

Monitoring and Controls	Trigger	Action
Creeks and watercourses		
<ul style="list-style-type: none"> • Centennial to conduct flood modelling and assessment to identify and potential changes to overland flow paths, channel alignments and remnant ponding. • Centennial to conduct property inventory and detail predicted impacts from subsidence in PSMP. • Centennial to monitor creek in accordance with the Water Management Plan - Extraction Plan LW30-31. • Centennial to establish subsidence monitoring and observation points along creek line in consultation with landowner to assess subsidence, subsidence impact and grade changes to creek. • Centennial to conduct six monthly flood path inspections along the creek line and report in the Flood Path Condition Report. • Centennial to conduct post-mining surveys following the development of subsidence (majority of subsidence developed when LW face is 800m past feature). • Centennial to provide pre and post mining subsidence monitoring results to Landowner and RR. • Centennial to provide monitoring results in the Annual Review. <p>CONTROLS</p> <p>Flood Modelling and Assessment LW30-31 (Umwelt, 2020) determined there was no expected change in channel alignment or significant remnant ponding along Morans Creek and tributaries.</p>	<p>LEVEL 1 – LOW Operation within prediction and approved impact</p> <ul style="list-style-type: none"> • Development of subsidence (Upper 95% Confidence Limits) and impact as predicted. • Minor change to creek line gradients not affecting flows. • Negligible change to channel alignment. • Negligible change to existing ponding within creek channel. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR. • Centennial to assess subsidence impact against Flood Modelling Assessment LW30-33. • Centennial to continue to monitor as per Water Management Plan LW30-31.
	<p>LEVEL 2 – MEDIUM Operations within approved impact but exceed or potentially exceed predictions</p> <ul style="list-style-type: none"> • Development of subsidence exceeding or potentially exceeding prediction (Upper 95% Confidence Limits). • Vertical subsidence results are greater than predicted. • Potential increase or decrease in ponding within channel. • One or more areas of instabilities in watercourses. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR. • Centennial to monitor and investigate as per Water Management Plan LW30-31. • Centennial to assess subsidence impact against Flood Modelling Assessment LW30-33. • Centennial to investigate and assess if remediation measures are necessary in consultation with geomorphic specialist and Landowner. • Report investigations, monitoring and any remediation measures in Annual Review.
	<p>LEVEL 3 – HIGH Operations exceed approved impact</p> <ul style="list-style-type: none"> • Development of subsidence and impact greater than expected. • Vertical subsidence results are greater than predicted (Upper 95% Confidence Limits). • Change in creekline grades resulting in: • Observable change in channel alignment. • Observable erosion along creekline. • Observable cracking on stream bed or banks. • Increase or decrease in ponding above approved impact. • Significant increase or decrease in ponding above approved impact. • One or more areas of instabilities in watercourses causing sediment loads to migrate and impact riparian vegetation. • Trend in declining biodiversity from mining related impacts. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner and RR. • Centennial to monitor and investigate as per Water Management Plan LW30-31 and Extraction Plan. • Centennial to investigate and assess possible remediation measures in consultation with geomorphic specialist, DPIE-Water and Landowner. • Centennial to undertake remediation where it is determined the appropriate option in consultation with Landowner and DPIE-Water. • Centennial to notify DPE as per S4 Condition 2 SSD-5144. • Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10. • Centennial to report investigations, monitoring and any remediation measures in Annual Review. • Centennial to review results and predictions as per Extraction Plan.

Monitoring	Trigger	Action
Farm Dams		
<ul style="list-style-type: none"> • Centennial to conduct property inventory and detail predicted impacts from subsidence in PSMP. • Centennial to arrange pre-mining inspection of dam and drainage paths • Centennial to arrange inspection of dam by a structural / civil engineer if considered necessary due to size, location or potential risk to property, occupants or public. • Centennial to establish subsidence monitoring on dam and survey drainage paths if necessary (surface contours available LIDAR data). • Centennial to conduct post-mining surveys following the development of subsidence (majority of subsidence developed when LW face is 800m past dam). • Centennial to provide pre and post mining subsidence monitoring results to Landowner, RR and SA NSW. 	LEVEL 1 – LOW Operation within prediction and approved impact <ul style="list-style-type: none"> • Development of subsidence (U95% Confidence Limits) and impact as predicted. • Tensile Strain < 4mm/m • Not likely to impact dam seal. • Drainage paths may need to be regraded. • Possible minor reduction in dam capacity from tilting. 	<ul style="list-style-type: none"> • Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. • Centennial to assist landowner with any claim for damage to property. • SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with Landowner.
	LEVEL 2 – MEDIUM Operations within approved impact but exceed or potentially exceed predictions <ul style="list-style-type: none"> • Development of subsidence exceeding or potentially exceeding prediction (Upper 95% Confidence Limits). • Tensile Strain 4 mm/m to 10 mm/m. • Possible minor leakage to dam structure, requiring resealing of dam. • Reduction of storage capacity from tilting requiring: <ul style="list-style-type: none"> ○ reshaping of dam to restore capacity. ○ drainage paths to be regraded. 	<ul style="list-style-type: none"> • Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. • Centennial to assist landowner with any SA NSW claim for damage to property. • SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with the Landowner. • Centennial to provide alternate water supply if required.
	LEVEL 3 – HIGH Operations exceed approved impact <ul style="list-style-type: none"> • Development of subsidence or impact greater than expected (Upper 95% Confidence Limits). • Substantial surface cracking greater than predicted. • Loss of freeboard or cracking causing dam failure. 	<ul style="list-style-type: none"> • Centennial to conduct subsidence monitoring on dam and provide results to the Landowner, RR and SA NSW. • Centennial to arrange structural inspection by structural / civil engineer to provide assessment of the dam's integrity and safety if the size or the location of the dam causes a risk to the occupants, public or property. • SA NSW to conduct post mining inspections and arrange any necessary repairs to dam and drainage paths in consultation with the Landowner. • Centennial to provide alternate water supply. • Centennial to review results and predictions as per Extraction Plan.

Monitoring and Controls	Trigger	Action
Land Use Impacts		
<ul style="list-style-type: none"> • Centennial to conduct flood modelling and assessment to identify potential changes to flooding. • Centennial to conduct property inventory and detail predicted impacts from subsidence in PSMP. • Centennial to arrange Land and Agricultural Resource Assessment and detail predicted land impacts from subsidence in PSMP. • Centennial to arrange SA NSW pre-mining inspection of property and improvements to record pre-mining condition. • Centennial to establish subsidence monitoring on property in consultation with Landowner. • Centennial to conduct post-mining surveys following the development of subsidence (majority of subsidence developed when LW is completed or LW face is 800m past feature). • Centennial to provide pre and post mining subsidence monitoring results to Landowner, RR and SA NSW. 	LEVEL 1 – LOW Operation within prediction and approved impact <ul style="list-style-type: none"> • Development of subsidence and impact as predicted. • Vertical subsidence within predicted range (U95% CL). • Negligible change to flood free agricultural land for stock storage or stock access. • Negligible impact to agricultural productivity or use of the land or an enterprise. • Negligible change to existing ponding or remnant ponding • No or minor impact to buildings or improvements. • Negligible increase in soil or tunnel erosion. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. • Review subsidence results and observed impacts against Land and Agricultural Resource Assessment and Land Management Plan. • Centennial to assist landowner with any claim for damage to property. • SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with Landowner.
	LEVEL 2 – MEDIUM Operations within approved impact but exceed or potentially exceed predictions <ul style="list-style-type: none"> • Development of subsidence exceeding or potentially exceeding prediction (Upper 95% Confidence Limits). • Impact to landuse from subsidence or increased flooding or ponding within predicted or approved impacts • Minor increase in ponding or changes to drainage systems that can be remediated. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. • Review subsidence results and observed impacts against Land and Agricultural Resource Assessment and Land Management Plan. • Centennial to assist landowner with any claim for damage to property. • SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with Landowner. • Centennial to ensure adequate water supply is available.
	LEVEL 3 – HIGH Operations exceed approved impact <ul style="list-style-type: none"> • Development of subsidence and impact greater than expected. • Significant impact and change to property functionality or agricultural productivity greater than predicted and approved. • Change to flood free land for stock storage or stock access greater than predicted or approved. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. • Review subsidence results and observed impacts against pre-mining agricultural assessment and Land Management Plan. • Centennial to commence negotiations with Landowner as per the Land Acquisition process (S5-Condition 3 & 4). • Centennial to notify DPIE as per S4 Condition 2 SSD-5144. • Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10 (environmental impact). • Centennial to review results and predictions as per Extraction Plan.

Monitoring and Controls	Trigger	Action
Property Access Roads		
<ul style="list-style-type: none"> Centennial to conduct flood modelling and assessment to identify potential changes to flooding as per DC Schedule 4 Condition 6(h). Centennial to conduct property inventory and detail predicted impacts from subsidence in PSMP. Centennial to arrange SA NSW pre-mining inspection of property and improvements to detail pre-mining condition. Centennial to establish subsidence monitoring / inspection sites on property access if an increase in flood hazard is predicted. To be arranged in consultation with Landowner. Centennial to conduct post-mining surveys following the development of subsidence (majority of subsidence developed when LW is completed or LW face is 800m past feature). Centennial to provide pre and post mining subsidence monitoring results to Landowner, RR and SA NSW. <p>CONTROLS Flood Modelling and Assessment LW30-31 (Umwelt 2020) determined that there was no predicted increase in flood hazard category on the access road at both the 1 year and 100 year ARI Storm Events.</p>	<p>LEVEL 1 – LOW Operation within prediction and approved impact</p> <ul style="list-style-type: none"> Development of subsidence and impact as expected. Subsidence within predicted range (U95% CL). Negligible visible impact on gravel access roads. Possible hairline cracking on sealed roads. No change to flood hazard category. 	<ul style="list-style-type: none"> Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. Centennial to assist landowner with any SA NSW claim for damage to property. SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with Landowner.
	<p>LEVEL 2 – MEDIUM Operations within approved impact but exceed or potentially exceed predictions</p> <ul style="list-style-type: none"> Development of subsidence exceeding or potentially exceeding prediction (Upper 95% Confidence Limits). Minor cracking to gravel access roads, but remaining safe, serviceable and repairable. Tensile cracking or minor compression humps may develop on sealed roads. Repairs may be required to reseal pavement. No change to flood hazard category. 	<ul style="list-style-type: none"> Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. Centennial to assist landowner with any SA NSW claim for damage to access road. Centennial to arrange prompt repairs to access roads to make safe and allow access to the property. SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with the Landowner.
	<p>LEVEL 3 – HIGH Operations exceed approved impact</p> <ul style="list-style-type: none"> Development of subsidence and impact greater than predicted Tensile cracks and/or compression humps develop on access roads that need repairing to ensure public safety. Tensile cracks and/or compression humps develop on sealed roads. Repairs required, reshaping road, restoring drainage and resealing pavement. 	<ul style="list-style-type: none"> Centennial to conduct post mining inspection and subsidence monitoring and provide results to the Landowner, RR and SA NSW. Centennial to arrange prompt temporary repairs to make road safe and allow access to property. Centennial to assist landowner with any SA NSW claim for damage to property. SA NSW to conduct post mining inspections and arrange any necessary repairs in consultation with the Landowner. Centennial to reassess flood hazard using actual subsidence data to determine if there is an increase in flood hazard at 1 year and 100 year ARI Storm Events. If flood modelling indicates an increase in flood hazard, Centennial to commence negotiations and carry out works as agreed by Landowner to provide suitable access to the property. Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10. Centennial to review results and predictions as per Extraction Plan.

Monitoring and Controls	Trigger	Action
Steep Slopes		
<ul style="list-style-type: none"> • Centennial to conduct pre mining steep slope inspection and assessment by Geotechnical Engineer. • Centennial to conduct subsidence monitoring and inspections as per the Public Safety Management Plan and Subsidence Monitoring Program. • Centennial to conduct weekly visual inspections when steep slopes are within active subsidence zone. • Centennial to provide pre and post mining subsidence monitoring results to RR and Landowners. 	LEVEL 1 – LOW Operation within prediction and approved impact <ul style="list-style-type: none"> • Development of subsidence and impact as expected. • Subsidence within predicted range (Upper 95% Confidence Limits). • Negligible visible impact on gravel access roads. • Negligible impact to steep slopes. • Negligible indications down slope rock or bolder movements. • No rock mass instability. • Minor opening of rock joints that does not cause dislodgement of rocks. 	<ul style="list-style-type: none"> • Centennial to conduct weekly visual inspections of land when steep slope zones are located in active subsidence zone and along public access roads. • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner.
	LEVEL 2 – MEDIUM Operations within approved impact but exceed or potentially exceed predictions <ul style="list-style-type: none"> • Development of subsidence exceeding or potentially exceeding prediction (Upper 95% Confidence Limits). • Cracking to gravel access roads, but remaining safe, serviceable and repairable. • Cracking to surface not requiring major repairs or posing further risk to public safety. • Opening of rock joints not likely to cause dislodgement of rocks. 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner. • Centennial to inspect and erect warnings signs or barricades as per Public Safety Management Plan. • Centennial to notify Landowner • Centennial to arrange repairs to access roads or areas of potential rock instability in consultation with landowner. • Centennial to notify Principal Subsidence Engineer of higher than expected subsidence. • Centennial to arrange a Geotechnical Engineer to inspect any areas of suspected rock mass instability in consultation with Landowner. • Centennial to review results and predictions as per Extraction Plan.
	LEVEL 3 – HIGH Operations exceed approved impact <ul style="list-style-type: none"> • Development of subsidence and impact greater than expected. • Surface cracking visible that may be dangerous to public safety. • Opening of rock joints that may cause dislodgement of rocks. • Rock fall and rollouts • Overhang collapse • Landslide • Risks to public safety 	<ul style="list-style-type: none"> • Centennial to conduct post mining inspection and subsidence monitoring and provide results to the RR and Landowner. • Centennial to inspect and erect warnings signs or barricades as per Public Safety Management Plan. • Centennial to notify Landowner. • Centennial to notify Principal Subsidence Engineer of higher than expected subsidence and impact. • Centennial to notify DPIE as per S4 Condition 2 SSD-5144. • Centennial to arrange immediate repairs to dangerous surface cracking (eg backfilling) any necessary repairs in consultation with the Landowner and RR. • Centennial to arrange a Geotechnical Engineer to inspect any areas of suspected rock mass instability. • Centennial to notify external stakeholders including government agencies in accordance with Incident Reporting S6 Condition 10. • Centennial to review results and predictions as per Extraction Plan.