







ENVIRONMENTAL SCOPING DOCUMENT

ATLAS PROJECT

5 May 2022

PREPARED FOR IMAGE RESOURCES NL BY PRESTON CONSULTING PTY LTD



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ACKNOWLEDGEMENT OF COUNTRY

In the spirit of reconciliation Image Resources NL and Preston Consulting Pty Ltd acknowledge that this project is proposed on the lands of the Yued People of the Noongar Nation. We pay our respects to Elders past, present and emerging and recognise their continuing connection to land, sea, culture and community.





DOCUMENT CONTROL

Document Title	Environmental Scoping Document – Atlas Project		
Document Number	IMA-ATL-ESD-01		
Revision Number	0		F /0F /2022
Status	FINAL		5/05/2022
Author	Kalon Gibson – Consultant, Preston Consulting Signature		5/05/2022
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THE PROPOSAL

Image Resources NL (Image) is seeking to develop a greenfields mineral sands project, located at Nambung, approximately 18 km east of Cervantes in the Wheatbelt region of Western Australia (WA). The Proposal includes clearing of native vegetation, the progressive development of mine pits, processing facilities, groundwater bores and water management infrastructure, temporary waste dumps, solar drying ponds and associated infrastructure.

The Proposal will be developed within the Mine Development Envelope (MDE) and External Infrastructure Development Envelope (EIDE) requiring the clearing of up to 396 hectares of native vegetation with an additional 110 ha disturbance of already disturbed or agricultural land within a total combined area of approximately 1,037 ha. The regional location of the Proposal and the boundaries of the Development Envelopes (DE) are shown in Figure 1.

Two alternative mining methods are proposed; either dry or dredge mining. Indicative infrastructure for dry and dredge mining methods are shown in Figure 3 and Figure 4 respectively.

The key characteristics of the Proposal are set out in Table 1. The key Proposal characteristics may change as a result of the findings of studies and investigations conducted, and the application of the mitigation hierarchy by the proponent.

Element	Location	Proposed Extent
Physical Elements		
MDE – open cut mine pits or dredge pond, temporary waste dumps, temporary tailings storage facility, processing facilities, solar drying ponds and supporting infrastructure.	Figure 3 Figure 4	Disturbance of no more than 450 ha within the 981 ha MDE, including no more than 372 ha of native vegetation.
EIDE –Transport infrastructure upgrades and one or more extraction bore/s and pipeline corridors.	Figure 2	Disturbance of no more than 56 ha within the 56 ha EIDE, including no more than 24 ha of native vegetation.
Operational Elements		
Mining method	Figure 3 Figure 4	Open cut dry or dredge mining with progressive backfill to pre-mining levels and rehabilitation.
Groundwater abstraction	Figure 2	Abstraction of approximately 3.4 GL/yr from one or more borefields (Yarragadee, Eneabba and/or Lesueur Aquifer) Dewatering of approximately 3 GL/yr
Excess dewater discharge	Figure 3 Figure 4	Discharge of approximately 0.6 GL/yr

Table 1: Location and proposed extent of physical and operational elements





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1 INTRODUCTION

The above Proposal is being assessed by the Environmental Protection Authority (EPA) 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, timing and procedure of the environmental review, required by Section (s.) 40(3) of the EP Act.

Image Resources NL (the Proponent) has prepared this ESD according to the procedures in the EPA's Environmental Impact Assessment (EIA) (Part IV Divisions 1 and 2) Procedures Manual (EPA, 2021a).

The EPA requires the proponent to undertake the environmental review according to the procedures in the EIA (Part IV Divisions 1 and 2) Administrative Procedures (EPA, 2021b) and the EIA (Part IV Divisions 1 and 2) Procedures Manual (EPA, 2021a), and the Instructions and Template: How to Prepare an Environmental Review Document (ERD; EPA, 2021c & d).

Proposal information is provided in Table 2.

Table 2: Proposal information

Proposal information		
Proposal name	Atlas Project	
Proponent	Image Resources NL	
Assessment number	2276	
Local Government area Shire of Dandaragan		
Public review period 6 weeks		
EPBC reference no	2021/9056	

1.1 INDICATIVE TIMING OF THE ENVIRONMENTAL REVIEW

Table 3 sets out the indicative outline of the timing of the environmental review (indicative timeline) agreed between the EPA and the proponent.

Table 3: Indicative timing of the environmental review

Key assessment milestones	Completion date
EPA approves ESD	28 April 2022
EPA notifies proponent and publishes ESD (1 week from approval)	9 May 2022
Proponent submits draft ERD	31 May 2022
EPA reviews draft ERD (6 weeks from receipt of ERD)	12 July 2022
EPA accepts ERD (assumes no further revisions required)	12 July 2022
EPA authorises release of ERD for public review (2 weeks from accepted ERD)	26 July 2022
ERD 6 week public review period closes	6 September 2022
EPA provides summary of submissions to proponent (3 weeks from close of public review period)	27 September 2022
Proponent prepares response to submissions and submits to EPA	18 October 2022





Key assessment milestones	Completion date
EPA reviews response to submissions (4 weeks from receipt of response to submissions)	15 November 2022
EPA accepts and publishes proponent's response to submissions	22 November 2022
EPA prepares draft assessment report and completes assessment (6 weeks from acceptance of proponent's response to submissions)	3 January 2022
EPA finalises assessment report (including two weeks consultation on draft conditions) and gives report to Minister (6 weeks from completion of assessment)	14 February 2022

1.2 COMMONWEALTH GOVERNMENT APPROVALS

The Proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and will be assessed via an accredited process under s.87 of the Act. The relevant matters of national environmental significance (MNES) for this Proposal are:

- Listed threatened species and communities (s.18 & s.18A); and
- Nuclear action (s.21 & s.22A).

Matters to be specifically surveyed and included in the assessment documentation are provided at Appendix A. This does not limit the matters to be assessed should additional matters be identified through the course of survey and assessment.

This ESD includes work required to be carried out and reported on in the ERD in relation to MNES. The ERD will also address the matters in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000.

MNES that may be impacted by the Proposal (including but not limited to those matters identified at Appendix A) will be identified and the potential impacts on these matters addressed within each relevant preliminary environmental factor identified in Table 2, with a separate MNES section that details the potential impacts on these matters. This section is to include a discussion of how the proposed action meets the principles of ecologically sustainable development (as defined in s. 3A of the EPBC Act) and to demonstrate the Proposal is consistent with Australia's obligations under:

- The United Nations' Convention on Biodiversity;
- The Apia Convention;
- Convention on International Trade of Endangered Species (CITES); and
- Each relevant recovery plan and threat abatement plan.

If required, proposed offsets to address residual impacts on MNES will also be discussed in the ERD.

2 FORM AND CONTENT

The EPA requires that the form of the report on the environmental review required under s.40 of the EP Act is in accordance with the Instructions and Template: How to Prepare an ERD (EPA, 2021 c & d).

The EPA requires that the ERD address matters protected both by the State of WA and the Commonwealth of Australia and includes the content outlined in Sections 2 - 5 and Appendix A.





The EPA also requires that the environmental review includes the proposal specific additional work required for assessment of the Proposal outlined in Section 2.2.

2.1 PRELIMINARY KEY ENVIRONMENTAL FACTORS

Preliminary Key Environmental Factors have been identified by the EPA in the record of the level of assessment as required under s.39(b) of the EP Act (Chair's Determination). Preliminary Key Environmental factors for the environmental review include:

- Flora and vegetation;
- Terrestrial fauna;
- Inland waters;
- Terrestrial Environment Quality;
- Social surroundings; and
- Human Health.

2.2 Specific Additional Work Required for Assessment of Proposal

The general form and content of the ERD will be in accordance with the Instructions and Template: How to Prepare an Environmental Review Document (EPA, 2021c & d).

Table 4 outlines the proposal specific additional work required as it relates to preliminary key environmental factors.

Table 4:	Specific	additional	work	required
rubic ii	opeeme	uuuuuuu		required

Flora and Vegetation	
Required work	 A desktop review of available technical reports, relevant databases and spatial data to identify the potential flora and vegetation that may be present. Demonstrate how surveys are relevant, representative and demonstrate consistency with current EPA and the Department of Agriculture, Water and the Environment (DAWE) policy and guidance. Ensure database searches and taxonomic identifications are up to date. Flora and Vegetation surveys conducted in accordance with current EPA Technical Guidance and DAWE guidance for specific flora species including: A detailed and targeted survey of the MDE; and A basic and targeted survey of the EIDE.
	 If potential impacts from weed species are considered significant, a targeted program of works will be provided to identify, map and manage weeds. If multiple surveys have been undertaken by the same consultant to support the assessment, a consolidated report should be provided including the integrated results of the surveys.
	 The survey report and data should be submitted via the Index of Biodiversity Surveys for Assessments (IBSA) Submissions with the IBSA number provided for verification. Provide a figure depicting survey effort applied in relation to the study area and DEs, identifying the direct and indirect impact areas. A comprehensive Dieback survey of all proposed disturbance areas associated with the Project. Prepare a Dieback management plan addressing Dieback risks, impacts and management strategies for all areas of disturbance associated with the Proposal. Determine whether any flora species recorded are significant including species listed as Priority species under the <i>Biodiversity Conservation Act 2016</i> (BC Act, WA), and provide an analysis of local and regional context, (refer to Environmental Factor Guideline – Flora and Vegetation for definition of significant flora).



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1	10. Determine whether any vegetation identified is significant including ecological
	communities listed under the BC Act, and provide an analysis of local and regional
	context, (refer to Environmental Factor Guideline – Flora and Vegetation for definition
	of significant vegetation).
1	11. Provide maps showing the recorded locations of significant flora in relation to the
	Proposal and species distributions. Provide maps showing the extent of all vegetation,
	and significant vegetation, in the study area, the DEs, direct and indirect impact areas,
	and in the local and regional contexts.
1	12. Assess the potential direct and indirect impacts of the construction and operational
	elements of the Proposal on identified environmental values. Describe and assess the
	extent of cumulative impacts as appropriate. Assessment is to consider
	Commonwealth guidelines regarding radiation as appropriate. Include figures
	showing the predicted extent of loss and corresponding vegetation quality breakdown.
	13. Provide a quantitative assessment of impact:
	• For significant flora, this includes;
	 Number of individuals and populations in a local and regional context;
	 Numbers and proportions of individuals and populations directly or
	potentially indirectly impacted; and
	 Numbers/proportions/populations currently protected within the
	conservation estate (where known).
	 ror an vegetation units (noting threatened and priority ecological communities and significant vegetation) this includes;
	and significant vegetation, this includes;
	impacted, and
	\sim Proportions (bectares of the vegetation unit currently protected within
	conservation estate (where known)
1	14 . Describe the application of the mitigation hierarchy in the Proposal design
	construction operation and closure demonstrating that the design of the Proposal has
	addressed the mitigation hierarchy in relation to impacts on flora and vegetation.
	Detail actions undertaken to avoid, minimise and mitigate Proposal impacts. For
	significant impacts include management and/or monitoring plans (presented in
	accordance with EPA and DAWE instructions) to be implemented pre- and post-
	construction to demonstrate that residual impacts are not greater than predicted.
1	15. Provide an evidence-based Rehabilitation Strategy that includes details of the methods
	for collecting seed, topsoil management, planting strategies, success metrics and
	predicted timeframes. Details of the post-mining landform are to be included.
1	16. Discuss, and determine significance of, potential direct, indirect (including
	downstream) and cumulative impacts to vegetation as a result of the Proposal at a
	local and regional level.
	17. Demonstrate how the Proposal will be developed to avoid impacts to the Nambung
	National Park.
	10. Demonstrate that an practicable measures have been taken to reduce the area of the proposed disturbance footprint based on progress in the proposed design and
	understanding of the environmental impacts
	19. Demonstrate how the final nost-mining landform will be designed to conserve pre-
	mining hydrology of the site.
.	20 Determine and quantify any significant recidual impacts by applying the Decidual
	Impacts Significance Model (nage 11) and WA Offect Template (Annendiv 1) in the WA
	Environmental Offsets Guidelines (2014) the EPBC Act Environmental Offsets Policy
	(Department of Sustainability, Environment, Water, Population and Communities:
	DSEWPC, 2012) and include reference to the Commonwealth Offset Assessment Guide
	for any MNES.
	21. Where significant residual impacts remain, propose an appropriate offsets package
	that is consistent with the WA Environmental Offsets Policy and Guidelines and the
	EPBC Act Environmental Offsets Policy. Any proposed offsets package will be assessed
	against the EPBC Act Environmental Offsets Policy and the six offset principles in the
	WA Environmental Offsets Policy. Spatial data defining the area of significant residual
	impacts will also be provided. Demonstrate how the proposed offset (if needed) is
	consistent with the EPBC Act <i>Environmental Offsets Policy</i> including, but not limited to
	the extent to which the proposed offset correlates to, and adequately compensates for,
	uie residual signification) and the concernation gain to be achieved by the proposed
	guiue and justification, and the conservation gain to be achieved by the proposed offset (i.e. future loss degradation or damage to the protocted matter)
	onset (ne. nuture ross, degradation of damage to the protected matter).
	22. Demonstrate and document in the ERD how the EPA objective for this factor can be
	met.





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	23. Demonstrate and document in the ERD information sufficient to allow the Commonwealth Minister to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each	_
	controlling provision.	
Terrestrial Fauna		
Required work	24. In accordance with EPA Guidance, conduct a desktop study to identify and characterise the vertebrate and Short Range Endemic (SRE) invertebrate fauna and fauna habitats in a local and regional context; and based on the results of the desktop study conduct:	
	 A Basic survey and fauna habitat assessment; and/or A Detailed survey including sampling inside and outside the impact areas 	
	 that may be directly or indirectly impacted; and/or Targeted surveys for significant fauna (including those listed in Appendix A))
	 that may be directly or indirectly impacted'; and If multiple surveys have been undertaken by the same consultant to support 	t
	the assessment, a consolidated report should be provided including the integrated results of the surveys.	c
	25. All surveys and data should be submitted via the IBSA Submissions with the IBSA number provided for verification.	
	26. A map of the survey effort applied in relation to the Proposal, identifying the direct and indirect impact areas.	
	27. Identify and describe the fauna habitats identified by the studies and surveys. Describe significant fauna habitats, including but not limited to SRE invertebrate microhabitats, refugia, breeding areas, key foraging habitat, movement corridors and linkages.	
	28. Provide figure(s) and maps showing the extent of fauna habitats in relation to the Proposal and species distributions.	
	29. Identify and describe the fauna assemblages present and likely to be present within the DEs that may be impacted by the Proposal.	
	30. Identify significant and restricted fauna and describe in detail their known ecology, likelihood of occurrence, habitats and known threats.	
	31. Assess the extent of direct and indirect disturbance in addition to known existing threats on significant and other fauna species, including amount of habitat and percentages of habitat types to be disturbed or otherwise impacted, to assist in determination of significance of impacts. Consider whether the remaining habitat has adequate carrying capacity.	
	32. Map the locations of significant and restricted fauna records in relation to the fauna habitats, the study area, the DEs, and direct and indirect impact areas.	
	33. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to habitats and significant species that may occur following implementation of the Proposal during both construction and operations, in a local and regional context.	
	34. Provide a table of the proportional extents of each habitat within the study area and DEs and the predicted amount to be directly impacted and remaining. Consider any local or regional cumulative impacts.	
	35. Outline the proposed avoidance and mitigation measures to reduce the potential impacts of the Proposal. Include proposed management and/or monitoring plans for significant impacts that will be implemented pre- and post-construction to demonstrate and ensure residual impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with the EPAc Instructions	
	 36. Discuss proposed management, monitoring and control/mitigation methods to be implemented so that the radiological impacts do not pose an unacceptable risk to fauna. Assessment is to consider Commonwealth guidelines regarding radiation as appropriate 	
	37. Predict the residual impacts from the Proposal on terrestrial fauna after considering and applying the mitigation hierarchy.	
	 Discuss closure and rehabilitation management measures, outcomes / objectives to be implemented. 	!
	39. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), the EPBC Act Environmental Offsets Policy (DSEWPC, 2012) and include reference to the Commonwealth Offset Assessment	
	Guide for any MNES.40. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and the	





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	 EPBC Act Environmental Offsets Policy. Any proposed offsets package will be assessed against the EPBC Act Environmental Offsets Policy and the six offset principles in the WA Environmental Offsets Policy. Spatial data defining the area of significant residual impacts will also be provided. Demonstrate how the proposed offset (if needed) is consistent with the EPBC Act <i>Environmental Offsets Policy</i> including, but not limited to the extent to which the proposed offset correlates to, and adequately compensates for, the residual significant impacts on MNES (this is to include completion of an offsets guide and justification), and the conservation gain to be achieved by the proposed offset (i.e. future loss, degradation or damage to the protected matter). 41. Demonstrate and document in the ERD how the EPA objective for this factor can be met. 42. Demonstrate and document in the ERD information sufficient to allow the Commonwealth Minister to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision.
Inland Waters	
Required Work	43 Deckton water supply assessment to identify notential water supply sources for the
Kequired work	Proposal and estimate potential yields based on available hydrogeological information.
	44. Characterisation of the baseline hydrological and hydrogeological regimes in a local
	and regional context. Include regional and local hydrogeological description, including
	representative hydrogeological profiles across the site and contour maps of groundwater levels, flow directions, aquifer structure, seasonal and long term trends
	recharge/ discharge areas (vertical leakage), water quality (including gross alpha and
	gross beta levels) and identification of other groundwater users. Modern climate data
	for the study area consistent with reducing rainfall and recharge trends will be used
	45. Hydrogeological investigations / modelling and analysis to identify sustainable water supply sources for the Proposal and predicted drawdown
	46. Hydrogeological investigations / modelling and analysis to identify the predicted
	drawdown of the superficial aquifer. The investigation is to include groundwater
	drawdown contours for depth and rate for each stage of the mine life.
	48. Sensitivity analysis to identify areas that may be impacted by changes in superficial
	groundwater levels within the mapped drawdown extent.
	49. Characterisation and assessment of the impacts of groundwater drawdown within the
	entire drawdown footprint on other users, overlying aquifers, groundwater dependant
	50. Hydrogeological and ecological / modelling and analysis to characterise all potential
	water-dependent ecosystems including GDEs, surface flow systems, wetlands, rivers/
	creeks, springs, karstic and calcrete habitats (stygofauna) and phreatophytic
	(groundwater dependent) vegetation that may be directly or indirectly impacted by the Pronosal
	51. Description of the design and location of temporary surface water diversions, with the
	potential to impact surface water or groundwater. Define whether the diversions will
	be permanent or temporary.
	required to allow mining to occur.
	53. Hydrological investigations / modelling and analysis to determine suitable options to
	utilise excess dewater and avoid or minimise discharge (if discharge is required).
	54. Characterisation and assessment of the resultant changes to surface water regimes (including volumes, discharge timing and velocity) as a result of the implementation of
	the Proposal.
	55. Mapping and spatial data that shows and defines the extent of the predicted direct and
	Indirect hydrogeological and hydrological impacts to environmental values.
	potential to contaminate inland waters.
	57. Desktop Acid Sulphate Soils (ASS) risk assessment to determine the risk of presence of
	ASS. Undertake an ASS survey if results from the desktop risk assessment identify this to be percessary
	58. Analyse, discuss and assess surface water and groundwater impacts. The analysis will
	include:
	 Changes in groundwater levels and changes to surface water flows associated with the Proposal;
	Changes in groundwater and surface water quality associated with the
1	Proposal:





	 Potential impacts from storage and leaching of materials with elevated concentrations of naturally occurring radionuclides on surface water and groundwater. Assessment is to consider Commonwealth guidelines regarding radiation as appropriate; The nature, extent and duration of impacts; Impacts to other water users; and Impacts on the environmental values of any sensitive receptors.
	 59. A quantitative assessment of potential hydrological risks and impacts (e.g. groundwater drawdown, groundwater discharge and changes to surface water expressions and flows) on the values of the adjacent Nambung National Park. 60. Outline the proposed avoidance and mitigation measures to minimise the potential groundwater and surface water impacts of the Proposal. Include proposed management and/or monitoring plans for significant impacts that will be implemented pre- and post-construction to demonstrate and ensure residual impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with the EPAs Instructions.
	61. Targeted eco-physiological studies to identify level of groundwater dependence of phreatophytic terrestrial and wetland/ riparian vegetation within any areas that may be impacted by groundwater drawdown.
	62. Demonstrate and document in the ERD how the EPA's objective for this factor will be
	 63. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014)
	64. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines. Spatial data defining the area of significant residual impacts should also be provided.
Terrestrial Environ	ment Quality
Required Work	65. Undertake a soils and waste characterisation study including:
	 Assessment of the physical and chemical characteristics of the soil, overburden, tailings and tailings/soils/overburden blends and their suitability for rehabilitation; A soil and waste resource inventory detailing the volumes and characteristics of soil and waste resources available; A materials balance presenting both volumes of materials required for rehabilitation and materials available for rehabilitation; and Implications for materials management. Desktop ASS risk assessment to determine the risk of presence of ASS. Undertake an ASS survey if results from the desktop risk assessment identify this to be necessary. Analyse, discuss and assess impacts to terrestrial environmental quality. The analysis will include: Changes in soil quality associated with the Proposal; The nature, extent and duration of impacts; and Impacts on the environmental values of any sensitive receptors. Boiscuss the proposed management, monitoring and mitigation to avoid and minimise impacts to terrestrial environmental quality as a result of implementing the Proposal. Discuss closure and rehabilitation measures to be implemented, and outcomes/ objectives to be achieved. Demonstrate and document how the EPA's objective for this factor can be met. Determine and quantify any significant residual impacts by applying the: Residual Impact Significance Model (page 11 of WA Environmental Offsets Guidelines) for all direct and indirect impacts, including an explanation of how the information and values within the model have been determined; and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), including the provision of supporting information, such as evidence of rehabilitation success.
	EPBC Act Environmental Offsets Policy. Any proposed offsets package will be assessed against the EPBC Act Environmental Offsets Policy and the six offset principles in the WA Environmental Offsets Policy. Spatial data defining the area of significant residual impacts will also be provided.





Social Surroundings	
Required Work	 73. Undertake a heritage assessment (Aboriginal and European), utilising desktop information, and archaeological and ethnographic heritage surveys as required in order to: Make an assessment of listed heritage sites; Determine the importance of the site from an Aboriginal perspective (including heritage sites, and traditional uses such as bush tucker and medicine); and Assess the likelihood of significant European or Aboriginal heritage sites
	being present on site. 74. Conduct consultation with traditional owners (Yued People) during the assessment
	process to determine the heritage values of the DEs.
	75. Undertake a dust assessment including identification of sensitive receptors and characterisation of dust emission sources, based on defined dust control strategies. Conduct air dispersion modelling that complies with <i>Air Quality Modelling Guidance Notes</i> (Department of Environment; DoE, 2006), based on typical worst-case meteorological conditions and an analysis of modelling results against guidelines and relevant thresholds. Modelling will be conducted using a non-steady state modelling approach which evaluates the effects of spatial changes in the meteorological and surface characteristics. Air dispersion modelling will be conducted to predict deposition rates of total suspended particulate, ambient concentrations, PM10 and PM2.5 across the MDE.
	76. Prepare a dust management plan that details how dust will be avoided or minimised at each stage of the mining process. The dust management plan is to be revised following the outcomes of the dust assessment described below.
	77. Undertake a noise assessment including ambient baseline noise monitoring, identification of sensitive receptors, noise modelling based on proposed noise mitigation strategies, typical worst-case meteorological conditions and an analysis of modelling results against Environmental Protection (Noise) Regulations 1997. The modelling will also consider how ambient noise levels will be increased by the Proposal.
	78. Conduct hydrological and hydrogeological investigations and assessments as described in the Inland Waters section.
	79. Provide details on the night works and associated lighting required at the Proposal to determine the scale of potential light pollution.
	80. Assess potential impacts on visual amenity, and potential impacts of noise, light and dust on Nambung National Park.
	81. In accordance with EPBC Act requirements, provide an assessment of the social and economic impacts (both beneficial and adverse) of the Proposal, at the local, regional and national level. This may include, but is not limited to:
	 An indication of the financial investment the Proposal represents; and Projected costs and benefits of the Proposal, including the basis for their estimation through cost / benefit analysis or similar studies e.g. employment opportunities expected to be generated by the Proposal.
	82. Characterise the values and significance of social surroundings in the vicinity of the Proposal.
	83. Identify the proposed activities and the potential scale and significance of direct and indirect impacts to social surroundings.
	84. Discuss the proposed management, monitoring and mitigation to prevent and minimise impacts to social surroundings as a result of implementing the Proposal.
	85. Discuss closure and rehabilitation management measures, outcomes / objectives to be implemented.
	86. Demonstrate how the EPA's objective for this factor will be met.
Human Health	
Required Work	87. Collection and analysis of radiological baseline data.88. Characterisation of expected levels of radioactivity associated with each stage of the process including transportation of the final product.
	89. Assessment of the potential radiological impacts on workers (including transport workers) and members of the public both during operation and post closure, including a radiological dose assessment. Assessment is to consider Commonwealth guidelines regarding radiation as appropriate.
	90. Discussion of proposed best practice management, monitoring and control/mitigation methods to be implemented so that the cumulative impacts from all sources do not





	pose an unacceptable risk to the health and amenity of site personnel, the public and
	any other identified critical groups.
91	Outline the outcomes/objectives, management, monitoring, trigger and contingency
	actions, within environmental management plans, to ensure impacts (direct and
	indirect) are not greater than predicted.

2.3 CUMULATIVE IMPACT ASSESSMENT

The ERD will include a cumulative impact assessment to assess the significance of the Proposal contribution to impacts on relevant environmental values. The activities, boundaries and values relevant for the cumulative impact assessment in relation to each factor are summarised in Table 5 below.

Table 5: Cumulative Impact Assessment

Activities	Environmental values	Relevant factors	Boundaries			
Clearing of native vegetation	Native vegetation	Flora and Vegetation	Cumulative impacts on native vegetation will be assessed by reviewing the remaining extent of each affected pre- European vegetation association and broader IBRA sub- regions. In addition, the remaining native vegetation extents within various buffers from the Proposal			
	State-wide Pre- European extent	Flora and Vegetation				
	Banksia Woodlands of the Swan Coastal Plain TEC/PEC	Flora and Vegetation	boundary (10 km, 15 km and 20 km) will be reviewed. A review of impacts from other proposals and historic clearing within the local and regional extents of the Banksia Woodlands of the Swan Coastal Plain TEC/PEC			
	Priority and Threatened flora and Significant flora habitat	Flora and Vegetation	and Threatened and Priority Flora records.			
	Significant fauna habitat	Terrestrial Fauna				
	Carnaby's Black Cockatoo Foraging Habitat	Terrestrial Fauna	As above, plus a review of impacts from other proposals and historic clearing within a 12 km radius of the Proposal boundaries (likely maximum local range of roosting Carnaby's Black Cockatoo).			
Abstraction of groundwater from the Yarragadee, Lesueur or Eneabba aquifers.	The Yarragadee aquifer Lesueur or Eneabba aquifers	Inland Waters	Impacts from other proposals within the Nambung groundwater subarea (part of the greater Jurien Groundwater Area) defined by the Department of Water and Environmental Regulation (DWER) in the Jurien Groundwater Area Allocation Plan (Department of Water, 2010).			
	GDEs	Flora and Vegetation Inland Waters	Cumulative impacts on GDEs will be assessed by reviewing other proposals that may impact GDEs within various buffers from the Proposal boundary (10 km, 15 km and 20 km).			
Mining (excavation, ore handling, processing and export)	Amenity (Dust)	Social Surroundings	If the Proposal is likely to result in dust or noise above background levels at the nearest sensitive receptors then			
	Amenity (Noise)	Social Surroundings	an assessment will be conducted to determine what other air pollution and noise impacts could be affecting that receptor. The Proposal's contribution to those cumulative impacts will then be assessed.			
	Economic (Light spill)	Social Surroundings	Light emissions will be reviewed against the cumulative emissions within the shire of Dandaragan to determine the contribution made by the Proposal.			





3 DECISION MAKING AUTHORITIES

The EPA has identified the decision-making authorities that are relevant for the Proposal as listed in Table 5. Additional decision-making authorities may be identified during the assessment.





Decision- making	Legislation or Agreement	ion Approval required and ent relevant	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)		
department (if relevant)	authority andregulatingreferencedepartmentregulatingproposal(if relevant)the activityelement	Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met	
Minister for EnvironmentEnvironment Protection an Biodiversity Conservation	Environment Protection and Biodiversity Conservation	s.133 Approval - required for the assessment of the Proposal's	Direct impacts to Threatened Fauna (Vehicle Strike)	Terrestrial Fauna EPA's objective: <i>To protect terrestrial</i> <i>fauna so that biological diversity and</i> <i>ecological integrity are maintained.</i>	No While there is likely to be significant overlap in regulation, the EPBC Act is a Commonwealth Act and as such cannot be relied upon to regulate impacts under WA legislation.
	Act 1999 (Cul)	Matters of	Clearing of	Flora and Vegetation	
	National Environmental Significance	potential Threatened Flora or Fauna habitat	EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained.		
				Terrestrial Fauna	
	E in a vv s t t r n		EPA's objective: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.		
		Environmental impacts associated with the storage and transport of radioactive materials.	Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained. Terrestrial Fauna EPA's objective: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained		
				Inland Waters	
				EPA's objective: To maintain the hydrological regimes and quality of groundwater and surface water so	





Decision- making	Legislation or Agreement	islation Approval or required and eement relevant ulating proposal activity element	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)			
department re (if relevant) the	regulating the activity		Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met	
				that environmental values are protected. Human Health EPA's objective: <i>To protect human</i> health from significant harm.		
Minister for EnvironmentEnvironmental Protection Act 1986 (WA)(WA)1986 (WA)Chief Executive Officer (DWER)	ntal Works Approval Act - required for the construction and commissioning of the Wet Concentrator Plant (WCP) and Tailings Storage Facility and dienosal of waste	ks ApprovalNoiseuired for the ruction and nissioning of //etemissionsnissioning of (WCP) and ngs Storage ty and usal of waste	Social Surroundings EPA's objective: <i>To protect social</i> surroundings from significant harm.	Yes Mineral Sands mining is a prescribed activity under Part V of the EP Act and therefore the design, construction and operation of the mine will be regulated under a works approval and Licence to ensure noise emissions are minimised and do not result in significant impacts to any sensitive receptors. Noise emissions from within the EIDE are not expected to be significant and are unlikely to require additional regulation under Part IV of the EP Act in order to meet the objective for this factor.		
		disposal of waste material back into the mine pits. Licence - required for the operation of the WCP and Tailings Storage Facility and disposal of waste material back into the mine pits.	Facility and disposal of waste material back into the mine pits. Licence - required for the operation of the WCP and Tailings Storage Facility and disposal of waste material back into the mine pits.	Dust emissions	Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained Social Surroundings EPA's objective: To protect social surroundings from significant harm.	Yes Mineral Sands mining is a prescribed activity under Part V of the EP Act and therefore the design, construction and operation of the mine will be regulated under a works approval and Licence to ensure dust emissions are minimised and do not result in significant impacts to any sensitive receptors. Dust emission sources from within the EIDE are not expected to be significant and are unlikely to require additional regulation under Part IV of the EP Act in order to meet the objective for this factor. Dust emissions from the WCP and all other aspects of the site are regulated under the <i>Mining Act 1978</i> (WA; Mining Act) (refer below) and are not expected to be significant. These emissions are unlikely to require additional regulation under Part IV of the EP Act in order to meet the objective for this factor.





Decision-	Legislation	Legislation Approval	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)			
making	or	or required and				
department re	regulating	proposal	Relevant	Relevant Key Environmental	Can the DMA mitigate impacts and how will the EPA's factor be met	
(if relevant) the	the activity	element	Impact	Factor and Objective		
			Disposal of waste material back into mine pits and unintentional discharge of potentially contaminated water (stormwater), hydrocarbons, and/or sand slimes	Inland Waters EPA's objective: To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. Terrestrial Environmental quality EPA's objective: To maintain the quality of land and soils so that environmental values are protected Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained	Yes The Works Approval and Licence will regulate pollution of land or waters from the disposal of waste material or any spills of slimes or hydrocarbons within the MDE. Leaks and spills from all other aspects of the MDE and EIDE are regulated under the Mining Act (refer below) and are not expected to be significant. These emissions are unlikely to require additional regulation under Part IV of the EP Act in order to meet the objective for this factor.	
Minister for Environment (WA) Chief Executive Officer (Department of Biodiversity, Conservation and Attractions)	Biodiversity Conservation Act 2016 (WA)	 s.40 approval – to take flora (where the flora to be taken is Threatened flora). s. 45 approval – to modify a TEC. 	Clearing of potential Threatened Flora or TEC.	Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	Yes Species and ecological communities listed under the BC Act may differ from those listed in other states or territories, or under Commonwealth legislation. This is due to the different status of ecological communities in the different States and Territories and nationally. The BC Act provides the ability to impose conditions on authorisations to take Threatened species or modify TECs, that mitigate or offset the impact of such actions. DWER and DBCA coordinate assessment processes where a project being assessed under the EP Act involves the taking of a Threatened species or modification of an occurrence of a TEC. In accordance with longstanding agency practice, the assessment processes will be undertaken concurrently with advice being provided on the likelihood of an approval/permit being granted under the EP Act or an authorisation being granted under the BC Act.	





Decision- makingLegislationauthority and departmentAgreement(if relevant)the activity	Legislation or	Approval required and relevant proposal element	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)			
	regulating the activity		Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met	
Minister for Aboriginal Affairs	Aboriginal Heritage ActApplication for a permit under1972 (AH Act; WA); orPart 6 of the ACH Bill - required for consent to impact any Aboriginal Heritage Bill	Disturbance of Aboriginal Heritage Sites	Social Surroundings EPA's objective: To protect social surroundings from significant harm.	Yes. An application for a permit under Part 6 of the ACH Bill will assess the significance of the proposed disturbance and determine what mitigation measures are required to obtain consent for any disturbance to Aboriginal Heritage Sites. This consultation and assessment process will meet the EPA's objective for Social Surroundings by protecting registered Aboriginal Heritage sites from significant harm.		
	2021 (WA; ACH Bill) Note: the ACH Bill is likely to become law prior to Image disturbing any Aboriginal Heritage Sites.	(if not able to be avoided)	Disturbance or indirect impacts to areas or artefacts of Aboriginal cultural value	Social Surroundings EPA's objective: To protect social surroundings from significant harm.	No (if avoidance is not possible). If disturbance or indirect impacts within areas or artefacts of significant Aboriginal cultural value cannot be avoided then assessment and potential regulation under Part IV of the EP Act may be required.	
Minister for Water Chief Executive Officer (DWER)	Rights in Water and Irrigation Act 1914 (WA)	Application for a 26D licence - required for the construction of a bore to abstract groundwater. Application for a 5C licence - required for the abstraction of groundwater	Abstraction of groundwater from the Yarragadee, Lesueur or Eneabba aquifers.	Inland Waters EPA's objective: To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.	Yes. A 26D Licence ensures that bores are drilled, constructed and maintained appropriately to ensure the aquifer and the groundwater resource is not compromised. A 5C Licence regulates the taking of water and assesses the impacts of the abstraction on the environment and other users. A 5C Licence is only granted if the impacts from the abstraction are shown to be sustainable with minimal environmental impacts or impacts to other users. Licence holders are obligated to comply with their resource allocation and any conditions included in the licence. Licence holders are also required to use water efficiently and responsibly, minimising impacts on the water resource. These Licences will ensure the Proposal meets the EPA's objective for Inland Waters by maintaining the hydrological regime of groundwater. Regulation of the potential impacts on the environment from the	





Decision- Legislation making or authority and Agreement	Legislation or Agreement	egislation Approval or required and greement relevant egulating proposal ee activity element	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)		
department (if relevant)	regulating the activity		Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met
					drilling and abstraction of groundwater is therefore not expected to be required under Part IV of the EP Act.
Minister for Mines and Petroleum Executive Director Resource and Environmental Compliance (Department of Mines, Industry, Regulation and Safety; DMIRS) State Mining Engineer, (DMIRS)	Mining Act	Approval of a Mining Proposal and Mine Closure Plan (MCP) - required for any mining related disturbance within Mining Act tenements (i.e. all works apart from road intersection works).	Changes to the stability of the landscape	Terrestrial Environmental Quality EPA's objective: To maintain the quality of land and soils so that environmental values are protected Inland Waters EPA's objective: To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained Terrestrial Fauna To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	Yes. Approval of a Mining Proposal and MCP will ensure that the Factors defined in DMIRS's Environmental Objectives - Policy and Mining (DMIRS, 2020) are met for the Proposal. A Mining Proposal will be submitted to DMIRS prior to any disturbance at the Proposal and will include auditable outcomes for the key DMIRS factors (Biodiversity, Water Resources, Land and Soils). These outcomes will be defined and approved by DMIRS to ensure that the impacts on the key DMIRS factors are mitigated to an acceptable level. In the context of landscape stability this will include an auditable outcome that the landscape will be safe and stable during mining to prevent slumps or collapsed walls which could have environmental impacts. A MCP must be submitted to DMIRS with the Mining Proposal prior to any disturbance at the Proposal and is required to be revised every three years. It will include auditable closure and rehabilitation outcomes and criteria which will be defined and approved by DMIRS to ensure that impacts on key DMIRS factors are mitigated to an acceptable level. In the context of landscape stability this will include an auditable outcome that the landscape will be safe, stable and non- polluting post-closure to prevent slumps or collapsed pits which could have environmental impacts. The implementation of the Mining Proposal and MCP under the Mining Act is considered suitable to mitigate this impact such that the EPA's objectives can be met. By meeting DMIRS's Factors, the Proposal will also meet the EPA's objectives for the relevant factors. Additional regulation under Part IV of the EP Act is therefore unlikely to be required for this potential impact.





Decision-	Legislation	Approval	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)					
making	or	required and						
department	regulating	proposal	proposal	Relevant	Relevant Key Environmental	Can the DMA mitigate impacts and how will the EPA's factor be met		
(if relevant)	the activity	element	element	Impact	Factor and Objective			
			Clearing of native vegetation	Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained Terrestrial Fauna To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	Partially. A Mining Proposal will be submitted to DMIRS prior to any disturbance at the Proposal and will include auditable outcomes for the key DMIRS factor: Biodiversity. These outcomes will include requirements for best-practice topsoil stripping and storage, minimising the clearing footprint and taking accurate records. A MCP must be submitted to DMIRS with the Mining Proposal prior to any disturbance at the Proposal and is required to be revised every three years. It will include auditable closure and rehabilitation outcomes and criteria which will be defined and approved by DMIRS to ensure that cleared areas are rehabilitated to an acceptable level. In the context of vegetation clearing this will include an auditable outcome that the rehabilitated areas will meet specific closure criteria designed to ensure flora, vegetation and fauna values are reinstated. The implementation of the Mining Proposal and MCP under the Mining Act is considered suitable to mitigate rehabilitation and impacts during clearing however, it is not considered suitable to mitigate impacts associated with the loss of vegetation. This is expected to require assessment under Part IV of the EP Act to ensure that the EPA's objectives can be met.			





Decision- makingLegislationApprovalorrequired andorthority andApproximate			Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)				
department (if relevant)	regulating the activity	proposal element	Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met		
			Introduction and spread of weeds	Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained	Yes. The DMIRS Factor: Biodiversity, is relevant to this impact. DMIRS's objective for this factor is to: <i>Maintain representation, diversity, viability and ecological function at the</i> <i>species, population and community level.</i> By meeting the objective of DMIRS's Biodiversity Factor, the Proposal will also meet the EPA's objectives for flora and vegetation. Therefore, further assessment of the impact of the introduction and spread of weeds on Flora and Vegetation is not required to be assessed by the EPA.		
			Alteration to the post mining land use	Social Surroundings EPA's objective: To protect social surroundings from significant harm.	Yes. The DMIRS Factor: Rehabilitation and Mine Closure, is relevant to this impact. DMIRS's objective for this factor is: <i>Mining activities are rehabilitated and closed in a manner to make them</i> <i>physically safe to humans and animals, geo-technically stable, geo-</i> <i>chemically non-polluting / non-contaminating, and capable of sustaining</i> <i>an agreed post-mining land use, and without unacceptable liability to the</i> <i>State.</i> By meeting the objective of DMIRS's Rehabilitation and Mine Closure Factor, the Proposal will also meet the EPA's objectives for social surrounding that are relevant to this impact. Additional regulation under Part IV of the EP Act is therefore unlikely to be required for this potential impact.		
	Mines Safety and Inspection Act 1994 (WA)	Approval of a Radiation Management plan – required when thorium and uranium ores are mined and when	Radiation exposure to employees and members of the public	Human Health EPA's objective: To protect human health from significant harm.	Yes Potential radiation associated with mineral sands mining will be managed in accordance with relevant guidelines and codes of practice published by the Australian Radiation Protection and Nuclear Safety Authority and subject to control under Part 16 of the Mines Safety and Inspection Regulations 1995. The site will also be registered with the		





Decision- making	Legislation or	Approval required and	Whether and h reasons Inclu	ow statutory decision-making process ide a separate line item for each releva	s can mitigate impacts on the environment? (Yes/No and summary of ant impact, and discuss how the EPA's factor objective will be met)
department (if relevant)	regulating the activity	proposal element	Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met
		members of the public and employees are likely to be exposed to doses higher than the dose limits set out in the Mines Safety and Inspection Regulations (1995).			Radiological Council WA under Section 28 of the <i>Radiation Safety Act</i> 1975 (WA). Through the implementation of the Radiation Management Plan the Proposal will also meet the EPA's objective for Human Health. Therefore, further assessment of the impact of radiation exposure to members of the public is not required to be assessed by the EPA.
		Approval of a Project Management plan - required for the construction and operation of the Proposal.	N,	/A - this approval is safety based and the	refore not expected to regulate impacts to the environment
Minister for Mines and Petroleum Chief Dangerous	Dangerous Goods Safety Act 2004 (WA)	Dangerous Goods Licence - may be required for the bulk storage of fuel if above specified limits (unlikely)	Contamination of soils, groundwater and surface water (hydrocarbon spills)	Terrestrial Environmental Quality EPA's objective: <i>To maintain the</i> <i>quality of land and soils so that</i> <i>environmental values are protected</i>	Yes. The storage and management of hydrocarbons will already be regulated under Part V of the EP Act and the Mining Proposal / MCP however, the Dangerous Goods Licence provides additional mitigation for the design and storage of larger volumes of dangerous goods (if





Decision- making authority and	Legislation or Agreement	Approval required and relevant	Whether and h reasons Inclu	ow statutory decision-making process ide a separate line item for each releva	can mitigate impacts on the environment? (Yes/No and summary of ant impact, and discuss how the EPA's factor objective will be met)
department (if relevant)	regulating the activity	proposal element	Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met
Goods Officer, (DMIRS)			Fire (combustion of stored fuel)	Inland Waters EPA's objective: To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. Flora and Vegetation EPA's objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained Terrestrial Fauna EPA's objective: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	large volumes of hydrocarbons (>100,000 L) are required to be stored on site). A Dangerous Goods Licence sets standards for the way in which dangerous goods are stored on site. These standards are aimed at ensuring dangerous goods are stored safely and in such a way that will not result in impacts to the environment. Having a Dangerous Goods Licence ensures potential spills and combustion risks from the Proposal are mitigated. A Dangerous Goods licence (in combination with the Part V and Mining Act approvals) will meet the objectives of the EPA for both factors by minimising the risk of contamination of soils and water, and protecting flora and vegetation, and terrestrial fauna by minimising the risk of fire. Regulation of the potential impacts on the environment from the storage of dangerous goods is therefore not expected to be required under Part IV of the EP Act.
Chief Executive Officer, Shire of Dandaragan	Local Government Act 1995 (WA) Planning and Development Act 2006 (WA)	Planning / Development Approval - required for the development of works outside of Mining Act tenements	Noise emissions Dust emissions	Social Surroundings EPA's objective: To protect social surroundings from significant harm.	No. A development approval is only required for works outside of Mining Act tenure. This process considers the impacts from small portions of the Proposal to an extent but does not regulate emissions from the Proposal. Potential impacts including emissions of Noise and Dust are regulated under Part V of the EP Act and are discussed further in the section above.





Decision- making or		Approval required and	Whether and how statutory decision-making process can mitigate impacts on the environment? (Yes/No and summary of reasons Include a separate line item for each relevant impact, and discuss how the EPA's factor objective will be met)			
department (if relevant)	regulating the activity	proposal element	Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met	
Secretary Radiological Council of Western Australia	Radiation Safety Act 1975 (WA)	Registration with the Radiological Council WA – required under Section 28 of the Radiation Safety Act 1975 (WA) for the owner of any premises which is likely to be affected by the passage or use of any radioactive substance.	Radiation exposure to members of the public	Human Health EPA's objective: To protect human health from significant harm.	Yes The site will be registered with the Radiological Council WA under Section 28 of the <i>Radiation Safety Act 1975</i> (WA). Potential radiation associated with mineral sands mining will be managed in accordance with relevant guidelines and codes of practice published by the Australian Radiation Protection and Nuclear Safety Authority and subject to control under Part 16 of the Mines Safety and Inspection Regulations 1995. Through the implementation of the Radiation Management Plan the Proposal will also meet the EPA's objective for Human Health. Therefore, further assessment of the impact of radiation exposure to members of the public is not required to be assessed by the EPA.	





4 OTHER ENVIRONMENTAL FACTORS OR MATTERS

The EPA has not identified any other environmental factors or matters relevant to the Proposal.

It is noted that DAWE will require a discussion of Image's environmental record and environmental policy and planning framework as required under section 136(4) of the EPBC Act and Schedule 4 of the EPBC Act Regulations.

5 STAKEHOLDER CONSULTATION

The proponent must consult with stakeholders who are affected by or are interested in the proposal.

This includes the decision-making authorities (see Section 6), other relevant state (and Commonwealth) government agencies and local government authorities, Traditional Owners, the local community and environmental non-government organisations.

The Commonwealth Government's central piece of environmental legislation, the EPBC Act, recognises that Indigenous peoples have an important role in the conservation and ecologically sustainable use of Australia's biodiversity and Indigenous heritage.

The 'Engage Early – Guidance for proponents on best practice Indigenous engagement for environmental assessments under the EPBC Act' (Department of the Environment; DotE, 2016a) aims to improve how proponents engage and consult Indigenous peoples during the environmental assessment process under the EPBC Act. It provides guidance to project proponents on when Indigenous communities should be consulted (in addition to the statutory public comment periods required under Part 8 of the EPBC Act) and sets out DAWE's expectations on how Indigenous engagement should occur.

The proponent must document the following in the ERD:

- Identified stakeholders;
- The stakeholder consultation undertaken and the outcomes, including decision-making authorities' specific regulatory approvals and any adjustments to the proposal as a result of consultation; and
- Any future plans for consultation.





6 GLOSSARY

Term	Definition				
ACA	Approved Conservation Advice				
ASS	Acid Sulphate Soils				
Cth	Commonwealth				
DAWE	Department of Agriculture, Water and the Environment				
DBCA	Department of Biodiversity, Conservation and Attractions				
DE	Development Envelope				
DMIRS	Department of Mines, Industry Regulation and Safety				
DoE	Department of Environment				
DotE	Department of the Environment				
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities				
EIA	Environmental Impact Assessment				
EIDE	External Infrastructure Development Envelope				
EP Act	Environmental Protection Act 1986 (WA)				
EPA	Environmental Protection Agency				
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)				
ERD	Environmental Review Document				
ESD	Environmental Scoping Document				
GDE	Groundwater Dependant Ecosystems				
GL	Gigalitre				
IBSA	Index of Biodiversity Surveys for Assessments				
Image	Image Resources NL				
MDE	Mine Development Envelope				
MNES	Matters of National Environmental Significance				
Proposal	Atlas Project				
SPRAT	Species Profile and Threats Database				
SRE	Short Range Endemic				
TBD	To be Determined				
WA	Western Australia				
WCP	Wet Concentrator Plant				





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Threatened Species Scientific Committee (2016b). Conservation Advice *Conostylis micrantha* small flowered conostylis. Canberra, Australian Capital Territory. 2016. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/17635-conservation-advice-01042016.pdf.

Threatened Species Scientific Committee (2016c). Conservation Advice *Hemiandra gardneri* red snakebush. Canberra, Australian Capital Territory. 2016. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/7945-conservation-advice-01042016.pdf.





APPENDIX A: EPBC ACT MATTERS POTENTIALLY IMPACTED BY THE ACTION

Based on the information available in the referral, the proposed action may have, or is likely to have, a significant impact on the following matters of national environmental significance:

- Listed threatened species and communities (sections 18 & 18A); and
- Nuclear action (s21 & 22A).

The following table outlines the information that must be considered in surveying and assessing impacts to these matters.

The list of species in the table below should be assessed as a minimum but is not considered to be exhaustive. Equivalent survey and assessment considerations should be applied to any additional EPBC Act listed threatened species or ecological communities or migratory species discovered or suspected of occurring at the project site. Justification will be provided for any instances where published guidance is not followed.

Table A1: Listed threatened species and communities (sections 18 & 18A)

Notes:

- The availability, currency and status of Recovery Plans, Threat Abatement Plans and Approved Conservation Advices (ACA) was current at time of writing but should be reviewed up to the point of submitting assessment documentation as changes do occur.
- Listed references should not be relied upon as complete or exhaustive.
- References in this column are not included in the reference list at Section 8.

Listed threatened species and communities (sections 18 & 18A)	Recovery Plan ¹	Threat Abatement Plan ¹	Approved Conservation Advice (ACA) ^{1, 3}	Listing advice ³	Bioregional Plan ²	Survey Guidelines ²	Other references ²
Terrestrial Fauna					-		
Carnaby's Black Cockatoo (<i>Calyptorhynchus</i> <i>latirostris</i>).	Department of Parks and Wildlife (DPaW; 2013). Carnaby's Cockatoo (<i>Calyptorhynchus</i> <i>latirostris</i>) <u>Recovery</u> <u>Plan.</u>	No Threat Abatement Plan has been identified as being relevant for this species	There is no approved Conservation Advice for this species	There is no Listing Advice for this species	N/A	Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2 (Department of the Environment, Water, Heritage and the Arts, (DEWHA) 2010)	Revised draft referral guidelines for three black cockatoo species (Department of the Environment and Energy; DotEE, 2017)





Listed threatened species and communities (sections 18 & 18A)	Recovery Plan ¹	Threat Abatement Plan ¹	Approved Conservation Advice (ACA) ^{1, 3}	Listing advice ³	Bioregional Plan ²	Survey Guidelines ²	Other references ²
Malleefowl (<i>Leipoa</i> ocellata)	Benshemesh, J. (2007). National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia. <u>Recovery Plan.</u>	Department of the Environment (2015). <u>Threat abatement plan</u> for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Department of the Environment and Energy (2016). <u>Threat</u> abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia. Department of the Environment and Energy (2017). <u>Threat</u> abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017). Canberra, ACT: Commonwealth of Australia. DEWHA (2008a). <u>Threat</u> abatement plan for competition and land degradation by <u>unmanaged goats</u> . Canberra. DEWHA (2008b). <u>Threat</u> abatement plan for predation by <u>the European red fox</u> . Canberra.	There is no approved Conservation Advice for this species	There is no Listing Advice for this species	N/A	Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2 (DEWHA, 2010) [Admin Guideline].	N/A
Fork-Tailed Swift (<i>Apus pacificus</i>)	There is no adopted or made Recovery Plan for this species	Department of the Environment (2015). <u>Threat abatement plan</u> <u>for predation by feral cats.</u> Canberra, ACT: Commonwealth of Australia.	There is no approved Conservation Advice for this species	There is no Listing Advice for this species	N/A	N/A	N/A





Listed threatened species and communities (sections 18 & 18A)	Recovery Plan ¹	Threat Abatement Plan ¹	Approved Conservation Advice (ACA) ^{1,3}	Listing advice ³	Bioregional Plan ²	Survey Guidelines ²	Other references ²
Threatened Ecologie	cal Communities			-	_	-	_
Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (Endangered)	N/A	DotE (2018). Threat abatement plan for disease in natural ecosystems caused by <i>Phytophthora cinnamomi</i> .	Threatened Species Scientific Committee (TSSC; 2016). ACA (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community.	See ACA	N/A	N/A	Banksia Woodlands of the Swan Coastal Plain: a nationally protected ecological community (DotEE, 2016) In effect under the EPBC Act from 23-Dec- 2016.
Flora and Vegetation	n					-	-
Irwin's Conostylis (<i>Conostylis deilsii</i> subsp. <i>Teres</i>)	There is no adopted or made Recovery Plan for this species	Department of the Environment and Energy (2016). <u>Threat</u> <u>abatement plan for competition</u> <u>and land degradation by rabbits</u> . Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016a). <u>Conservation Advice</u> <u>Conostylis dielsii</u> <u>subsp. teres Irwin's</u> <u>conostylis.</u> Canberra: Department of the Environment.	Listing assessment information may be available in the approved Conservation Advice	N/A	N/A	N/A
Small-flowered Conostylis (Conostylis micrantha)	There is no adopted or made Recovery Plan for this species	Department of the Environment and Energy (2016). <u>Threat</u> <u>abatement plan for competition</u> <u>and land degradation by rabbits</u> . Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016b). <u>Conservation Advice</u> <u>Conostylis micrantha</u> <u>small flowered</u> <u>conostylis.</u> Canberra: Department of the Environment. Available	Listing assessment information may be available in the approved Conservation Advice	N/A	N/A	N/A







Listed threatened species and communities (sections 18 & 18A)	Recovery Plan ¹	Threat Abatement Plan ¹	Approved Conservation Advice (ACA) ^{1, 3}	Listing advice ³	Bioregional Plan ²	Survey Guidelines ²	Other references ²
Red Snakebush (Hemiandra gardneri)	There is no adopted or made Recovery Plan for this species	Department of the Environment and Energy (2016). <u>Threat</u> <u>abatement plan for competition</u> <u>and land degradation by rabbits.</u> Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016c). <u>Conservation Advice</u> <u>Hemiandra gardneri</u> <u>red snakebush.</u> Canberra: Department of the Environment.	Listing assessment information may be available in the approved Conservation Advice	N/A	N/A	N/A
Sandplain Duck Orchid (Paracaleana dixonii).	There is no adopted or made Recovery Plan for this species	No Threat Abatement Plan has been identified as being relevant for this species	DEWHA (2008c). <u>Approved</u> <u>Conservation Advice</u> <u>for Paracaleana</u> <u>dixonii Hopper &</u> <u>A.P.Br. nom. inval.</u> <u>(Sandplain Duck</u> <u>Orchid).</u> Canberra.	Listing assessment information may be available in the approved Conservation Advice	N/A	Draft survey guidelines for Australia's threatened orchids (Department of the Environment, 2013) [Admin Guideline].	N/A





Nuclear action (s21 & 2	2A).
Relevant Regulation	Subsection 22(1)(g) EPBC Act; if, as per Regulations 2.01: "a nuclear action includes establishing, significantly modifying, decommissioning or rehabilitating a facility where radioactive materials at or above the activity level mentioned in regulation 2.02 are, were, or are proposed to be used or stored."
Relevant policy and guidance	 Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (ARPANSA, RPS-9, 2005); Safety Guide on Management of Naturally Occurring Radioactive Material (NORM) (ARPANSA, RPS-15, 2008); National Directory for Radiation Protection (ARPANSA, RPS-6, 2021); Controlling NORM – management of radioactive waste, Managing naturally occurring radioactive material (NORM) in mining and mineral processing – Guideline NORM-4.2 (Department of Mines and Petroleum, 2010);
	 Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (International Atomic Energy Agency (IAEA), GSR Part 3, 2014); and Application of the Concepts of Exclusion, Exemption and Clearance (International Atomic Energy Agency (IAEA), RS-G-1.7, 2004); and Code for the Safe Transport of Radioactive Material (ARPANSA, 2019).

