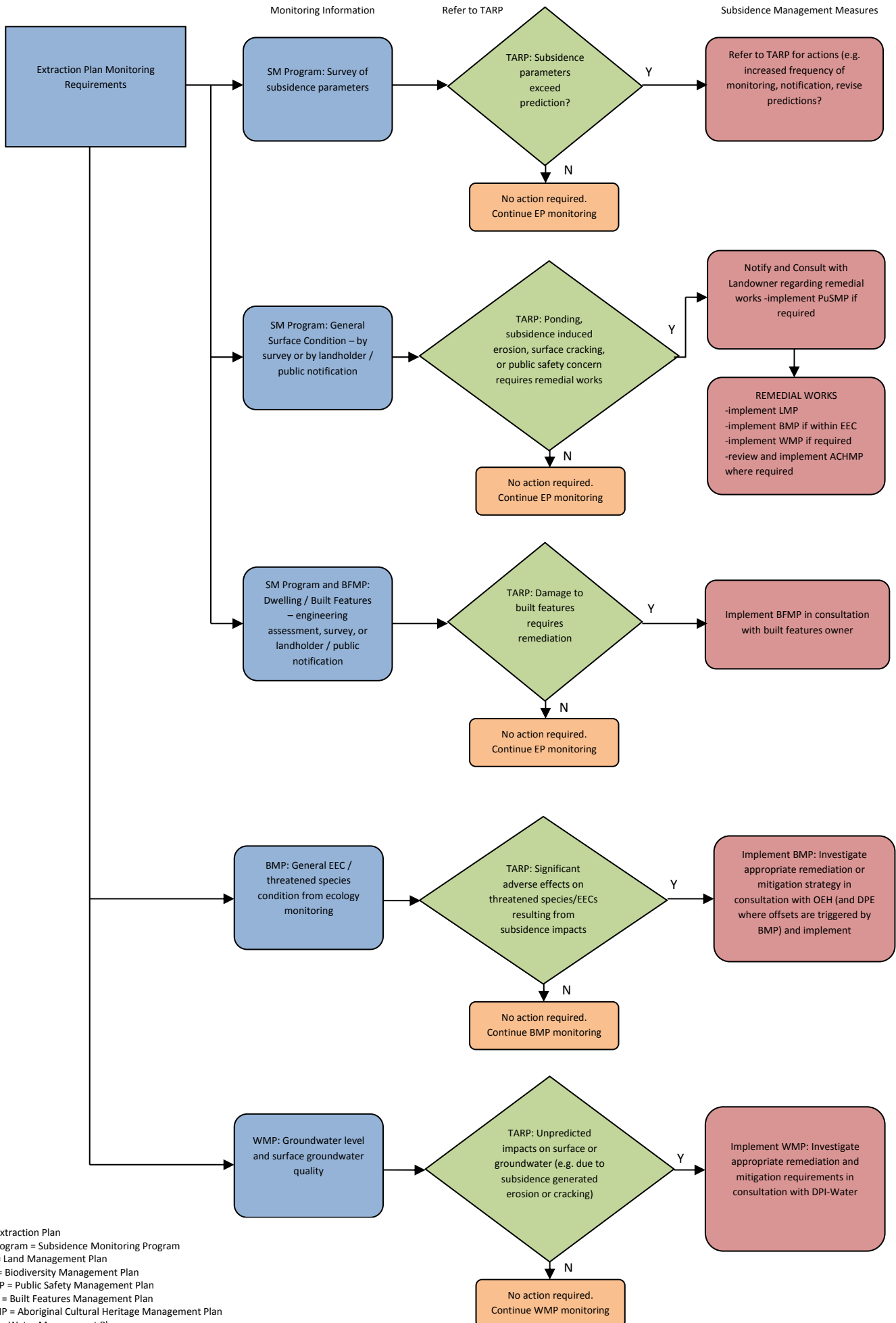


EXTRACTION PLAN SUBSIDENCE MONITORING & MANAGEMENT FLOWCHART – LWB1 to LWB3



		AUSTAR COAL MINE – TRIGGER ACTION RESPONSE PLAN (TARP)		
		SUBSIDENCE MANAGEMENT LWB1 TO LWB3		
			CONTAINMENT / REMEDIATION MEASURES	ADAPTIVE MANAGEMENT MEASURES & CONTINGENCY PLANS
Triggers	SUBSIDENCE PARAMETERS	Normal LESS THAN MAXIMUM PREDICTED	Monitoring as per SM Program	
		Trigger Level 1 EXCEEDS MAX PREDICTED SUBSIDENCE PARAMETERS FOR EACH PANEL (by less than 15%)	Monitoring as per SM Program Notify OM, TSM and ECM	Review subsidence predictions based on monitoring data
		Trigger Level 2 EXCEEDS MAX PREDICTED SUBSIDENCE PARAMETERS FOR EACH PANEL (by more than 15%)	Notify DPE and DRE Notify affected landholders and/or infrastructure owners	Increase frequency of subsidence parameter monitoring Update subsidence predictions based on monitoring data Update impact assessment on natural and built features Review and update Extraction Plan
	BUILT FEATURES (PRIVATE PROPERTY)	Normal No damage requiring remediation	Monitoring as per Individual Built Features Management Plans (BFMP)	
		Trigger Level 1 Built Feature experience damage below Safe Serviceable Repairable (SSR) criteria	Notify landholder Assist landholder with information to aid in MSB claim Monitoring as per Individual Built Features Management Plans (BFMP) Implement measures as per the BFMP	Review impact assessment based on observed damage Review landholder BFMP
		Trigger Level 2 Built Feature experiences damage above Safe Serviceable Repairable (SSR) criteria	Notify landholder Notify DPE and DRE Assist landholder with information to aid in MSB claim Implement measures as per the BFMP	Update impact assessment based on observed damage Review landholder BFMP
	BUILT FEATURES (INFRASTRUCTURE) (POWERLINES, TELECOMMUNICATIONS & PUBLIC ROADS)	Normal No damage requiring remediation	Monitoring as per Individual Built Features Management Plans (BFMP)	
		Trigger Level 1 Built Feature experience damage below Safe Serviceable Repairable (SSR) criteria	Notify infrastructure owner Assist infrastructure owner with information to aid in MSB claim Monitoring as per Individual Built Features Management Plans (BFMP) Implement measures as per the BFMP	Review impact assessment based on observed damage Review individual BFMP for services in conjunction with Infrastructure owner to ensure these remain safe and serviceable
		Trigger Level 2 Built Feature experience damage above Safe Serviceable Repairable (SSR) criteria	Notify infrastructure owner Notify DRE Assist infrastructure owner with information to aid in MSB claim Monitoring as per Individual Built Features Management Plans (BFMP) Implement measures as per the BFMP	Update impact assessment based on observed damage Review individual BFMP for services in conjunction with Infrastructure owner to ensure these remain safe and serviceable
	SURFACE IMPACTS THAT RESULTS IN PUBLIC SAFETY ISSUES	Normal Minor cracking as detailed in LMP	Monitoring as per SM Program, LMP and PuSMP	
		Trigger Level 1 Moderate cracking, surface irregularities (ie humps), unstable trees	Notify landowner in accordance with PuSMP Rehabilitate landform, land use and ecosystem function in accordance with LMP in consultation with landowner	Review impact assessment based on observed damage
		Trigger Level 2 Major cracking, surface irregularities (ie humps), erosion	Notify landowner in accordance with PuSMP Rehabilitate landform, land use and ecosystem function in accordance with LMP in consultation with landowner	Update impact assessment based on observed damage Provide ongoing resources to prevent access to the affected area until remediation plan can be enacted
		Mass movement of steep slope	Notify DRE Implement public safety risk mitigation in accordance with PuSMP (notification, warning signs, traffic control)	Remediate in accordance with LMP, BMP and WMP
	SURFACE WATERCOURSES (WATER QUALITY, CHANNEL/BANK STABILITY)	Normal No change to water quality or channel/bank stability from mining related impacts or environmental consequences	Monitoring as per SM Program and WMP	
		Trigger Level 1 Deterioration trend in stream water quality or channel stability	Establish whether water quality / channel stability is being impacted by underground mining impacts or environmental consequences. Remediate in accordance with LMP where works are not on “Waterfront Land”	Consult with DPI-Water - where works are required on “Waterfront Land” Remediate in accordance with LMP and any requirements of DPI-Water.
		Trigger Level 2 Subsidence remediation works required in watercourse	Consult with DPI-Water - where works are required on “Waterfront Land” Remediate in accordance with LMP and any requirements of DPI-Water	Review and update WMP
	GROUNDWATER RESOURCES	Normal No adverse impact on groundwater	Monitoring as per WMP	
		Trigger Level 1 Impacts outside predictions but significantly benign to cause no immediate adverse impact	Increase monitoring frequency and continue to assess as per the WMP	
		Trigger Level 2 Continual exceedance outside the range of impact predictions and/or immediate adverse impact.	Conduct investigation to determine the extent of the impacts and identify contributing factors. Develop and implement appropriate course of action in consultation with relevant stakeholders and DPI-Water	Review monitoring program and the WMP Review groundwater assessment and update monitoring and management plans.
	FLOOD AND PONDING	Normal No significant change in drainage or ponding as shown in WMP	Monitoring as per SM Program and Land Management Plan	
		Trigger Level 1 Drainage or ponding impacts land use in a way it hadn't prior to subsidence or additional erosion due to change in water drainage patterns	Develop plan in consultation with landowner	Remediate in accordance with LMP
		Trigger Level 2 Ponding prevents access to property	Correct drainage to allow temporary access	Correct drainage flow to prevent future access issues
	CULTURAL HERITAGE	Normal No impact to identified site	Monitoring as per ACHMP (external plan to the EP)	
		Trigger Level 1 Remediation required in area of identified artefact	Follow protocols in the ACHMP including preparation of an Aboriginal Heritage Impact Permit (AHIP) for the LWB1-B3 area	Follow outcomes of the AHIP process and the ACHMP including (where agreed): Temporary storage of sites for repositioning after works Complete Aboriginal Site Impact Recording Form per ACHMP
		Trigger Level 2 Remediation encounters new Cultural Heritage site	Cease work immediately, notify Registered Aboriginal Parties and OEH, follow protocol in ACHMP to assess the extent, nature and significance of the Aboriginal object(s)	Follow outcomes of the AHIP process and the ACHMP including (where agreed): Temporary storage of sites for repositioning after works Complete Aboriginal Site Impact Recording Form per ACHMP
	ECOLOGICAL VALUES	Normal No significant adverse impact to threatened species, populations, habitats and/or ecological communities.	Monitoring as per Biodiversity Management Plan	
		Trigger Level 1 Isolated subsidence induced impact on terrestrial flora and fauna identified by Ecologist or SM Program	Continue Monitoring as per BMP Assess whether significant adverse impact to threatened species, populations, habitats and/or ecological communities has occurred.	Develop remediation plan as appropriate in consultation with land owner and OEH Apply reasonable/feasible test to remediation plan. Remediate in accordance with the BMP including monitoring success of remediation and any corrective actions resulting from monitoring of rehabilitation.
		Trigger Level 2 Remediation works to threatened species, populations, habitats and/or ecological communities have failed to successfully remediate the impact in accordance with BMP OR Austar consider that remediation works do not appear reasonable/feasible	Seek determination from the Secretary of DPE on Austar's evaluation of the remediation success OR reasonable/feasible basis.	Identify suitable biodiversity offsetting mechanism and seek approval of the offset from the Secretary of DPE (proportional to the significance of the impact or environmental consequence) Provide agreed biodiversity offset to the satisfaction of the Secretary of DPE.
Responsibilities	OPERATIONS MANAGER (OM)	Ensure adequate resources are available to implement the Extraction Plan		
	REGIONAL TECHNICAL SERVICES MANAGER (TSM)	Arrange monitoring as per Public Safety MP Owner of the Public Safety MP Owner of the Coal Resources Recovery Plan Owner of the Subsidence Monitoring Program	Notify DRE and PSE of identified public safety issues Notify PSE and DRE of subsidence exceedance	Update subsidence prediction and impact assessment as required Increase frequency of subsidence monitoring in consultation with PSE Stabilise unstable structures Reduce safety hazards to that of pre mining Update subsidence predictions based on monitoring data Participate in review and update of Extraction Plan
	ENVIRONMENT & COMMUNITY MANAGER (ECM)	Arrange monitoring as per Biodiversity MP Arrange monitoring as per the Built Features MP Arrange monitoring as per LMP Arrange monitoring as per ACHMP (external plan to the EP) Arrange monitoring as per the WMP Owner of the BMP, BFMP, LMP, ACHMP & WMP Seek access for monitoring programs	Conduct further assessments investigations where required by BMP, ACHMP, WMP Rehabilitate land in accordance with LMP, WMP, BMP and ACHMP Develop remediation plan in consultation with land owner and OEH (where required) Assist Built Feature owner with MSB claim Notify landholder of exceedances of performance criteria Arrange pre mining subsidence building inspections per BFMP Arrange temporary water replacement as required	Provide ongoing resources to prevent access to the affected area until remediation plan can be enacted Develop remediation strategy with landowner and OEH Correct drainage to prevent future access issues Signage and access restriction as per PuSMP Consult with DPI-Water - where remediation works are required on “Waterfront Land” Consult with and seek endorsement from Secretary of DPE for biodiversity offsets required by BMP. Review and update Extraction Plan
	REGISTERED MINE SURVEYOR	Arrange monitoring as per Subsidence Monitoring Program Undertake subsidence monitoring as per SMP, LMP, BFMP and PuSMP		

EP = Extraction Plan, SM Program = Subsidence Monitoring Program, LMP = Land Management Plan, BMP = Biodiversity Management Plan, PuSMP = Public Safety Management Plan, BFMP = Built Features Management Plan, ACHMP = Aboriginal Cultural Heritage Management Plan, WMP = Water Management Plan
DPE = Department of Planning and Environment, DRE = Department of Industry - Division of Resources and Energy, OEH = Office of Environment & Heritage, DPI-Water = Department of Primary Industries – Water, MSB = Mine Subsidence Board, PSE = Principal Subsidence Engineer of DRE