastructure	Alternative 1	Operation	-1	3	2	5	3	4	-13.0	-1	2	2	4	3	4	-11.0	High	3	1	1.25	-13.8
35	Impacts on livelihoods due to behaviour of contractors	Alternative 1	Construction	-1	3	2	4	2	4	-11.0	-1	2	2	3	2	3	-6.8	High	2	1	1.13	-7.6
36	Impacts on safety and security of local residents	Alternative 1	Construction	-1	3	2	5	3	4	-13.0	-1	3	2	3	3	4	-11.0	High	3	3	1.50	-16.5
37	Impacts on safety and security of local residents	Alternative 1	Operation	-1	3	2	5	3	5	-16.3	-1	3	2	4	3	4	-12.0	High	2	2	1.25	-15.0
38	Impacts on sense and spirit of place	Alternative 1	Construction	-1	2	2	5	3	5	-15.0	-1	2	2	4	2	4	-10.0	High	3	2	1.38	-13.8
39	Increase in social pathologies	Alternative 1	Construction	-1	3	2	3	3	4	-11.0	-1	3	2	3	2	4	-10.0	Medium	2	1	1.13	-11.3
40	Impact on Existing Agricultural Landscape Character	Alternative 1	Construction	-1	2	1	3	2	4	-8.0	-1	2	1	3	2	4	-8.0	Medium	2	1	1.13	-9.0
41	Impact on Existing Agricultural Landscape Character	Alternative 1	Operation	-1	1	2	1	2	2	-3.0	-1	1	2	1	2	2	-3.0	Medium	2	1	1.13	-3.4
42	Impact on Existing Natural Landscape Character	Alternative 1	Construction	-1	2	1	3	2	4	-8.0	-1	1	1	2	2	2	-3.0	Medium	2	1	1.13	-3.4
43	Impact on Existing Natural Landscape Character	Alternative 1	Operation	-1	2	2	2	2	3	-6.0	-1	1	2	1	1	2	-2.5	Medium	2	1	1.13	-2.8
44	The visual impact on views from local roads	Alternative 1	Construction	-1	2	1	3	2	4	-8.0	-1	2	1	2	2	3	-5.3	Medium	2	1	1.13	-5.9
45	Change of Natural of	Alternative 1	Construction	-1	2	2	4	2	4	-10.0	-1	2	1	1	2	3	-4.5	Medium	2	1	1.13	-5.1

	Views from Homesteads																					
46	The visual impact on views from local homesteads due to Lighting	Alternative 1	Construction	-1	2	1	4	1	4	-8.0	-1	1	1	1	1	1	-1.0	Medium	1	1	1.00	-1.0
47	The visual impact on views from local homesteads due to Lighting	Alternative 1	Operation	-1	2	2	4	1	4	-9.0	-1	1	2	1	1	1	-1.3	Medium	1	1	1.00	-1.3
48	Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.	Alternative 1	Planning	-1	2	2	2	1	2	-3.5	-1	1	1	1	1	2	-2.0	High	1	1	1.00	-2.0
49	Destruction, further loss and fragmentation of the vegetation community	Alternative 1	Construction	-1	2	2	4	3	4	-11.0	-1	2	2	3	2	4	-9.0	High	2	2	1.25	-11.3
50	Introduction of alien species, especially plants	Alternative 1	Construction	-1	2	3	3	2	3	-7.5	-1	1	2	2	3	3	-6.0	High	1	1	1.00	-6.0
51	Erosion due to storm water runoff and wind	Alternative 1	Construction	-1	2	3	3	2	3	-7.5	-1	2	2	2	3	3	-6.8	Medium	2	1	1.13	-7.6
52	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions,	Alternative 1	Construction	-1	2	2	4	3	3	-8.3	-1	1	2	3	3	3	-6.8	Medium	1	2	1.13	-7.6

	noise, light, dust, vibration and poaching).																					
53	Potential leaks, discharges, pollutant from activities leaching into the surrounding environment	Alternative 1	Construction	-1	3	3	3	3	3	-9.0	-1	2	2	2	3	3	-7.5	High	1	1	1.00	-7.5
54	Environmental pollution due to potential leaks, discharges, pollutant leaching into the surrounding environment	Alternative 1	Operation	-1	3	3	3	3	3	-9.0	-1	2	2	3	3	2	-5.0	High	1	1	1.00	-5.0
55	Introduction of alien species, especially plants	Alternative 1	Operation	-1	2	3	3	2	3	-7.5	-1	1	2	2	3	3	-6.0	High	1	1	1.00	-6.0
56	Continued fragmentation, further loss and fragmentation of the vegetation community	Alternative 1	Operation	-1	2	2	3	2	4	-9.0	-1	2	3	3	3	3	-8.3	High	2	2	1.25	-10.3
57	Vegetation loss due to erosion and encroachment by alien invasive plant species	Alternative 1	Operation	-1	2	2	3	2	3	-6.8	-1	2	3	2	2	2	-4.5	Medium	2	1	1.13	-5.1
58	Potential leaks, discharges, pollutant from activities leaching into the	Alternative 1	Operation	-1	3	3	3	3	3	-9.0	-1	2	3	2	3	3	-7.5	High	1	1	1.00	-7.5

	surrounding environment																					
59	Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).	Alternative 1	Operation	-1	2	3	3	3	4	-11.0	-1	2	2	3	3	2	-5.0	Medium	1	2	1.13	-5.6
60	Continued encroachment of vegetation community by alien invasive plant species as well as erosion due to disturbed soils	Alternative 1	Decommissioning	-1	2	2	3	3	3	-7.5	-1	2	3	2	2	2	-4.5	Medium	2	2	1.25	-5.6
61	Decommissioning of Wells	Alternative 1	Decommissioning	-1	2	2	2	2	3	-6.0	-1	2	2	2	2	3	-6.0	Medium	2	1	1.13	-6.8
62	Exploration Wells - Habitat	Alternative 1	Planning	-1	2	2	2	2	2	-4.0	-1	2	2	3	2	1	-2.3	Medium	2	1	1.13	-2.5
63	Exploration Wells - Water Quality	Alternative 1	Planning	-1	2	2	2	2	2	-4.0	-1	2	2	3	2	1	-2.3	Medium	1	1	1.00	-2.3
64	Exploration Wells - Flow	Alternative 1	Planning	-1	1	1	2	2	2	-3.0	-1	1	1	2	2	1	-1.5	Medium	1	1	1.00	-1.5



65	Access Roads - Habitat	Alternative 1	Construction	-1	2	2	3	2	2	-4.5	-1	1	1	2	2	2	-3.0	Medium	1	1	1.00	-3.0
66	Access Roads - Water Quality	Alternative 1	Construction	-1	2	3	2	2	3	-6.8	-1	2	2	2	2	2	-4.0	Medium	1	1	1.00	-4.0
67	Access Roads - Flow	Alternative 1	Construction	-1	2	1	2	2	2	-3.5	-1	1	1	1	1	2	-2.0	Medium	1	1	1.00	-2.0
68	Access Roads - Habitat	Alternative 1	Operation	-1	3	2	3	2	3	-7.5	-1	1	2	2	2	2	-3.5	Medium	1	1	1.00	-3.5
69	Access Roads - Water Quality	Alternative 1	Operation	-1	2	2	2	2	2	-4.0	-1	2	2	1	1	2	-3.0	Medium	1	1	1.00	-3.0
70	Access Roads - Flow	Alternative 1	Operation	-1	2	2	2	2	2	-4.0	-1	1	2	1	1	2	-2.5	Medium	1	1	1.00	-2.5
71	Access Roads - Habitat	Alternative 1	Decommissioning	-1	2	2	3	2	2	-4.5	-1	1	1	2	2	2	-3.0	Medium	1	1	1.00	-3.0
72	Access Roads - Water Quality	Alternative 1	Decommissioning	-1	2	2	2	2	3	-6.0	-1	2	2	2	2	2	-4.0	Medium	1	1	1.00	-4.0
73	Access Roads - Flow	Alternative 1	Decommissioning	-1	2	1	2	2	2	-3.5	-1	1	1	1	1	2	-2.0	Medium	1	1	1.00	-2.0