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1. Introduction

The Environmental Protection Authority (EPA) has determined that the above Proposal is to be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

The purpose of the Environmental Scoping Document (ESD) is to define the form, content, indicative timing and procedure of the environmental review, required by s. 40(3) of the Act.

This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities and interested agencies consistent with the EPA's *Procedures Manual*.

The EPA requires the proponent to undertake the environmental review according to the procedures in the EPA's *Administrative Procedures* and *Procedures Manual*, and the *Instructions and Template: How to prepare an Environmental Review Document*.

As the Proposal is a significant amendment to Ministerial Statement 1111 (MS 1111), the Environmental Review Document (ERD) is required to include consideration of section 3.2 of the *Procedures Manual*.

This ESD has not been released for public review. The ESD will be available on the EPA website (www.epa.wa.gov.au) upon endorsement and must be appended to the ERD. The ERD is to be published for public review for a period of eight (8) weeks.

The Proponent will undertake a review of the ERD to ensure the requirements of the relevant EPA instructions, templates and guidance have been met. The ERD will include a scoping checklist that identifies the section(s) and page number of the ERD indicating where both all the dot points in the scoping checklist on page 5 of the ERD Template (2021) and the requirements of this ESD can be found.

Table 1: General proposal and proponent information

Proposal information	
Proposal name	Greenbushes Lithium Mine: Waste Rock Landforms, Salt Water Gully Dam and additional clearing for infrastructure
Proponent	Talison Lithium Australia Pty Ltd
Location	Immediately south of the town of Greenbushes, approximately 250 km south east of Perth, in the South West Region of Western Australia
Assessment number	2496
Application number	APP-0028619 (significant amendment to existing MS 1111 under s.40AA of the EP Act)
Local Government area	Shire of Bridgetown-Greenbushes
Public review period	Environmental Review Document – Public Environmental Review of 8 weeks

The subject of this ESD is Talison Lithium Australia Pty Ltd's (Talison) Greenbushes Lithium Mine: Waste Rock Landforms, Salt Water Gully Dam and additional clearing for infrastructure (the proposal) for the **expansion of the existing Greenbushes Lithium Mine** operation, approved on 19 August 2019 under MS 1111, approximately 250 km south east of Perth, in the South West Region of Western Australia.

The regional location of the proposal is shown in Figure 1 and the development envelope encompassing the physical elements of the proposal is delineated in Figure 2.

1.1 Indicative timing of the environmental review

Table 2 sets out the indicative outline of the timing of the environmental review (indicative timeline) agreed between the EPA and the proponent.

Table 2: Indicative outline of the timing of the environmental review (indicative timeline)

Key assessment milestones	
EPA approves Environmental Scoping Document	September 2025
Proponent submits first draft Environmental Review Document	October 2025
EPA provides comment on first draft Environmental Review Document *(6 weeks from receipt of ERD)*	November 2025
Proponent submits revised draft Environmental Review Document *(8 weeks)*	January 2026
EPA authorises release of Environmental Review Document for public review *(2 weeks from EPA approval of ERD)*	February 2026
Proponent releases Environmental Review Document for public review for 8 weeks	February 2026
Close of public review period	April 2026
EPA provides Summary of Submissions *(3 weeks from close of public review period)*	May 2026
Proponent provides Response to Submissions *(8 weeks)*	July 2026
EPA reviews the Response to Submissions *(4 weeks from receipt of Response to Submissions)*	August 2026
EPA prepares draft assessment report and completes assessment (*6 weeks from acceptance of response to submissions*)	October 2026
EPA finalises Assessment report (including two-week consultation on draft conditions) and gives report to Minister *(6 weeks from completion of assessment)*	December 2026

1.2 Commonwealth Government approvals

The proposal is likely to be determined as a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal will not be assessed under a Bilateral Agreement between the Commonwealth and the State under section 45 of the EPBC Act or as part of an accredited process under section 87 of the EPBC Act. Related EPBC Act Reference numbers for the proposal are 2018/8206 (variation), 2024/09900 and 2025/10205.

2. Form and content (required work)

The EPA requires that the form of the report on the environmental review required under section 40 of the EP Act is in accordance with the *Instructions and Template: How to prepare an Environmental Review Document*.

The EPA requires that the content of the ERD is in accordance with the *Instructions and Template: How to prepare an Environmental Review Document.*

The EPA also requires that the environmental review includes the proposal specific additional content outlined in Section 2.

2.1 Preliminary key environmental factors

The preliminary key environmental factors to be addressed in the ERD are:

1. Flora and Vegetation
2. Terrestrial Fauna
3. Terrestrial Environmental Quality
4. Inland Waters
5. Air Quality
6. Greenhouse Gas Emissions
7. Social Surroundings

2.2 Specific and/or additional work required for assessment of proposal for key environmental factors

The general form and content of the ERD will be in accordance with the *Instructions and Template: How to prepare an Environmental Review Document*.

Table 3 outlines the proposal specific and/or additional work required as it relates to preliminary key environmental factor/s for the proposal.

Table 3: Proposal specific and/or additional required work

All Environmental Factors	
Required work	Work to be consistent with the requirements in the *Instructions and Template: How to prepare an Environmental Review Document* and provided for each factor: 1. Factor objective 2. relevant policies and guidance 3. receiving environment 4. potential environmental impacts 5. mitigation 6. assessment and significance of residual impact 7. environmental outcomes Work required to inform the ERD will be conducted in accordance with the requirements of the most recent EPA Environmental Factor Guidelines and

	Technical Guidance at the time the ERD is published for each preliminary key environmental factor, and a consolidated report of the surveys and/or investigations undertaken will be provided for each factor. Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance. Ensure all information as required by EPA guidelines and guidance is provided in the ERD and that the content in the main document aligns with the information in the attached appendices, or provide justification why this is not the case. Any novel approaches need to be agreed to prior to submission and supported with an independent peer review to demonstrate it is fit-for-purpose. Any investigation, study or survey limitations need to be discussed, along with the methodology as to how any gaps in information have been addressed. For each preliminary key environmental factor the proponent is required to follow relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species, communities, habitat (supporting, significant, and critical), and ecosystems that are known to occur, or are likely to occur in the vicinity of the proposal area. Any instances where published guidance is not followed must be justified. Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance.
Flora and Vegetation	
Required work	1. In accordance with EPA guidance, conduct surveys to identify and characterise the flora and vegetation of areas in a local and regional context. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys, relevant to the proposal area. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. If previous surveys and records are utilised, older specimens should be compared with newer collected specimens. Genetic analysis may be required to match and identify specimens. 2. All survey reports and data should be submitted via Index of Biodiversity Surveys for Assessments (IBSA) Submissions with the IBSA number provided for verification and recorded in the ERD, including the survey report associated with the survey referenced as being conducted in 'October 2022' in Section 6.1.3.6 of the Referral Supporting Document. (*only Appendices D and F IBSA numbers have been provided*). Any survey reports or data that are revised after their initial acceptance into IBSA should be updated in IBSA.

	3. Conduct primary detailed surveys during the Spring season in accordance with EPA Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Undertake an updated search of the Department of Biodiversity, Conservation and Attractions (DBCA) Threatened/Priority Flora and Ecological Communities databases to inform targeted surveys for conservation significant species during Spring across the Proposal area. *(Note – the eastern survey area has not been surveyed for significant flora and the referral documentation Appendices D and F, Tables 3 and 4 list conservation significant species from 2022 DBCA database searches).* 4. Undertake investigations into the classification of *Lepidosperma* sp. ONS6731 to species level. In addition, undertake investigation into *Gonocarpus* sp. including providing additional fruiting/flowering material to the WA Herbarium for assessment (*as stated in Appendix D*). New or anomalous species results from taxonomic review may require additional targeted surveys for *Gonocarpus* sp. 5. Provide a map that clearly shows the survey effort applied in relation to the study area, and development envelope, identifying the direct and indirect impact areas. Include consideration of seasonality. 6. Identify and describe the flora species identified by the studies and surveys. Describe significant flora and provide an analysis of local and regional context, (refer to the Environmental Factor Guideline - Flora and Vegetation for definition of significant flora). For those that are considered not to be significant, provide a succinct justification. 7. Provide maps showing the recorded locations of significant flora in relation to the proposal and species distributions. 8. Identify and describe the vegetation present in the study area. Describe significant vegetation, and provide an analysis of local and regional context, (refer to the Environmental Factor Guideline - Flora and Vegetation for definition of significant vegetation). For those that are considered not to be significant, provide a succinct justification. 9. Provide maps showing the extent of all vegetation, and significant vegetation, in the study area, the development envelope, direct and indirect impact areas, and in local and regional contexts. 10. Provide maps showing the extents of *Phytophthora cinnamomi* (dieback) and *Quambalaria coyrecup* (marri canker) within the DE. Provide updates to the Disease and Hygiene Management Plan as required under Condition 9 of MS 1111 and append to the ERD (*see also Item 14 below*). 11. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to all vegetation and significant flora that may occur following implementation of the proposal during both construction and operations, in the context of the existing operations as well as in a local and regional context. Provide tables with quantitative assessments of impact: a) For significant flora, this includes: i. number of individuals and populations in a local and regional context

	ii. numbers and proportions of individuals and populations directly or potentially indirectly impacted, and iii. numbers/proportions/populations currently protected within the conservation estate (where known). b) For all vegetation units (noting threatened and priority ecological communities and significant vegetation) this includes: i. area (in hectares) and proportions directly or potentially indirectly impacted, and ii. proportions/hectares of the vegetation unit currently protected within conservation estate (where known). 12. Provide an analysis of the significance of identified key environmental values, and anticipated direct and indirect impacts from the implementation of the proposal, in a local and regional context, including but not limited to: a) ecological linkages and wildlife corridors b) regionally and locally significant flora, and vegetation, including but not limited to the Southern Jarrah Forest, wetland vegetation; riparian vegetation, groundwater dependent ecosytems (GDE) and groundwater dependent vegetation (GDV) (*see Inland Waters);* old growth forests; protected areas or conservation areas under the *Conservation and Land Management Act 1984* and the Forest Management Plan 2024-2033 (FMP), and areas previously cleared and rehabilitated by the proponent. 13. Predict the residual impacts from the proposal on flora and vegetation after considering and applying the mitigation hierarchy. 14. Demonstrate application of the EPA's mitigation hierarchy, prioritising the avoidance of impacts to environmental values and achievement of positive environmental outcomes in the first instance. Thereafter, where additional mitigation measures are required, any proposed and/or updated environmental management plans (and outcomes and objectives therein) should be: a) limited in scope to detailing proposed monitoring activities to meet clear and measurable environmental outcomes b) prepared in accordance with the EPA instructions c) provided in complete form at ERD stage. If such a plan and/or any updated plan is provided, the ERD should explain why the plan is being included (and why an outcomes-based condition is not considered practical). Append any referenced Environmental Management Plans (EMPs), including EMPs required under MS 1111 conditions (Disease and Hygiene Management Plan as required under Condition 9). 15. Assess the potential impacts on flora and vegetation from dam overtopping at Southampton and Austins Dams. Identify and evaluate the environmental values and potential direct, indirect and cumulative impacts. Detail proposed management measures to avoid potential impacts, including the implementation of the dam raises at Southampton

	and Austins Dams. 16. Discuss the success of existing mitigation and management measures and describe any adaptive management based on outcomes and results. 17. Provide details of existing rehabilitation trials, progressive rehabilitation to date, and study reports completed. Append the reports to the ERD. Update the Visual Impact Management and Rehabilitation Plan required by Condition 7 of MS 1111. 18. Discuss the proposed approach to rehabilitation and waste rock landform (WRL) design including the identification of relevant stakeholders involved. 19. In addition to a Mine Closure Plan, discuss the impacts of dust deposition, invasive weed species, potential spread of disease, potential surplus water discharge or reduced downstream water volumes, WRL seepage leachate and surface water management infrastructure on flora species, vegetation types, habitats and communities, and how impacts will be managed during operations and post closure with regards to the mitigation hierarchy. 20. Provide cumulative impacts and incorporating data from the existing operation, adjacent and regional proposals (and consideration of planned future proposals) to inform species distributions, vegetation or habitat extents, and the predicted cumulative impacts to species and communities from multiple projects.
Terrestrial Fauna	
Required work	1. In accordance with EPA guidance, conduct desktop studies and surveys to identify and characterise the vertebrate and short-range endemic (SRE) invertebrate fauna and fauna habitats in a local and regional context, clarify and justify the quantification of the local and regional context used in the assessment. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys, relevant to the proposal area. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. 2. Discuss the latest results/reporting of annual terrestrial fauna monitoring trends (i.e. annual aquatic ecological assessments) and append the monitoring data to the ERD. 3. All survey reports and data should be submitted via IBSA Submissions with the IBSA number provided for verification and recorded in the ERD. (*Only Appendices K, L, N and S IBSA numbers have been provided*). Any survey reports or data that are revised after their initial acceptance into IBSA should be updated in IBSA. 4. Update the desktop study (Appendix T) to include contextual data from the WA Museum's invertebrate databases, and DBCA's threatened species database to determine whether SRE or significant invertebrate species may occur within the DE. 5. Genetically analyse invertebrate taxa specimens collected (Appendix T,

	Section 5.3) to determine whether they are known taxa that occur outside the impact footprint, or new taxa and potentially restricted (Appendix T, Section 5.4). 6. Targeted survey for SRE and/or significant invertebrates may be required, depending on outcomes of the genetic analysis and results of the invertebrate database searches. Targeted surveys outside of the impact footprint may be required if collection localities have been cleared/developed, (refer to Technical Guidance - Sampling of short range endemic invertebrate fauna | EPA Western Australia). 7. Provide a map(s) showing the survey effort applied in relation to the study area, terrestrial fauna habitats, and development envelope, identifying the direct and indirect impact areas. Include consideration of seasonality. 8. Identify and describe the terrestrial fauna habitats identified by the studies and surveys. Describe significant fauna habitats, including but not limited to: aquatic fauna habitats, SRE invertebrate microhabitats, refugia, breeding areas, key foraging habitat (including consideration of degraded vegetation as foraging and breeding habitat), movement corridors and linkages, (refer to the Environmental Factor Guideline - Terrestrial Fauna for definition of significant fauna habitat). 9. Provide maps showing the extent of terrestrial fauna habitats in relation to the proposal and species distributions. 10. Identify and describe the fauna assemblages present and likely to be present within the development envelope that may be impacted by the proposal, including Matters of National Environmental Significance (MNES). 11. Identify significant or restricted fauna (including all significant terrestrial fauna considered in conditioned EMPs (*Conservation Significant Terrestrial Fauna Management Plan (CSTFMP) required under condition 6 of MS 1111*) and additional conservation significant species, including SRE invertebrate fauna species, identified in survey reports, and aquatic fauna species (including semi-aquatic and amphibious species identified in Appendices M, N and P) and describe in detail their known ecology, likelihood of occurrence, habitats and known threats, (refer to the Environmental Factor Guideline - Terrestrial Fauna for definition of significant fauna habitat). 12. Map the locations of significant/restricted fauna records in relation to the terrestrial fauna habitats, the study area, the development envelope, and direct and indirect impact areas. 13. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to habitats and significant species (*identified in Item 8*) that may occur following implementation of the proposal during both construction and operations, in the context of the existing operations as well as in a local and regional context. 14. Provide a table of the proportional extents of each habitat within the study area and development envelope, and the predicted amount to be directly impacted and remaining. Consider any local or regional cumulative impacts. 15. Demonstrate application of the EPA's mitigation hierarchy, prioritising the avoidance of impacts to environmental values and achievement of positive

	environmental outcomes in the first instance. Thereafter, where additional mitigation measures are required, any proposed and/or updated environmental management plans (and outcomes and objectives therein) should be: a) limited in scope to detailing proposed monitoring activities to meet clear and measurable environmental outcomes b) prepared in accordance with the EPA instructions c) provided in complete form at ERD stage. If such a plan and/or any updated plan is provided, the ERD should explain why the plan is being included (and why an outcomes-based condition is not considered practical). Append any referenced EMPs, including EMPs required under MS 1111 conditions (CSTFMP as required under Condition 6). 16. Discuss the success of existing mitigation and management measures and describe any adaptive management based on outcomes and results. Discuss the application of the Conservation Advice and Recovery Plans for the conservation significant species. 17. Predict the residual impacts from the proposal on terrestrial fauna after considering and applying the mitigation hierarchy. 18. Provide an updated offsets strategy (MS 1111 Condition 8).
Terrestrial Environmental Quality	
Required work	1. Provide maximum case quantities of chemical and diesel storage for the proposed expansion, including the Chemical Grade Plant 4 (CGP4). For the CGP4, define the quantity and types of chemicals that will be stored, extent of earthworks/excavations, and source of imported fill (if required). 2. Investigate the extent and condition of historical workings within new proposed disturbance footprints and assess the implications for WRL stability and design of overlying infrastructure. 3. Assess the geotechnical stability and geochemical suitability of proposed WRL footprints. Provide details of erodibility testing and erosion modelling for the proposed WRLs. WRL design (Appendix V) should consider waste lithologies and existing conditions within the WRL footprints. Confirm materials that will be placed on the outer surface of WRLs are suitable for this intended purpose. Clarify and justify the design slope angle of 18 degrees. 4. Demonstrate application of the EPA's mitigation hierarchy, prioritising the avoidance of impacts to environmental values and achievement of positive environmental outcomes in the first instance (i.e. WRL design to avoid leachate generation). Refer to the Australian Government's Leading Practice Sustainable Development Program for the Mining Industry - Preventing Acid and Metalliferous Drainage. 5. Conduct WRL evolution modelling over a minimum period of 500 years to demonstrate that the proposed WRLs will be safe, stable, non-polluting and self-sustaining in perpetuity. 6. Provide details of chemical and physical characteristics of waste rock

	materials that are representative of materials which will be disposed to WRLs. Append waste characterisation reports/results to the ERD. 7. Provide details of chemical characteristics of leachate from waste rock materials that are representative of materials which will be disposed to WRLs, noting that kinetic leach testing is ongoing. The results from laboratory-based kinetic tests should be substantiated by field kinetic tests (which can include results from the existing Floyds WRL). Clearly identify contaminants of potential concern (CoPC) and thresholds for freshwater ecosystems and drinking water as per the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, as well as locally significant aquatic guideline values (informed by local toxicity testing). Append kinetic leach testing reports/results to the ERD ensuring the latest results are included. 8. Develop site-specific soil guideline values for CoPC that could be generated by the proposal (including lithium, arsenic, antimony, cobalt, beryllium, nickel, tungsten, thallium and uranium). This could be developed statistically based on the assessment of natural background levels of CoPC in soil, in areas not previously disturbed by mining. 9. Conduct leachate seepage modelling for proposed WRLs (S8 and S2) including estimated seepage volumes, CoPC and the predicted extent of seepage plumes. Include confidence levels for critical data used in modelling, using appropriate statistical validation techniques. Conduct a peer review of the leachate assessment. 10. Assess the potential contamination pathways for WRL leachate including to soils, groundwater, surface waters and vegetation. Give regard to the potential interaction of surficial (perched) groundwater with waterways (see item 1a of Inland Waters). *Note: where contamination pathways from WRL leachate are identified, include a summary of potential impacts under the 'Inland Waters' environmental factor and refer to relevant sections of the ERD.* 11. Provide an updated Waste Rock Management Plan and Environmentally Hazardous Waste Rock Management Procedure that is informed by the latest available kinetic leach testing results. The plan should clearly outline how materials at risk of acid mine drainage (AMD) will be managed to avoid leachate generation, how leachate seepage will be monitored, and if detected how leachate seepage will be recovered/managed. Include predictive simulations to demonstrate the effectiveness of proposed management in controlling seepage discharge. The simulations should include the full range of CoPC based on kinetic leach testing being undertaken. 12. Provide details and rationale for siting of rehabilitation material stockpiles, including options analysis, noting the proposed stockpile locations are in close proximity to Hester Brook. 13. Provide details of baseline soil characteristics across the full extent of the proposed disturbance footprint (undertaking additional investigations/sampling in new proposed disturbance areas). *Note: Appendix X - Rehab Materials Characterisation.pdf does not include soil sampling within the proposed expansion area.* Include figure(s) showing surficial soil units and representative soil profiles for new proposed disturbance areas. Recalculate the volume and suitability of topsoil and

	subsoil materials available, including from new proposed disturbance areas, to: a) encapsulate and neutralise potentially acid forming and other materials in the WRL, and b) for use in rehabilitation. *Note: Appendix X has not been updated to include materials from the expansion area.* 14. Identify local and regional values that could be affected by impacts to terrestrial environmental quality, and assess the potential for significant impacts to these values from implementation of the proposal, giving regard to both potential direct and indirect impacts (and all phases of the proposal, including post-closure land use). Values to be addressed include, but are not limited to: a) Ground and surface water users including, but not limited to, registered abstraction bores and farm dams. b) Recreational values of the Blackwood River and connecting tributaries (including Hester Brook). c) Ecological values including, but not limited to, riparian vegetation, aquatic fauna and aquatic ecological systems (especially conservation significant aquatic fauna species and habitats), of the Blackwood River and connecting tributaries (including Hester Brook). d) Stygofauna that may be present in the hyporheic zone in creeks. e) Recreational fishing activities which rely upon aquatic fauna present in the Blackwood River that could be affected by changes in water quality. *Note: where values are identified and discussed under other factors, refer to relevant sections of the ERD.* 15. Assess potential impacts to identified values from implementation of the proposal, giving regard to indirect impacts that could result from: a) WRL leachate impacting soils and migrating to groundwater and/or surface waters (see item 1a of Inland Waters). b) Sediment transport (from exposed surfaces or soil stockpiles) in surface water runoff causing turbidity impacts to Hester Brook and the Blackwood River. c) Potential impacts to surface water quality and dependent vegetation from exacerbation of dryland salinity as a result of clearing (giving regard to existing groundwater and surface water monitoring data within/proximal to the DE, compared to nearby cleared catchments). d) Uptake and bioaccumulation of CoPC in vegetation/pastures post closure, impacting local food webs via livestock grazing, wildlife and insect attack (noting current research has demonstrated that lithium can be readily leached from non-acid forming water rock and taken up by vegetation). *Note: where potential impacts to values are identified and discussed under other factors, refer to relevant sections of the ERD.* 16. For new proposed disturbance areas in the DE, characterise potential contamination, and confirm the suitability of stripped materials for reuse in WRLs (to encapsulate potentially acid forming material) and

	rehabilitation. 17. Describe measures to avoid or minimise impacts on terrestrial environmental quality (and associated values) for all implementation phases of the proposal, including measures to: a) Avoid or minimise clearing and disturbance. b) Minimise leachate generation, monitor leachate seepage, and recapture leachate. c) Avoid and minimise release of chemicals and hydrocarbons from storage and handling areas. d) Minimise erosion and stabilise soils (especially on WRLs). e) Identify and manage contaminated soils and acid sulfate soils (ASS) should they be encountered. f) Minimise uptake and bioaccumulation of CoPC in vegetation/pastures post closure. 18. Provide an updated Mine Closure Plan for the proposal, prepared in accordance with the Department of Mines, Petroleum and Exploration (DMPE) (formerly Department of Energy, Mines, Industry Regulation and Safety [DEMIRS]) Guideline for preparing Mining Closure Plans - March 2025 (or any subsequent revision of the guideline).
Inland Waters	
Required work	1. Identify local and regional inland waters values and assess the potential for significant impacts to these values from implementation of the proposal, giving regard to both potential direct and indirect impacts. Values to be addressed include, but are not limited to: a) All waterways including intermittent rivers and ephemeral streams including, but not limited to Hester Brook, Norilup Brook, Woljenup Creek and their tributaries (Cascade Gully, Salt Water Gully, Spring Creek, Spring Gully Creek and Dumpling Gully), and the Blackwood River receiving environment. b) Groundwater and surface water resources, including proclaimed and unproclaimed areas under the *Rights in Water and Irrigation Act 1914*. c) Ground and surface water users including, but not limited to, Public Drinking Water Source Areas (PDWSAs), water catchment areas (i.e. Hester Dam Catchment Area), dam reservoirs, ground and surface water abstraction bores, and farm dams. d) Recreational values of the Blackwood River and connecting waterways (from item 1a). e) Ecological values of the identified waterways (refer to item 1a) including, but not limited to, GDEs, GDV, riparian vegetation and fauna, aquatic ecological systems (including aquatic, semi-aquatic and amphibious fauna and those of conservation significance – *see Terrestrial Fauna*); noting GDEs may occur outside of drainage lines. Assess the potential for groundwater to support sub-surface habitat for species such as *Engaewa* (burrowing crayfish).

	f) Recreational fishing activities which rely upon aquatic fauna present in the Blackwood River that could be affected by changes in water quality. *Note: where values are identified and discussed under other factors, refer to relevant sections of the ERD.* 2. Include figure(s) for all inland water values (with labels), highlighting those identified as having the potential to be directly or indirectly impacted by the proposal. 3. Provide details of the baseline hydrological and hydrogeological regimes in local and regional context, including but not limited to: a) Surface water catchment boundaries. b) Stream flows and flood patterns. *Update Appendix AA of the referral 'Surface Water Site Wide' (GHD 2019), or provide a separate surface water assessment for the proposed expansion area east of South Western Highway.* 4. Conduct flood risk modelling to justify suitable siting of WRLs and rehabilitation material stockpiles and inform the final proposal design. The flood risk modelling should be undertaken in accordance with the Australian Rainfall and Runoff Guidelines and include, but not be limited to, assessment of a 1% Average Exceedance Probability (AEP) event. *Note: where flood risk is identified and discussed under other factors, refer to relevant sections of the ERD.* 5. Describe life histories of aquatic and semi-aquatic/riparian fauna relevant to hydrological regimes (i.e., ecological water requirements, or the characteristics of critical habitats and related connectivity). This should include interactions within and between systems, across different life stages, and including location of aquatic refuge habitats during the dry season. *Note: where values are identified and discussed under other factors (i.e. Terrestrial Fauna), refer to relevant sections of the ERD.* 6. Existing flow and quality of surface water (including from the hyporheic zone) and sediments for all waterways (from item 1a) with the potential to be impacted. Data must be current (based on monitoring undertaken to date) to establish a baseline for the proposed expansion. Sampling locations should be down-stream of any potential contamination pathways identified and must include depositional areas (waterway pools and dams). The sampling regime should consider seasonality and potential for changes in conditions over time. Include a map of sampling locations (differentiating those sites proposed for ongoing monitoring). 7. Occurrence of groundwater in the DE with a focus on locations proposed for WRLs (including perched systems and aquifers if present), with depth to groundwater and likely extent validated by groundwater monitoring data. 8. Quality of groundwater (including perched systems and aquifers if present), that have the potential to be impacted by the proposal (i.e. proximal to proposed WRLs), data must be current to establish a baseline. 9. Interaction between perched groundwater and surface waters for all waterways (from item 1a) with the potential to be impacted.

	10. Append groundwater, surface water and sediment quality monitoring data in raw format (spreadsheets). The appended report(s) should consolidate the results of multiple monitoring events so that trends in baseline conditions can be established. 11. Assess the potential impacts of climate change on surface hydrology for base and impact cases (refer to the Department of Water and Environmental Regulation's [DWER] Guide to future climate projections for water management in WA). Data informing model parameters should include the last 20 years to more accurately predicted surface flows and dilution of CoPC. Model performance must be tested under predicted normal and dry conditions. The interpretation of modelled streamflow response must consider streamflow observations from other hydrologically similar sites in the south-west over the last 20 years. *Note: the current hydrological model uses external catchment parameters from data collected between 1983 and 2005 and does not capture drying trends observed over the last 20 years.* 12. Assess the likely environmental outcome of modifying surface drainage through the construction of Salt Water Gully Dam. Consider potential impacts on beneficial uses, other water users and ecological values of all waterways (from item 1a) with the potential to be impacted. Consider changes in dilution factors for CoPC with reduced surface discharge. 13. Assess the potential impacts of climate change, modified surface drainage and disturbance of bed/banks of waterways, on life histories of aquatic and semi-aquatic/riparian species (item 5). 14. Refer to the Terrestrial Environmental Quality requirements (above) for information required in the ERD to support the assessment of potential significant impacts to inland waters from seepage of WRL leachate. *Note: where contamination pathways from WRL leachate are identified, include a summary of potential impacts under the 'Inland Waters' environmental factor and refer to relevant sections of the ERD.* 15. Provide justification that the proposed setback (or buffer) for the S8 WRL will be suitable in preventing adverse impacts to inland water values of Hester Brook and the Blackwood River receiving environment. The assessment must give regard to the potential presence of groundwater discharge areas; and demonstrate that the proposed buffer will allow for maintenance of riparian vegetation, and establishment of a mitigation zone for impacted seepage collection. 16. Identify and assess the potential for CoPC to contaminate waterways (from item 1a) and bioaccumulate in aquatic fauna. The assessment must reference current scientific knowledge, including the results of ongoing monitoring of heavy metal bioaccumulation in fish and crayfish in tributaries of the Blackwood River being undertaken by DWER. The assessment must use site-specific guideline values (SSGVs) developed by DWER (where available) or by Talison, to assess potential impacts. The assessment of bioaccumulation should consider appropriate Species Protection Levels (ANZG 2018). All CoPC that could be generated by the proposal (i.e. from WRL leachate) should be considered, including but not limited to: those required to be monitored under Licence L4247/1991/13 (including Schedule 2). Consider the impact of toxicity modifying factors on CoPC toxicity (e.g. dissolved oxygen content, potassium, sodium,

	chlorine, hardness, alkalinity, pH and temperature). 17. With reference to ANZG 2018, develop SSGVs for CoPC where these have not been developed by DWER (note: DWER is currently developing guideline values for beryllium, fluoride, lithium, thallium and tungsten). If SSGVs cannot be developed, use of default guideline values (DGVs) must include a description of toxicity risk (giving regard to sensitivity of local species and habitats), with application of the precautionary principle. 18. If impacts to inland water values are expected, provide information consistent with the EPA's mitigation hierarchy, to demonstrate that the EPA factor objective can be met. Consideration should be given to: a) Progressive clearing. b) Progressive rehabilitation and revegetation. Where proposed rehabilitation and revegetation measures have been previously applied within the existing DE, demonstrate how these measures have been successful in minimising impacts to inland water values. c) Monitoring strategies and governance arrangements for ongoing management of impacts. Include draft monitoring and management plans if applicable. d) Management options for WRL leachate seepage *(see Terrestrial Environmental Quality).* e) Identification and management of contaminated soils and ASS should they be encountered *(see Terrestrial Environmental Quality).* 19. Provide an updated Water Management Plan for the proposal that includes baseline information, potential pathways for contamination, a risk assessment, and proposed mitigation and management measures. 20. Provide an updated Mine Closure Plan for the proposal, prepared in accordance with the DMPE 'Guideline for preparing Mine Closure Plans' (March, 2025), or any subsequent revision of the guideline.
Air Quality	
Required work	1. Provide an air quality impact assessment report (include modelling input files) that models cumulative dust generated from both existing operations and the proposal considering worst case scenario/s (refer to DWER Air quality modelling guidance notes 2006). The cumulative impact modelling should: a) Capture all potential emission sources (including CGP4, crusher 4 and associated haul roads), pathways and impacts on receptors. b) Provide justification for exclusion of combustion emissions. c) Predict air quality change(s) at identified sensitive receptors (PM_{10}, $PM_{2.5}$ and dust deposition). d) Be informed by a throughput forecast for the operation. e) Estimate wind erosion based on wind speed threshold for material lift-off. Develop wind erosion controls based on 2019 rainfall data. f) Provide justification for the scenarios modelled.

	g) Compare modelling outcomes with current air quality monitoring data. h) Compare modelled precipitation with available measurements, using average rainfall data from 2019 (or other years if data is missing). i) Data used to establish existing air quality should be collected over one year and/or must include months of peak dust generation (i.e. summer months) 2. Include a map identifying permanent monitoring stations, mobile monitoring stations where these have informed modelling, and all sensitive receptors for existing operations and the proposal. Ensure the status of landholder agreements are accurately reported on figures. 3. Identify and quantify all air emissions from the proposal that may impact the environment (including where relevant, impacts on human health and well-being, odour, nuisance and amenity). Potential impacts of dust on flora and vegetation should be addressed under the Flora and Vegetation factor. Evaluate all potential emission sources (including construction and operation of additional processing plant CGP4 and crusher 4), pathways and impacts on receptors. 4. Identify and quantify dust emission contributions from other surrounding sources (e.g., agriculture). 5. Provide details of the likely dust composition (both morphological and chemical) and concentration, informed by monitoring undertaken to date and compared against relevant Australian and international standards. 6. Demonstrate application of the EPA's mitigation hierarchy, prioritising the avoidance of impacts to environmental values (i.e. through design) and achievement of positive environmental outcomes in the first instance. Thereafter, where additional mitigation measures are required, outline dust mitigation and management measures that will be implemented to minimise impacts to sensitive receptors, specifically: a) Demonstrate that all reasonable and practicable measures will be undertaken to mitigate dust impacts from implementation of the proposal. • Discuss the success of mitigation and management measures required by the existing EMPs, in minimising dust impacts from current operations (i.e. Air Quality Management Plan, Air Quality Trigger Action Response Plan and Dust Management Plan). The Dust Management Plan should include specific measures to monitor visible dust and air quality, to demonstrate compliance with the National Environment Protection (Ambient Air Quality) Measure, including maximum concentrations specified in schedule 2 – Standards and Goals. This will include adhering to the goal for particles as $PM_{2.5}$ (Table 2: Goal for Particles as $PM_{2.5}$ from 2025). b) Describe adaptive management undertaken and the results/outcomes from this. c) Provide details of dust reduction measures (including equipment and technologies) considered and those proposed (with justification) and the expected environmental outcomes.

	d) Identify any emissions reduction equipment and technologies that will be implemented at the existing operations and as part of the proposal. *Note: where emission reduction approaches are discussed under another factor, refer to relevant section of the ERD.* 7. Where impacts to sensitive receptors are predicted to exceed recognised criteria and standards, provide justification for why impacts cannot be managed or mitigated to allow for the recognised criteria and standards to be met at those receptors. 8. Confirm through water balance modelling that there is sufficient available water for dust suppression activities. 9. Assess the potential public health and public safety impacts to sensitive receptors, including the towns of Balingup, Greenbushes and Bridgetown. Including: a) Consideration of cumulative impacts to air quality from the proposal in combination with the existing operations. b) Consideration of recent dust monitoring results (including dust composition analysis) and demonstrate compliance with the National Environment Protection (Ambient Air Quality) Measure.
Greenhouse Gas Emissions	
Required work	1. Provide credible estimates of scope 1, scope 2 and scope 3 greenhouse gas (GHG) emissions (annual and total) in tonnes of carbon dioxide equivalent (CO2-e) over the life of the proposal. Include estimates of cumulative GHG emissions from the proposal and the existing Talison Greenbushes Mine. Detail methods used to estimate emissions, provide supporting evidence, justifications and diagrams. 2. Provide a breakdown of scope 1 GHG emissions that are covered by the Safeguard Mechanism as a designated facility. 3. Provide the expected baseline GHG emissions number for the facility under the Safeguard Mechanism and how it was calculated. 4. Provide the avoidance and mitigation measures that have been adopted for reducing GHG emissions, including application against best practice, for the GHG emissions under the Safeguard Mechanism. 5. Discuss the scope 1 GHG emissions mitigation measures that have been investigated and outline which mitigation measures will be implemented. Provide credible estimates of the scope 1 GHG emissions mitigated by the implementation of the mitigation measures. Detail the methods used to calculate the mitigated emissions for all mitigation measures. 6. Discuss whether the proponent expects to surrender Australian Carbon Credit Units (ACCUs) equal to or more than 30% of its expected baseline Scope 1 GHG emissions. 7. Provide a breakdown of estimated scope 1 and 2 GHG emissions by source that are not covered by the Safeguard Mechanism. Consider all proposed activities in determining the sources of emissions (e.g. clearing of land). 8. Provide a clear pathway for reducing scope 1 GHG emissions not covered by the Safeguard Mechanism over the life of the proposal which

	demonstrates the EPA's objective can be met, including justification for the GHG emissions baseline used. 9. Provide the GHG emissions intensity of the proposal and benchmarking of GHG emissions intensity against comparable proposals and international and Australian best practice, where scope 1 GHG emissions are not covered by the Safeguard Mechanism. 10. Provide the avoidance and mitigation measures that have been and are proposed to be adopted for reducing scope 1, 2 and scope 3 GHG emissions, including application against best practice, for the GHG emissions not covered by the Safeguard Mechanism. 11. Discuss how the trajectory of scope 1, scope 2, and scope 3 GHG emissions is consistent with a global low-carbon transition to a net zero by 2050 scenario.
Social Surroundings	
Required work	1. Characterise and describe the social, cultural, amenity and heritage values within and adjacent to the proposal area and any sensitive receptors that may be directly or indirectly impacted as a result of this proposal (refer to the Environmental Factor Guideline - Social Surroundings). This includes any receptors that may be affected by land clearing, construction and operation activities, noise and dust emissions, traffic, access, and amenity issues. Include relevant maps to show the locations of the sensitive receptors likely to be affected by the proposal. Identify sites of cultural significance within a regional context, in consultation with the Traditional Owners. In relation to noise impacts, the existing noise environment at receptors that may be impacted by the proposal should be characterised by ambient noise levels following the method described in Appendix B of the department's (May 2021) Draft Guideline: Assessment of environmental noise emissions. 2. Provide a Social Impact Assessment which includes consideration of current noise, air quality, visual impact and lighting studies, vibration monitoring data, local infrastructure, accommodation and services usage, conflicting land uses and outcomes from stakeholder engagement. Include the methodology used for each of the studies conducted to inform this assessment. Ensure the status of landholder agreements are accurately reported on figures. 3. Provide details related to the proposed changes to shire roads, the direct and indirect impacts and the management measures required to reduce/mitigate the potential impacts. 4. Provide details related to the proposed construction and operation of additional crusher (CGP4 crusher 4), the direct and indirect impacts to environmental values (including increased dust and noise) and the measures taken to reduce / mitigate the potential impacts. 5. Provide updated acoustic modelling of the current operations (excluding blasting). The noise model is to include the sensitive receptors currently impacted by the operations and those potentially impacted by noise from the implementation of the proposal (as identified in item 1.). Modelling inputs are to be based on field data where available (*include the field data*

	as an appendix to the modelling report for reference). Noise contours are to be presented in 5 dB increments between 35-60 dB(A) inclusive. 6. Provide a cumulative noise impact assessment of the existing activities and proposed expansion. The cumulative noise assessment is to include the predicted changes in noise levels at all sensitive receptors currently impacted by the operations and those potentially impacted by the proposal (as identified in item 1.). Noise contours are to be presented in 5 dB increments between 35-60 dB(A) inclusive. The assessment report is to include the expected number of dwellings within each 5 dB bracket. 7. Provide details of noise reduction measures investigated to reduce noise impacts from the proposal on all sensitive receptors, including predicted noise reductions of implementation. Provide justification that all reasonable and practicable measures have been undertaken to mitigate noise impacts from the implementation of the proposal. 8. Provide details of any changes to current blasting practices associated with the proposal. 9. Provide complete copies of any noise models used in points 4, 5 and 6. above. Noise models are to be provided in their native format (e.g. all SoundPLAN files). 10. Provide an updated Visual Impact Assessment that includes consideration of the proposed South Western Highway crossing design and night time works during construction and operation. Discuss the success of existing mitigation and management measures as required under Condition 7 of MS 1111 in the Visual Impact Management and Rehabilitation Plan (VIMRP) and describe any adaptive management based on outcomes and results. Provide updates to the VIMRP and append to the ERD. 11. Provide targeted information regarding Aboriginal Cultural Heritage (ACH) and site investigations in an Environmental Impact Assessment Statement for ACH values report (refer to Section 3 of Technical Guidance EIA of Social Surroundings - Aboriginal Cultural Heritage) and append the report to the ERD: a) Identify the areas likely to be subject to the *Aboriginal Heritage Act 1972* (AH Act), how the AH Act will consider ACH, likely outcomes of the AH Act and whether application of the AH Act processes to the proposal are likely to result in consistency with the EPA's objective to protect social surroundings from significant harm. b) Provide a map showing the heritage survey effort for the DE. c) Identify proposal elements or activities that may impact Aboriginal heritage values. d) Identify the physical and biological impacts, and whether they are/are not within the area likely to be subject to the AH Act. e) Identify the ACH values that may be harmed by the physical and biological impacts and the extent and duration of impacts, taking cumulative effects into account. f) The proposed avoidance and mitigation of impacts to ACH. g) Predicted residual impacts to ACH values.

	h) The proposed environmental outcomes to protect ACH values which may be significantly harmed by physical or biological impact from the proposal. i) Provide a summary of the consultation process, the information provided to inform the consultation regarding the proposal and its physical or biological impacts on ACH values and outcomes from the consultation/engagement from all stakeholders, including State Government regulatory authorities. 12. Provide details on the proposed seepage interception to avoid impacts to Aboriginal heritage values. 13. Identify and assess potential impacts to any adjacent land users that may occur as a result of this proposal being implemented. Consult with adjacent land users that may be impacted, either directly or indirectly, regarding operation and closure land uses. Include outcomes from the stakeholder engagement (*see item 15*). 14. Describe and assess the potential impacts (direct, indirect and cumulative) to social surroundings as a result of changes to the environment from the proposal considering Traditional Owners, land owners, local communities and visiting tourists and their activities on the land. 15. Provide a summary of the information provided during consultation and the outcomes from the engagement with all stakeholders, including proponent responses to any stakeholder proposed recommendations. 16. Append any referenced EMPs to the ERD, for example: a) Noise Management Plan b) Stakeholder Engagement Plan c) Aboriginal Cultural Heritage Management Plan (ACHMP) d) VIMRP e) Air Quality Management Plan (see also Environmental Factor - Air Quality) f) Construction Environmental Management Plan

2.3 Cumulative impact assessment – scoping of activities, boundaries and environmental values for relevant environmental factors

The ERD will include a cumulative impact assessment (CIA) to assess the proposal's contribution with the existing approved proposal, to impacts on the relevant environmental values. Describe, quantify and discuss the direct and indirect cumulative impacts to environmental values and objectives, within the boundaries of the Greenbushes State Forest, the Middle Blackwood Surface Water Management Area and the Karri Groundwater Area. The CIA will consider successive, incremental and interactive impacts of the existing approved operations and the proposal on the environment, with one or more past, present and reasonably foreseeable future activities within the Southern Jarrah Forest region.

The ERD will include a CIA of combined effects of different cumulative impacts upon the following environmental factors: Flora and Vegetation, Terrestrial Fauna, Terrestrial Environmental Quality, Inland Waters (with a focus on Salt Water Gully, Lyons River (a tributary of the Blackwood River),

Cascades Gully, Hester Brook (a tributary of Blackwood River), Norilup Brook and Woljenup Creek (a tributary of the Blackwood River), Air Quality, Greenhouse Gas Emissions, and Social Surroundings.

Table 4 outlines the scope of the CIA, noting that throughout the preparation of the ERD, there may be additional environmental values identified that are to be included.

Table 4: Scope of the CIA

Flora and Vegetation	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur outside the DE, including upstream or downstream environments. Environmental values include the following: • Greenbushes State Forest • Groundwater dependent vegetation, riparian vegetation, wetland vegetation • Threatened and/or priority ecological communities • Threatened and/or priority flora species • Previous rehabilitation undertaken within the vicinity of the Southampton and Austins Dam raises • Protected areas or conservation areas under the *Conservation and Land Management Act 1984* and the Forest Management Plan 2024-2033 • ACH values of the Southern Jarrah Forest • Other environmental values as identified in future studies Activities considered include: • Mining and construction operations • Clearing of native vegetation/State Forest, and rehabilitated vegetation • Construction of dam raises and surface water management infrastructure • Increased dust, spread of disease and weed invasion • Changes in climate and fire behaviour • Alteration to surface water flows and groundwater systems, and surplus water management • Rehabilitation and closure impacts
Terrestrial Fauna	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur outside the DE, including upstream or downstream environments. Environmental values include: • Fauna habitats, including aquatic fauna habitats and SRE invertebrate microhabitats, breeding areas, key foraging habitats • Conservation significant terrestrial fauna species (including MNES, aquatic fauna, and SRE species and assemblages) • ACH values of fauna species

	• Fauna movement corridors and linkages • Other environmental values as identified in future studies Activities considered include: • Mining and construction operations • Clearing of fauna habitat • Vehicle and machinery movements • Increased dust, noise, vibration and light emissions • Spread of disease and weeds • Alterations and disruptions to surface water flows, surplus water management and waste disposal • Rehabilitation and closure impacts
Terrestrial Environmental Quality	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur outside the DE, including upstream or downstream environments. Environmental values include: • Soils within and surrounding the DE for use in revegetation and rehabilitation of the proposal • Agricultural productivity of soil profiles • Soil use in post-mining land use Activities considered include: • Mining and construction operations (including existing operations and all elements approved under MS 1111 in addition to all proposed activities) • Clearing of native vegetation • Vehicle and machinery movements • Alterations to landforms (development of WRLs and topsoil stockpile locations near waterways) • Alterations and disruptions to surface water flows, construction of surface water management infrastructure, construction of dam raises • Use and storage of hydrocarbons and chemicals • Storage of waste rock and other materials • Run-off and/or leachate seepage of pollutants or contaminants to catchments • Surplus water management and waste disposal • Rehabilitation and closure impacts
Inland Waters	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur outside the DE, including upstream or downstream environments. Environmental values include: • Blackwood River

	• Hester Brook • Lyons River • Salt Water Gully • Cascade Gully • Norilup Brook • Wojenup Creek • Aquatic ecological systems • GDV, riparian vegetation, wetland vegetation and associated threatened and/or priority flora • Agricultural, recreational, cultural and aesthetic values • ACH values of Blackwood River (and its tributaries) • Other key water features, including major drainage lines and aquifers • Other environmental values as identified in future studies Activities considered include: • Mining and construction operations • Clearing of vegetation • Impacts of secondary salinity from rising water tables • Alteration of surface water flows, surface water abstraction for water supply and mine dewatering • Construction of surface water management infrastructure • Construction of dam raises • Use and storage of hydrocarbons and chemicals • Storage of waste rock and other materials • Run-off and/or leachate seepage of pollutants or contaminants to catchments • Disease and weed spread • Closure impacts
Air Quality	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur to all sensitive receptors outside the DE. Environmental values include: • Visual, local, social and cultural amenity (including European heritage and ACH) • Public safety and health. Activities considered include: • Mining and construction operations (existing operations and all elements approved under MS 1111 in addition to all proposed activities), including use of mining equipment and vehicle movements (including ore, waste and concentration haulage) • Alterations to landforms (development of S2 and S8 WRLs and topsoil stockpile locations near waterways)

	• Erosion from existing pits, tailings storage facilities and WRLs • Clearing of vegetation • Expansion of dams and dam embankment raises • Development of laydown areas and topsoil stockpiles • Construction of water management infrastructure • Realignment of roads and the construction of the South Western Highway crossing and pipeline • Fire (including prescribed burns, bushfires, residential fires and wood heating) and consideration of changes in fire regimes due to climate change.
Greenhouse Gas Emissions	
Required work	Consider the boundaries of the assessment include emissions contributions to the Western Australian resource sector (mining, processing, transport, oil and gas), and the cumulative emissions contributed to total Western Australian greenhouse gas emissions. Environmental values include: • Scope 1 and 2 generations, and other environmental receptors at risk due to climate change Activities considered include: • Mining and construction operations (including existing operations, and all elements approved under MS 1111 in addition to all proposed activities) • Diesel combustion (use of equipment and vehicle operation) • Clearing
Social Surroundings	
Required work	Consider the boundaries of the assessment include the existing operations DE, the Proposal DE, and any direct or indirect impacts that may occur to all sensitive receptors, including sensitive land uses (for example, Greenbushes Primary School, local townsites, residential developments and local services, agricultural properties, tourism) outside the DE. Environmental values include: • Visual, local, social and cultural amenity • Public health, safety, convenience and comfort • Recreational and ACH values of Blackwood River (and its tributaries) • Registered Aboriginal Cultural Heritage Site ID 20434 (Blackwood River) • European heritage sites Activities considered include: • Mining and construction operations (existing operations and all elements approved under MS 1111 in addition to all proposed activities), including use of mining equipment and vehicle movements (including ore, waste and concentration haulage) resulting in increased dust, noise, vibration and light emissions and risk of unearthing or damaging an Aboriginal site, or impacting ACH

	values • Clearing of vegetation • Realignment of roads and the construction of the South Western Highway crossing and pipeline • Alterations to landforms (development of WRLs and topsoil stockpile locations near waterways), storage of waste rock and other materials • Erosion from existing pits, tailings storage facilities and WRLs • Development of laydown areas and topsoil stockpiles • Expansion of dams and dam embankment raises • Alteration of surface water flows, surface water abstraction for water supply and mine dewatering • Surplus water management and waste disposal • Construction of surface water management infrastructure • Expansion of dams and construction of dam raises • Use and storage of hydrocarbons and chemicals • Run-off and/or leachate seepage of pollutants or contaminants to catchments • Risk of unearthing or damaging an Aboriginal site, or impacting Aboriginal cultural heritage values as a result of mining and exploration activities • Post-mining land use, rehabilitation and closure impacts

2.4 Holistic impact assessment

Where the combination of the environmental effect of two or more environmental factors or values has the potential to result in a significant impact, provide a holistic impact assessment of the proposal on the environment, applying the EPA's principles and the EPA's objectives for environmental factors:

- Outline the connections and interactions between environmental factors or values that in combination have the potential to have a significant effect on the environment.
- Provide a diagram of the links between environmental factors or values.
- Summarise the potential combined environmental effects.
- Summarise any additional mitigation measures proposed to mitigate combined environmental effects.
- Summarise any significant residual combined environmental effects.
- Summarise proposed additional environmental outcomes for the proposal on the environment as a whole, and (optional) any proposed conditions for consideration by the EPA.

Provide a summary of the environmental effect of the proposal on the environment as a whole (as distinct from a summary of the effect for each individual environmental factor or environmental value).

2.5 Offsets

Provide details of the proposed offset including but not limited to:

- objectives and outcomes
- description of actions to be undertaken

- specific and measurable success criteria
- timelines and milestones
- monitoring to assess offset implementation
- reporting details and timing
- financial arrangements
- risks and contingency measures
- governance arrangements including responsibilities and legal obligations
- provide evidence of consultation on offset with relevant stakeholders.

Identify and quantify the significant residual impacts and proposed offsets, including completing the offset template (an example is in Appendix 1 of the WA Offsets Guidelines) and the residual impact significance model table (an example is on Page 11 of the WA Environmental Offsets Guideline).

Assess whether significant residual impacts remain, propose an appropriate updated offsets package and demonstrate how the proposed offset will counterbalance the significant residual impact.

Demonstrate consideration of the six Principles outlined in the WA Environmental Offsets Policy and WA Environmental Offset Guideline.

Outline how the offset aligns with relevant plans and policies, such as recovery plans.

Evidence that supports the success or viability of the offset (include as an appendix where required).

Refer to the relevant guidance for further information on offsets:

- Statement of environmental principles, factors, objectives and aims of EIA
- Public Advice Considering Environmental Offsets on a Regional Scale
- Environmental factors: WA Environmental offsets policy and WA environmental offset guidelines.
- Greenhouse Gas Emissions factor: Government of Western Australia's Greenhouse gas emissions Policy for major projects and the EPA's Environmental factor guideline – Greenhouse gas emissions.

Note: Offsets are not appropriate for all proposals. They should usually only be considered as the final step in the mitigation hierarchy, and only for significant residual impacts for environmental factors.

Proponents must provide sufficient evidence about and assess whether (and how) an offset is likely to counter-balance a significant residual impact. Conclusions about this cannot be based on assumptions or conjecture.

2.6 Stakeholder consultation

List the key stakeholders for the proposal.

Discuss the stakeholder identification process.

Discuss the process for stakeholder engagement for the proposal, including ongoing consultation.

Include outcomes of consultation with stakeholders and a detailed response to issues raised by them (or reference the section in the ERD where they are addressed) (ERD Template Table 5). Identify who was consulted, summary of discussions, key issues / matters raised, outcomes and whether matters raised were resolved or outstanding.

Do not include generic outcomes of discussions with decision making authorities – do include specific outcomes.

Justify if consultation has not been undertaken.

2.7 Significant amendments – specific additional required work

If the proposal is a significant amendment to MS 1111, the ERD will also include the following required information:

- The approved proposal, such that the environmental impacts may be considered in context with the significant amendment.
- The combined effects that implementation of the significant amendment with the approved proposal might have on the environment.
- Consideration of whether the existing implementation conditions are adequate to ensure the proposal's ongoing elements are consistent with the EPA's environmental objectives.
- Whether the Proponent considers existing conditions should be inquired into or proposes amendments.
- Consideration of whether outcome conditions and associated monitoring can replace existing management plan conditions.
- Where existing management plan conditions are proposed to continue, include updated plans to address combined impacts and to ensure amended proposal meets current EPA objectives.
- Consideration of section 3.2.1 of the Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual.

3. Decision-making authorities

The EPA has identified the State decision-making authorities listed in Table 5 for this proposal. Additional decision-making authorities may be identified during the course of the assessment. Information about how DMAs processes can meet expected outcomes and EPA objectives is preliminary or may be unknown at this ESD stage. Completion of the information in Table 4 and Table 5 will be provided in the ERD on a per impact basis.

Table 5: Decision making authorities and processes

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which proposal element the approval is related to)
Registrar of Aboriginal Sites	*Aboriginal Heritage Act 1972*	Section 16 authorisation for excavation purposes (research). Regulation 7 approval to bring plant and equipment to an Aboriginal site. Regulation 10 approval for minor activities and impacts to an Aboriginal site.
Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972*	Section 18 consent to impact a registered Aboriginal site.
Minister for the Environment	*Biodiversity Conservation Act 2016* Environmental Protection (Noise) Regulations 1997	Section 40 authority to take or disturb threatened species. Regulation 17 approval to allow emission of noise to exceed or vary from standard.
Minister for Health	*Health (Miscellaneous Provisions) Act 1911*	The treatment of sewage.
Minister for Mines and Petroleum	*Mining Act 1978*	Section 16 approval to lease, transfer or otherwise dispose of land under the *Land Administration Act 1997* (note: applies when land is leased or disposed of under the LAA).
Minister for Planning and Lands	*Land Administration Act 1997 (LAA)*	Section 79 lease of Crown land (note: approval of Minister for Mines also required under section 16 *Mining Act 1978*). Section 144 easement over Crown land.
Minister for Transport	*Main Roads Act 1930*	Section 18D approval for Commissioner to construct roads.

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which proposal element the approval is related to)
Chief Executive Officer, Department of Biodiversity, Conservation and Attractions	*Biodiversity Conservation Act 2016* *Conservation and Land Management Act 1984*	Authority to take flora and fauna (other than threatened species). Section 97 grant of forest lease. Section 97A(6) permit for water to be taken from State Forest land.
Chief Health Officer, Department of Health	*Health (Miscellaneous Provisions) Act 1911* Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974	Treatment of sewage intended to serve a building that is not a single dwelling or any other building that produces more than 540 litres of sewage per day.
State Mining Engineer, Department of Mines, Petroleum and Exploration	*Mining Act 1978*	Mining Proposal and Mine Closure Plan.
Executive Director, Department of Mines, Petroleum and Exploration	*Mining Act 1978*	Mining Proposal and Mine Closure Plan.
Mining Registrar, Department of Mines, Petroleum and Exploration	*Mining Act 1978*	Miscellaneous license / prospecting licence.
Worksafe Commissioner, Department of Local Government, Industry Regulation and Safety	*Work Health and Safety Act 2020* Work Health and Safety (Mines) Regulations 2022	Safety standards and requirements for mining operations.
Director WorkSafe Petroleum Safety and Dangerous Goods, Department of Local Government, Industry Regulation and Safety	*Dangerous Goods Safety Act 2004*	Storage and handling of dangerous goods.
Commissioner of Main Roads, Department of Transport	*Main Roads Act 1930*	Approval for development within road reserves. Approvals for Southwest Highway crossing.
Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986*	Part V licence and works approvals Part V clearing permit
Chief Executive Officer, Shire of Bridgetown-Greenbushes	*Health (Miscellaneous Provisions) Act 1911* and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974 *Building Act 2011*	Treatment of sewage for a single dwelling or any other building that produces less than 540 litres of sewage per day. Building permit (worker accommodation, offices etc.)

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which proposal element the approval is related to)
	Local Government Act 1995 (and relevant local By Law)	Extractive industries licence. Approvals to undertake works to Shire roads.

NB: Government sector mailing list

Table 6: Other statutory decision-making process which can mitigate potential impacts on the environment

Environmental impact	How is the impact regulated by other decision- making process(es)?	Limit(s) of the decision-making process(es) to regulate the impact eg time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
Proponent to populate and provide in the environmental review document.					

Figure 1: Regional location of the Greenbushes Lithium Mine: Waste Rock Landforms, Salt Water Gully Dam and Additional Clearing for Infrastructure.

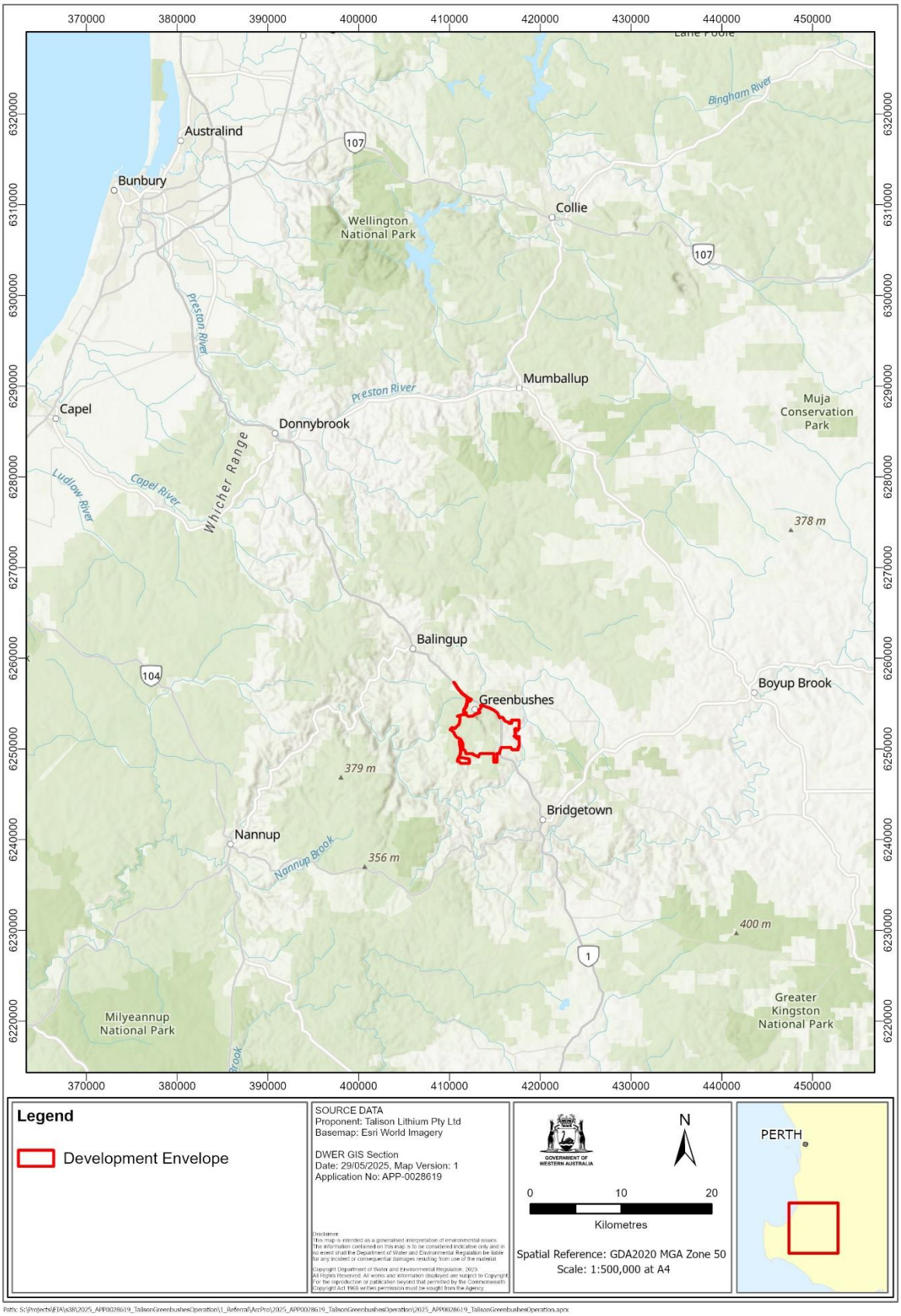
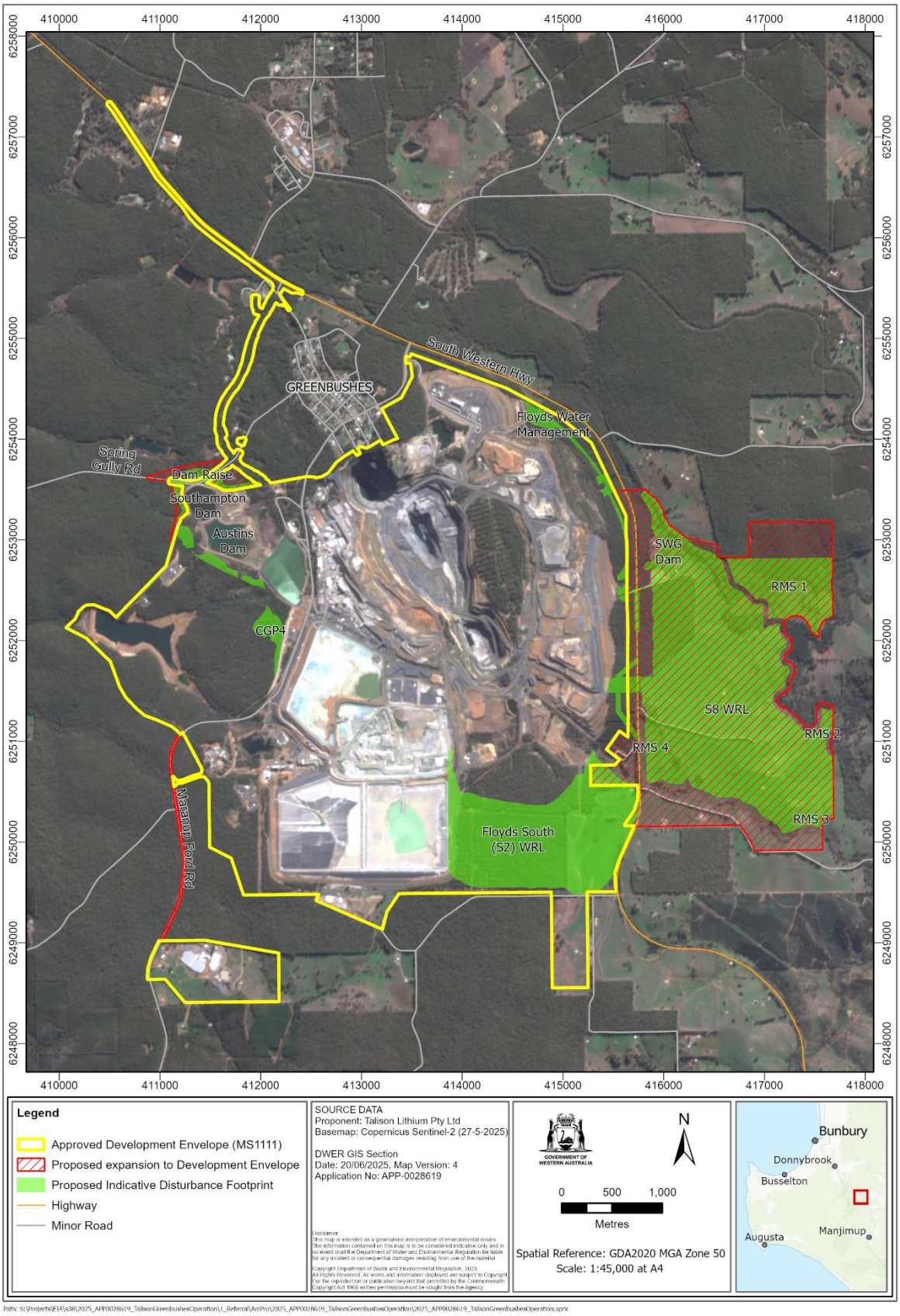


Figure 2: Greenbushes Lithium Mine: Waste Rock Landforms, Salt Water Gully Dam and Additional Clearing for Infrastructure Development Envelope and disturbance footprint.



Appendix 1 – Policy and Guidance

Flora and Vegetation

EPA policy and guidance

- *Environmental factor guideline – Flora and vegetation (EPA, 2016)*
- *Guidance Statement No. 6 – Rehabilitation of Terrestrial Ecosystems (EPA, 2006)*
- *Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2024)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA, 2023)*
- *Public Advice: Considering environmental offsets at a regional scale (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*
- *Technical guidance: Flora and vegetation surveys for environmental impact assessment (EPA, 2016)*

Other policy and guidance

- *Australian Weeds Strategy 2017-2027 - Invasive Plants and Animals Committee Commonwealth of Australia (2017)*
- *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities (2012)*
- *Forest Management Plan 2024-2033, Conservation and Parks Commission, Department of Biodiversity, Conservation and Attractions (2023)*
- *Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the proposal area.*
- *WA Environmental Offsets Policy, Government of Western Australia (2011)*
- *WA Environmental Offsets Guidelines, Government of Western Australia (2014)*
- *WA Environmental Offsets Template (2014)*

Terrestrial Fauna

EPA policy and guidance

- *Environmental factor guideline – Terrestrial Fauna (EPA, 2016)*
- *Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2024)*
- *Guidance Statement No. 6 – Rehabilitation of Terrestrial Ecosystems (EPA, 2006)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA, 2023)*

- *Public Advice: Considering environmental offsets at a regional scale (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*
- *Technical Guidance: Sampling of short-range endemic invertebrate fauna (EPA, 2016)*
- *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)*

Other policy and guidance

- *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities (2012)*
- *Forest Management Plan 2024-2033, Conservation and Parks Commission, Department of Biodiversity, Conservation and Attractions (2023)*
- *Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the proposal area.*
- *Survey guidelines for Australia's threatened birds, Commonwealth Department of the Environment, Water, Heritage and the Arts (2010)*
- *Survey guidelines for Australia's threatened mammals, Commonwealth Department of Sustainability, Environment, Water, Population and Communities (2011)*
- *WA Environmental Offsets Policy, Government of Western Australia (2011)*
- *WA Environmental Offsets Guidelines, Government of Western Australia (2014)*
- *WA Environmental Offsets Template (2014)*

Terrestrial Environmental Quality

EPA policy and guidance

- *Environmental factor guideline – Terrestrial Environmental Quality (EPA, 2016)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*

Other policy and guidance

- *Australian Rainfall and Runoff Guideline (Australian Government, 2019)*
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000)*
- *Guideline for Preparing Mining Development and Closure Proposals (DMPE, formerly DEMIRS, 2025)*
- *Guideline for Preparing Mine Closure Plans (DMPE, formerly DEMIRS, 2025)*
- *Leading Practice Sustainable Development Program for the Mining Industry – Preventing Acid and Metalliferous Drainage (Australian Government, 2016)*
- *Roy, T., Plante B., Demers, I., Benzaazoua, M., and Isabel, D., 2024. Multi-year in situ hydrogeochemical monitoring of hard rock lithium mine tailings in a large-scale experimental pile. Journal of Environmental Management, 356, 120602. The paper is available from the following website: https://www.sciencedirect.com/science/article/pii/S0301479724005887.*
- *Nkrumah, P.N. and van der Ent, A., 2023. Possible accumulation of critical metals in plants that*

*hyperaccumulate their chemical analogues? Science of the Total Environment, **878**, 162791. The paper is available from the following website: www.wur.nl*

- *Robinson, B.H., Yalmanchali, R., Reiser, R. and Dickinson, N.M., 2018. Lithium as an emerging environmental contaminant: Mobility in the soil-plant system. Chemosphere, 197, 1-6.*
- *Phytoremediation remediation of rare earth elements. Research by Dr Antony van der Ent at the University of Queensland. Available online: Dr Antony van der Ent - Sustainable Minerals Institute - University of Queensland.*

Inland Waters

EPA policy and guidance

- *Environmental factor guideline – Inland Waters (EPA, 2018)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*

Other policy and guidance

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)*
- *Guidelines for Preparing Mine Closure Plans (DMPE, formerly DEMIRS, 2025)*
- *Guide to future climate projections for water management in Western Australia (DWER, 2024)*
- *A structured framework to interpret hydro-climatic and water quality trends in Mediterranean climate zones (Alilou, H., Oldham, C., McFarlane, D., Hipsey, M.R., 2022)*
- *Runoff and groundwater responses to climate change in South West Australia (McFarlane, D.J., George, R. J., Ruprecht, J., Charles, S., Hodgson, G., 2020)*

Air Quality

EPA policy and guidance

- *Environmental factor guideline – Air Quality (EPA, 2020)*
- *Guidance Statement No. 3 – Separation Distances between Industrial and Sensitive Land Uses (EPA, 2005)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*

Other policy and guidance

- *Air quality modelling guidance notes, Department of Environment (2006)*
- *Draft Guideline – Air Emissions, DWER (2019)*
- *Draft Guideline – Dust Emissions, DWER (2021)*
- *National Environment Protection (Ambient Air Quality) Measure, DCCEEW (as amended 2021)*

Greenhouse Gas Emissions

EPA policy and guidance

- *Environmental factor guideline – Greenhouse Gas Emissions (EPA, 2024)*

- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*

Other policy and guidance

- *Greenhouse Gas Emissions Policy for Major Projects, the Government of Western Australia (2024)*
- *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015, Australian Government (as amended 2024)*

Social Surroundings

EPA policy and guidance

- *Environmental factor guideline – Social Surroundings (EPA, 2023)*
- *Instructions on how to prepare an environmental review document (EPA, 2021)*
- *Instructions on how to prepare an environmental scoping document (EPA, 2024)*
- *Statement of Environmental Principles, Factors and Objectives (EPA, 2023)*
- *Technical Guidance – Environmental impact assessment of Social Surroundings – Aboriginal Cultural Heritage (EPA, 2023)*

Other policy and guidance

- *Aboriginal Heritage Due Diligence Guidelines, Department of Aboriginal Affairs and Department of Premier and Cabinet (2013)*
- *Draft Guideline - Assessment of environmental noise emissions, DWER (2021)*
- *Forest Management Plan 2024-2033, Conservation and Parks Commission, Department of Biodiversity, Conservation and Attractions (2023)*
- *Visual Landscape Planning in Western Australia - a manual for evaluation, assessment, siting and design, Western Australian Planning Commission (2007)*
- *Department of Health scoping tool for Mine sites exploration camps and construction villages*