

Annexure N

Table 5-7: Identified risks and mitigation measures associated with each water use

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
21(a)	Abstraction of water from supply wells CBH2D	<p>CBH2D groundwater draw down.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p>	<p>Monitoring groundwater levels and abstraction rates, and adjusting the pump rates accordingly.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Notify all authorities and affected people if any impacts are detected.</p> <p>Establish alternative water supply where water supplies are interrupted.</p>	<p>CBH2D groundwater draw down.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater as their main source of supply can be affected.</p>	<p>Roofed steel tanks used for storage to reduce evaporation loss and increase use of available dirty storm water</p> <p>Monitoring groundwater levels and abstraction rates, and adjusting the pump rates accordingly.</p> <p>Monitoring springs in the potential drawdown area.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Notify all authorities and affected people if any impacts are detected.</p>	<p>Recovering groundwater levels as pumping stops.</p>	<p>Pumping should stop at mine closure.</p> <p>Monitor groundwater levels.</p> <p>Monitoring springs in the potential drawdown area.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Notify all authorities and affected people if any impacts are detected.</p> <p>Establish alternative water supply where water supplies are interrupted.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
					Establish alternative water supply where water supplies are interrupted.		
21(a)	Abstraction of water from supply wells CBH3S	<p>CBH3S groundwater draw down.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p>	<p>Monitoring groundwater levels and abstraction rates, and adjusting the pump rates accordingly.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Notify all authorities and affected people if any impacts are detected.</p> <p>Establish alternative water supply where water supplies are interrupted.</p>	<p>CBH3S groundwater draw down.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater as their main source of supply can be affected.</p>	<p>Roofed steel tanks used for storage to reduce evaporation loss and increase use of available dirty storm water</p> <p>Monitoring groundwater levels and abstraction rates, and adjusting the pump rates accordingly.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Monitoring springs in the potential drawdown area.</p> <p>Notify all authorities and affected people if</p>	<p>Recovering groundwater levels as pumping stops.</p>	<p>Pumping should stop at mine closure.</p> <p>Monitor groundwater levels.</p> <p>Monitoring springs in the potential drawdown area.</p> <p>All monitoring results reported to the relevant authorities.</p> <p>Notify all authorities and affected people if any impacts are detected.</p> <p>Establish alternative water supply where</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
					any impacts are detected. Establish alternative water supply where water supplies are interrupted.		water supplies are interrupted.
21(c) & (i)	Circular Sectional Steel Tanks associated with the PCD system for the purpose of water conservation reducing evaporation.	<p>Partial destruction of wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands,</p>	<p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p> <p>Limit disturbed area to the immediate footprint of the steel tank platform.</p> <p>Rehabilitation of area not directly affected by the steel tanks structure.</p> <p>Ensure no pollution enters the wetland through lined</p>	<p>Partial covering of wetland system 1 with infrastructure; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland</p>	<p>Rehabilitation of wetland system 1 after removing infrastructure; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p>	<p>Limit disturbed area to the immediate footprint of the steel tank platform.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U).</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of</p>	<p>facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Develop a rehabilitation procedure for the existing alien-invaded wetlands.</p>	<p>areas.</p>	<p>system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	PCD, silt trap and drying slab for waste water pollution control	<p>Partial destruction of wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and</p>	<p>Limit disturbed area to the immediate footprint of the PCD, silt trap and drying slab.</p> <p>Rehabilitation of area not directly affected by PCD, silt trap and drying slab.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland</p>	<p>Partial covering of wetland system 1 by infrastructure; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine</p>	<p>Rehabilitation of wetland system 1 after removing infrastructure; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may</p>	<p>Limit disturbed area to the immediate footprint of the PCD, silt trap and drying slab.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U).</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within</p>	<p>areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>		<p>water.</p> <p>Implement alien vegetation management plan.</p>	<p>lead to habitat transformation and alien vegetation encroachment.</p>	<p>rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat and altered hydrological patterns.					
21(c) & (i)	Construction and operation of the adit for access to underground mine workings	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Potential dewatering as a result of intersecting a water bearing fault that could be connected with a shallow aquifer which feeds the seep wetlands.</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p>	<p>Limit disturbed area to the immediate footprint of the adit.</p> <p>Rehabilitation of area not directly affected by the adit.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and</p>	<p>Sealing the adit in a manner to allow for controlled release of decanting mine water into the water treatment plant.</p> <p>Recharge of the wetland system with clean (treated) decant water mine water.</p> <p>Monitoring of decanting water quality and flow volume.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from</p>	<p>wetland rehabilitation plan.</p> <p>Strict blasting protocol to be followed to ensure the lowest possible impact from noise and vibration.</p>			<p>alien vegetation encroachment.</p> <p>Potential decant of contaminated water from the adit.</p>	<p>rehabilitation plan (Appendix U).</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Construction and operation of the main workshop platform	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through</p>	<p>Limit the disturbed area to the immediate footprint of the platform.</p> <p>Rehabilitation of area not directly affected by the platform.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and</p>	<p>Limit the disturbed area to the immediate footprint of the platform.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U).</p> <p>Erosion and silt management to ensure no topsoil</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat</p>	<p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	RoM Stockpile slab A (Raw Coal)	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and</p>	<p>Limit the disturbed area to the immediate footprint of the slab.</p> <p>Rehabilitation of area not directly affected by the slab.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective</p>	<p>Limit the disturbed area to the immediate footprint of the slab.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U).</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within</p>	<p>areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>areas.</p>	<p>system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat and altered hydrological patterns.					
21(c) & (i)	RoM Stockpile slab B (Processed product)	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of</p>	<p>Limit the disturbed area to the immediate footprint of the slab.</p> <p>Rehabilitation of area not directly affected by the slab.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and</p>	<p>Limit the disturbed area to the immediate footprint of the slab.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>	<p>according the wetland rehabilitation plan.</p>		<p>Implement alien vegetation management plan.</p>	<p>alien vegetation encroachment.</p>	<p>action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
21(c) & (i)	Office Block and parking area	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to</p>	<p>Limit the disturbed area to the immediate footprint of the parking area.</p> <p>Rehabilitation of area not directly affected by the parking area.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Limit the disturbed area to the immediate footprint of the parking area.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>	rehabilitation plan.				management plan.
21(c) & (i)	Pipeline: 200ND HDPE Main Pump from steel tanks to Water Treatment Plant	Runs through wetland system 1; Seep wetland (S1) (SAS, May	Limit the disturbed area to the immediate footprint	Runs through wetland system 1; Seep wetland (S1)	Ensure no pollution enters the wetland through liners system.	Runs through wetland system 1; Seep wetland (S1)	Limit the disturbed area to the immediate footprint

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent</p>	<p>of the pipeline.</p> <p>Rehabilitation of area not directly affected by the pipeline.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>(SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>(SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>of the pipeline.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Pipeline: 300ND HDPE Outlet Pipe from PCD to Steel Tanks	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Rehabilitation of area not directly</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Replacing soil in sequence of removal</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil</p>	<p>affected by the pipeline.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Pipeline: from Dirty Water Sump with Float Pump back to PC Dam	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Rehabilitation of area not directly affected by the pipeline.</p> <p>Ensure no pollution</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and</p>	<p>enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>(Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		runoff from stockpiles. Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	Dirty Water Cut-Off Flo-Drain Y	Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015). Change in plant species composition with a reduced water impact into the wetland areas. Impacting on terrestrial faunal communities	Limit the disturbed area to the immediate footprint of the flo-drain. Rehabilitation of area not directly affected by the flo-drain. Ensure no pollution enters the wetland through lined	Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015). Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining	Ensure no pollution enters the wetland through liners system. Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover. Clean water cut-off drain systems to re-	Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015). Disturbance of soils as part of demolition activities and backfilling. Decommissioning activities may lead to wetland habitat transformation and	Limit the disturbed area to the immediate footprint of the Flo-drain. Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U) Erosion and silt management to

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of</p>	<p>facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	Dirty Water Cut-Off Flo-Drain X	<p>Runs through wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands,</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil</p>	<p>Runs through wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p>	<p>Runs through wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of</p>	<p>gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>areas.</p>	<p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	Clean Water Cut-Off Flo-Drain A	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – discharging into seep wetland S2.</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – discharging into seep wetland S2.</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – discharging into seep wetland S2.</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within</p>	<p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>		<p>water.</p> <p>Implement alien vegetation management plan.</p>	<p>transformation and alien vegetation encroachment.</p>	<p>taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat and altered hydrological patterns.					
21(c) & (i)	Clean Water Cut-Off Flo-Drain B	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered</p>	<p>stockpiling of topsoil according the wetland rehabilitation plan.</p>		<p>Implement alien vegetation management plan.</p>	<p>encroachment.</p>	<p>action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		hydrological patterns.					
21(c) & (i)	Clean Water Cut-Off Flo-Drain C	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015) – Discharging into seep wetland S1.</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>	<p>according the wetland rehabilitation plan.</p>		<p>vegetation management plan.</p>		<p>monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
21(c) & (i)	Clean Water Diversion Berm A	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to</p>	<p>Limit the disturbed area to the immediate footprint of the berm.</p> <p>Rehabilitation of area not directly affected by berm.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according to the wetland rehabilitation plan.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Limit the disturbed area to the immediate footprint of the berm.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					management plan.
21(c) & (i)	Clean Water Diversion Berm B	Runs through wetland system 1; Seep wetland (S1) (SAS, May	Limit the disturbed area to the immediate footprint	Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).	Ensure no pollution enters the wetland through liners system.	Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).	Limit the disturbed area to the immediate footprint

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent</p>	<p>of the berm.</p> <p>Rehabilitation of area not directly affected by berm.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>of the berm.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Canal A1, A2, Chute B, Canal E, C & F for process water to report to the PCD for re-use/recycling.	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species</p>	<p>Limit the disturbed area to the immediate footprint of the canal.</p> <p>Rehabilitation of area not directly</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition</p>	<p>Limit the disturbed area to the immediate footprint of the canal.</p> <p>Replacing soil in sequence of removal</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil</p>	<p>affected by canal.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Canal D for process water to report to the PCD for re-use/recycling.	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the</p>	<p>Limit the disturbed area to the immediate footprint of the canal.</p> <p>Rehabilitation of area not directly affected by canal.</p> <p>Ensure no pollution enters the wetland</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with</p>	<p>Runs through wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to</p>	<p>Limit the disturbed area to the immediate footprint of the canal.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and</p>	<p>through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>(Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		runoff from stockpiles. Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	8m access road for heavy vehicles for collection of product coal.	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – Also runs through seep wetland S2. Construction of roadways through wetlands crossings, altering stream and base flow patterns and water velocities	Limit the disturbed area to the immediate footprint of the road. Rehabilitation of area not directly affected by the road. Ensure no pollution enters the wetland through lined facilities.	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – Also runs through seep wetland S2. Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising	Ensure no pollution enters the wetland through liners system. Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover. Clean water cut-off drain systems to re-	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015) – Also runs through seep wetland S2. Disturbance of soils as part of demolition activities and backfilling. Decommissioning activities may lead to	Limit the disturbed area to the immediate footprint of the road. Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U) Erosion and silt management to

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of</p>	<p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according to the wetland rehabilitation plan.</p> <p>Putting connecting pipes in place to ensure connectivity between wetland areas on both sides of the road.</p>	<p>from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Maintain connectivity by ensuring connection pipes under the road is always clear.</p> <p>Implement alien vegetation management plan.</p>	<p>wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	7m access road for light vehicles	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015) – Also runs through seep wetland S2.</p> <p>Construction of</p>	<p>Limit the disturbed area to the immediate footprint of the road.</p> <p>Rehabilitation of area not directly</p>	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015) – Also runs through seep wetland S2.</p> <p>Ongoing disturbances to</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt</p>	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015) – Also runs through seep wetland S2.</p> <p>Disturbance of soils as part of demolition</p>	<p>Limit the disturbed area to the immediate footprint of the road.</p> <p>Replacing soil in sequence of removal and revegetating</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>roadways through wetlands crossings, altering stream and base flow patterns and water velocities</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to</p>	<p>affected by the road.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p> <p>Putting connecting pipes in place to ensure connectivity between wetland areas on both sides of the road.</p>	<p>soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Maintain connectivity by ensuring connection pipes under the road is always clear.</p> <p>Implement alien vegetation management plan.</p>	<p>activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	RoM stockpile conveyor 3A and coal	Within 500m of wetland system 1 & 2; Seep	Limit the disturbed area to the immediate footprint	Within 500m of wetland system 1 & 2; Seep wetland (S1	Ensure no pollution enters the wetland	Within 500m of wetland system 1 & 2; Seep wetland (S1	Limit the disturbed area to the immediate footprint

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
	product 3B.	<p>wetland (S1 & S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent</p>	<p>of the conveyor.</p> <p>Rehabilitation of area not directly affected by the conveyor.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>& S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>& S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>of the conveyor.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Perimeter Fence	<p>Runs through wetland system 1& 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Change in plant species</p>	<p>Limit the disturbed area to the immediate footprint of the fence.</p> <p>Rehabilitation of area not directly</p>	<p>Runs through wetland system 1& 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Ongoing disturbances to</p>	<p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with</p>	<p>Runs through wetland system 1& 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of removing</p>	<p>Limit the disturbed area to the immediate footprint of the fence.</p> <p>Replacing soil in sequence of removal</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil</p>	<p>affected by the conveyor.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p>	<p>soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>the fence.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Electricity supply route to pumps	<p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation</p>	<p>Limit the disturbed area to the immediate footprint of the power line.</p> <p>Rehabilitation of area not directly affected by the conveyor.</p> <p>Erosion and silt</p>	<p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation</p>	<p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow</p>	<p>Disturbance of soils as part of removal of the transmission line.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species</p>	<p>Limit the disturbed area to the immediate footprint of the power line.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>(degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>	<p>management to ensure no topsoil gets washed onto adjacent wetland areas.</p>	<p>infesting wetland areas.</p>	<p>groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>(Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
21(c) & (i)	Sewerage pipeline and treated sewer water pipeline – Treated sewerage will be discharge back to the PCD for recycling and process use.	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Rehabilitation of area not directly affected by the pipeline.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland</p>	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>	rehabilitation plan.				management plan.
21(c) & (i)	Pipeline: Treated wastewater from PCD to be discharged into seep wetland S2	Within 500m of wetland system 2; Seep wetland (S2) (SAS, May	Limit the disturbed area to the immediate footprint	Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015) -	Ensure no pollution enters the wetland through liners system.	Within 500m of wetland system 2; Seep wetland (S2) (SAS, May 2015) -	Limit the disturbed area to the immediate footprint

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>2015) - treated excess waste water to be discharge into seep wetland S2.</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to</p>	<p>of the pipeline.</p> <p>Rehabilitation of area not directly affected by the pipeline.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>treated excess waste water to be discharge into seep wetland S2.</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>treated excess waste water to be discharge into seep wetland S2.</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>of the pipeline.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Clean Water Cut-Off Flo-Drain A discharge point to underground filter drains	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	Limit the disturbed area to the immediate footprint	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	Ensure no pollution enters the wetland through liners system.	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	Limit the disturbed area to the immediate footprint

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of</p>	<p>of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Clean Water Cut-Off Flo-Drain B discharge point to underground filter drains	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-</p>	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt</p>	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to</p>	<p>drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.</p>					
21(c) & (i)	Clean Water Cut-Off Flo-Drain C discharge point to underground filter drains	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined</p>	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off</p>	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of</p>	<p>facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>	<p>activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Implement alien vegetation management plan.</p>	<p>alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation encroachment.</p>	<p>management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological patterns.					
21(c) & (i)	Treated excess waste water discharge point to underground filter drains	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and</p>	<p>Limit the disturbed area to the immediate footprint of the flo-drain.</p> <p>Rehabilitation of area not directly affected by the flo-drain.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil</p>	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels. Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p>	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat</p>	<p>Limit the disturbed area to the immediate footprint of the Flo-drain.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>riverine habitat.</p> <p>Site clearing, the removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within</p>	<p>gets washed onto adjacent wetland areas.</p> <p>Stripping and stockpiling of topsoil according the wetland rehabilitation plan.</p>		<p>Recharge of the wetland system with clean (treated) excess mine water.</p> <p>Ensure the recharge point is clean of debris and algae to have water filling the filter drain freely.</p> <p>Implement alien vegetation management plan.</p>	<p>transformation and alien vegetation encroachment.</p>	<p>areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		wetland habitat and altered hydrological patterns.					
21(c) & (i)	Rehabilitation of disturbed seep wetlands S1 & S2 during and post operation within the infrastructure footprint.	None		None		<p>Wetland system 1 & 2; Seep wetlands S1 & S2 (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation</p>	<p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on monitoring results.</p> <p>Implement alien vegetation</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
						encroachment.	management plan.
21(c) & (i)	Underground mining activities and voids	<p>Wetland system 1 & 2; Seep wetlands S1, S2 & S4; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 1 & 2; Seep wetlands S1, S2 & S4; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater as their main source of supply</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 1 & 2; Seep wetlands S1, S2 & S4; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down recovers.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				can be affected.			
21(f)	Discharging excess water treated to an acceptable quality into the wetland	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	<p>Monitor discharge water quality and volumes.</p> <p>Ensure discharge system continue to release water subsurface.</p> <p>Clean discharge infrastructure regularly.</p>	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	<p>Monitor discharge water quality and volumes.</p> <p>Ensure discharge system continue to release water subsurface.</p> <p>Clean discharge infrastructure regularly.</p>	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	<p>Operate the system after closure till decant water quality stabilises at acceptable discharge quality.</p> <p>Monitor discharge water quality and volumes.</p> <p>Ensure discharge system continue to release water subsurface.</p> <p>Clean discharge infrastructure regularly.</p>
21(g)	RoM stockpile slab A	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).	Construct a properly lined facility.	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).	<p>Maintain the lined facility in good working order.</p> <p>Ensure all contaminated</p>	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)	<p>Rehabilitate the slab footprint.</p> <p>Remove all contaminated</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				Potential spillage of contaminated water.	water reports to lined drain and the lined PCD. Report all incidents of contamination escaping the system.		material to a disposal site and obtain safe disposal certificates for all material removed.
21(g)	RoM Stockpile slab B - Sales coal stockpile	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).	Construct a properly lined facility.	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015). Potential spillage of contaminated water.	Maintain the lined facility in good working order. Ensure all contaminated water reports to lined drain and the lined PCD. Report all incidents of contamination escaping the system.	Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)	Rehabilitate the slab footprint. Remove all contaminated material to a disposal site and obtain safe disposal certificates for all material removed.
21(g)	Disposal and storage of contaminated water in pollution control dam (PCD)	Wetland system 1; Seep wetland (S1) (SAS, May 2015) Potential leakage into the subsurface water.	Install Class C liners system.	Wetland system 1; Seep wetland (S1) (SAS, May 2015) Potential leakage into the subsurface water.	Maintain Class C liner system. Monitor water levels and water quality in the PCD. Ensure adequate freeboard is available	Wetland system 1; Seep wetland (S1) (SAS, May 2015) Potential leakage into the subsurface water.	Ensure the dam is completely empty before removal. Remove the contaminated material off site to certified disposal site

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
					<p>for storm events to prevent overtopping.</p> <p>Report all incidents of contaminated water escaping the system.</p>		and obtain safe disposal certificates.
21(g)	Tanks associated with the PCD system	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015).</p> <p>Potential leakage into the subsurface water.</p>	Install Class C liner system for the steel tanks.	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015)</p> <p>Potential leakage into the subsurface water.</p>	<p>Maintain Class C liner system.</p> <p>Monitor water levels and water quality in the tanks.</p> <p>Ensure adequate freeboard is available for storm events to prevent overtopping.</p> <p>Report all incidents of contaminated water escaping the system.</p>	<p>Wetland system 1; Seep wetland (S1) (SAS, May 2015)</p> <p>Potential leakage into the subsurface water.</p>	<p>Ensure the tanks are completely empty before removal.</p> <p>Remove the contaminated material off site to certified disposal site and obtain safe disposal certificates.</p>
21(g)	Bio-Mite Sewerage treatment plant	Wetland system 2; Seep wetland (S2) (SAS, May 2015).	Ensure proper construction supervised by a design engineer.	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015)</p> <p>Potential spillage</p>	<p>Maintain the sewage plant in good working order.</p> <p>Monitor effluent</p>	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015)</p> <p>Potential spillage</p>	<p>Ensure the system is completely empty before removal.</p> <p>Remove the</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		Potential spillage from the sewage treatment system.		from the sewage treatment system.	<p>quality.</p> <p>Monitor inflow and outflow volumes.</p> <p>Monitor sludge build-up.</p> <p>Remove humus from the reactor to a licensed site in Piet Retief and obtain a safe disposal certificate.</p> <p>Report all incidents of contaminated water escaping the system.</p>	from the sewage treatment system.	contaminated material off site to certified disposal site and obtain safe disposal certificates.
21(g)	Sewage solids from treatment process to be temporarily stored	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015).</p> <p>Potential spillage from the sewage treatment system.</p>	Ensure proper construction supervised by a design engineer.	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015)</p> <p>Potential spillage from the sewage treatment system.</p>	<p>Maintain the sewage plant in good working order.</p> <p>Monitor effluent quality.</p> <p>Monitor sludge build-up.</p>	<p>Wetland system 2; Seep wetland (S2) (SAS, May 2015)</p> <p>Potential spillage from the sewage treatment system.</p>	<p>Ensure the system is completely empty before removal.</p> <p>Remove the contaminated material off site to certified disposal site and obtain safe</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
					<p>Remove humus from the reactor to a licensed site in Piet Retief and obtain a safe disposal certificate.</p> <p>Report all incidents of contaminated water escaping the system</p>		disposal certificates.
21(g)	Wastewater Treatment Plant	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	Ensure proper construction supervised by a design engineer.	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	<p>Maintain the water treatment plant in good working order.</p> <p>Monitor effluent quality.</p> <p>Monitor inflow and outflow volumes.</p> <p>Monitor crystallised salt accumulation and remove before stores are full.</p> <p>Remove salt to a licensed site and obtain</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	<p>Operate the system after closure till decant water quality stabilises at acceptable discharge quality.</p> <p>Ensure the system is completely empty before removal.</p> <p>Remove the contaminated material off site to certified disposal site</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
					<p>safe disposal certificates.</p> <p>Report all incidents of contamination escaping the system.</p>		and obtain safe disposal certificates.
21(g)	Water treatment brine to be crystallised and temporarily stored	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	Ensure proper construction supervised by a design engineer.	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	<p>Monitor crystallised salt accumulation and remove before stores are full.</p> <p>Remove salt to a licensed site and obtain safe disposal certificates.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the waste water treatment plant.</p>	<p>Operate the system after closure till decant water quality stabilises at acceptable discharge quality.</p> <p>Ensure the system is completely empty before removal.</p> <p>Remove the contaminated material off site to certified disposal site and obtain safe disposal certificates.</p>
21(g)	Hazardous waste form workshops to be	Within 500m of wetland system 1	Ensure proper construction	Within 500m of wetland system 1 &	Maintain the storage area in good working	Within 500m of wetland system 1 &	Ensure the system is completely empty

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
	temporarily stored	<p>& 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Potential spillage from the hazardous waste storage area.</p>	supervised by a design engineer.	<p>2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Potential spillage from the hazardous waste temporary storage area.</p>	<p>order.</p> <p>Monitor waste accumulation and remove waste to a licensed site before the storage area over fills.</p> <p>Obtain safe disposal certificates for all waste removed.</p> <p>Report all incidents of contamination escaping the system.</p>	<p>2; Seep wetland (S1 & S2) (SAS, May 2015)</p> <p>Potential spillage from the hazardous waste storage area</p>	<p>before removal.</p> <p>Remove the contaminated material off site to certified disposal site and obtain safe disposal certificates.</p>
21(g)	PCD process water used for dust suppression on roads within the mining footprint	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Water for dust suppression could potentially cause salt accumulation on the road surface.</p>	<p>Use polymers to bind road surface material.</p> <p>Pave roads where feasible.</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Water for dust suppression could potentially cause salt accumulation on the road</p>	<p>Limited desalination of water.</p> <p>Monitoring water quality used for dust suppression.</p> <p>Monitor volumes of water used for dust suppression.</p> <p>Report all pollution</p>	<p>Within 500m of wetland system 1 & 2; Seep wetland (S1 & S2) (SAS, May 2015).</p> <p>Water for dust suppression could potentially cause salt accumulation on the road surface.</p>	<p>Rehabilitation of all roads after closure.</p> <p>Remove the contaminated material off site to certified disposal site and obtain safe disposal certificates.</p> <p>Monitoring water</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				surface.	incidents. Pave roads where feasible.		quality after closure.
21(c) & (i)	Underground mining activities and voids	<p>Wetland system 1 & 2; Seep wetlands S1, S2, S3, S5, S6, S12 & S13; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 1 & 2; Seep wetlands S1, S2, S3, S5, S6, S12 & S13; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface</p>	<p>Monitor inflow of water into the mine workings (volume and quality).</p> <p>Monitor groundwater levels and quality.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p> <p>Report all incidents.</p>	<p>Wetland system 1 & 2; Seep wetlands S1, S2, S3, S5, S6, S12 & S13; channel valley bottom CVB1 & CVB2 (SAS, May 2015).</p> <p>Cone of groundwater draw down recovers.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				and groundwater as their main source of supply can be affected.			
21(c) & (i)	Underground mining activities and voids	<p>Wetland system 1 & 4; Seep wetlands S10; channel valley bottom CVB1 & CVB4 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 1 & 4; Seep wetlands S10; channel valley bottom CVB1 & CVB4 (SAS, May 2015)</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels and quality.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p> <p>Report all incidents.</p>	<p>Wetland system 1 & 4; Seep wetlands S10; channel valley bottom CVB1 & CVB4 (SAS, May 2015)</p> <p>Cone of groundwater draw down recovers.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				as their main source of supply can be affected.			
21(c) & (i)	Underground mining activities and voids	<p>Wetland system 3 & 4; Seep wetlands S9, S14; channel valley bottom CVB 1, CVB3 & CVB4 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 3 & 4; Seep wetlands S9, S14; channel valley bottom CVB 1, CVB3 & CVB4 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels and quality.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p> <p>Report all incidents.</p>	<p>Wetland system 3 & 4; Seep wetlands S9, S14; channel valley bottom CVB 1, CVB3 & CVB4 (SAS, May 2015).</p> <p>Cone of groundwater draw down recovers.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				and groundwater as their main source of supply can be affected.			
21(c) & (i)	Underground mining activities and voids	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels and quality.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p> <p>Report all incidents.</p>	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Cone of groundwater draw down recovers.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
				as their main source of supply can be affected.			
21(c) & (i)	2 x Borehole pipelines	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Change in plant species composition with a reduced water impact into the wetland areas.</p> <p>Impacting on terrestrial faunal communities through transformation (degradation) of grasslands, wetlands and riverine habitat.</p> <p>Site clearing, the</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Rehabilitation of area not directly affected by the pipeline.</p> <p>Ensure no pollution enters the wetland through lined facilities.</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Stripping and</p>	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Ongoing disturbances to soils, resulting in increased sedimentation and risk of erosion, arising from mining activities.</p> <p>Alien vegetation infesting wetland areas.</p>	<p>Ensure no pollution enters the wetland through liners system.</p> <p>Monitor vegetation and groundwater levels.</p> <p>Implement erosion control and silt management - revegetate areas with poor cover.</p> <p>Clean water cut-off drain systems to re-route shallow groundwater to downstream wetland.</p> <p>Recharge of the wetland system with clean (treated) excess mine water.</p>	<p>Wetland system 2 & 3; Seep wetlands S7 & S8; channel valley bottom CVB 2 & CVB3 (SAS, May 2015).</p> <p>Disturbance of soils as part of demolition activities and backfilling.</p> <p>Decommissioning activities may lead to wetland habitat transformation and alien plant species proliferation.</p> <p>Ineffective rehabilitation may lead to habitat transformation and alien vegetation</p>	<p>Limit the disturbed area to the immediate footprint of the pipeline.</p> <p>Replacing soil in sequence of removal and revegetating according to wetland rehabilitation plan (Appendix U)</p> <p>Erosion and silt management to ensure no topsoil gets washed onto adjacent wetland areas.</p> <p>Monitoring the rehabilitated site and taking corrective action based on</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		<p>removal of vegetation, and associated disturbances to soils, leading to increased runoff and erosion and consequent sedimentation of wetland habitat.</p> <p>Topsoil stockpiling adjacent to wetlands and runoff from stockpiles.</p> <p>Dewatering of wetland habitat down gradient of mining activities, leading to loss of water within wetland habitat and altered hydrological</p>	<p>stockpiling of topsoil according the wetland rehabilitation plan.</p>		<p>Implement alien vegetation management plan.</p>	<p>encroachment.</p>	<p>monitoring results.</p> <p>Implement alien vegetation management plan.</p>

Water use	Activity	Construction		Mining		Post Mining	
		Impacts	Mitigation measures	Impacts	Mitigation measures	Impacts	Mitigation measures
		patterns.					
21(j)	Pumping out of groundwater flowing into the adit and underground workings via rock fissures	<p>Wetland system 1, 2, 3 & 4.</p> <p>Cone of groundwater draw down could affect wetlands.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p>	<p>Wetland system 1, 2, 3 & 4.</p> <p>Cone of groundwater draw down could affect wetlands.</p> <p>Formation of groundwater cone of dewatering, leading to reduced recharge of wetland resources.</p> <p>Due to dewatering, communities reliant on surface and groundwater as their main source of supply can be affected.</p>	<p>Monitor inflow of water into the mine workings.</p> <p>Monitor groundwater levels and quality.</p> <p>Grout excessive inflows.</p> <p>Cover drilling to detect potential zones of high inflow.</p> <p>Pre-grout zones of potential excessive inflow.</p> <p>Report all incidents.</p>	<p>Wetland system 1, 2, 3 & 4.</p> <p>Cone of groundwater draw down recovers after mining.</p>	<p>Monitor groundwater levels and quality (including water in mine voids).</p> <p>Treat and release decant water from underground workings.</p>