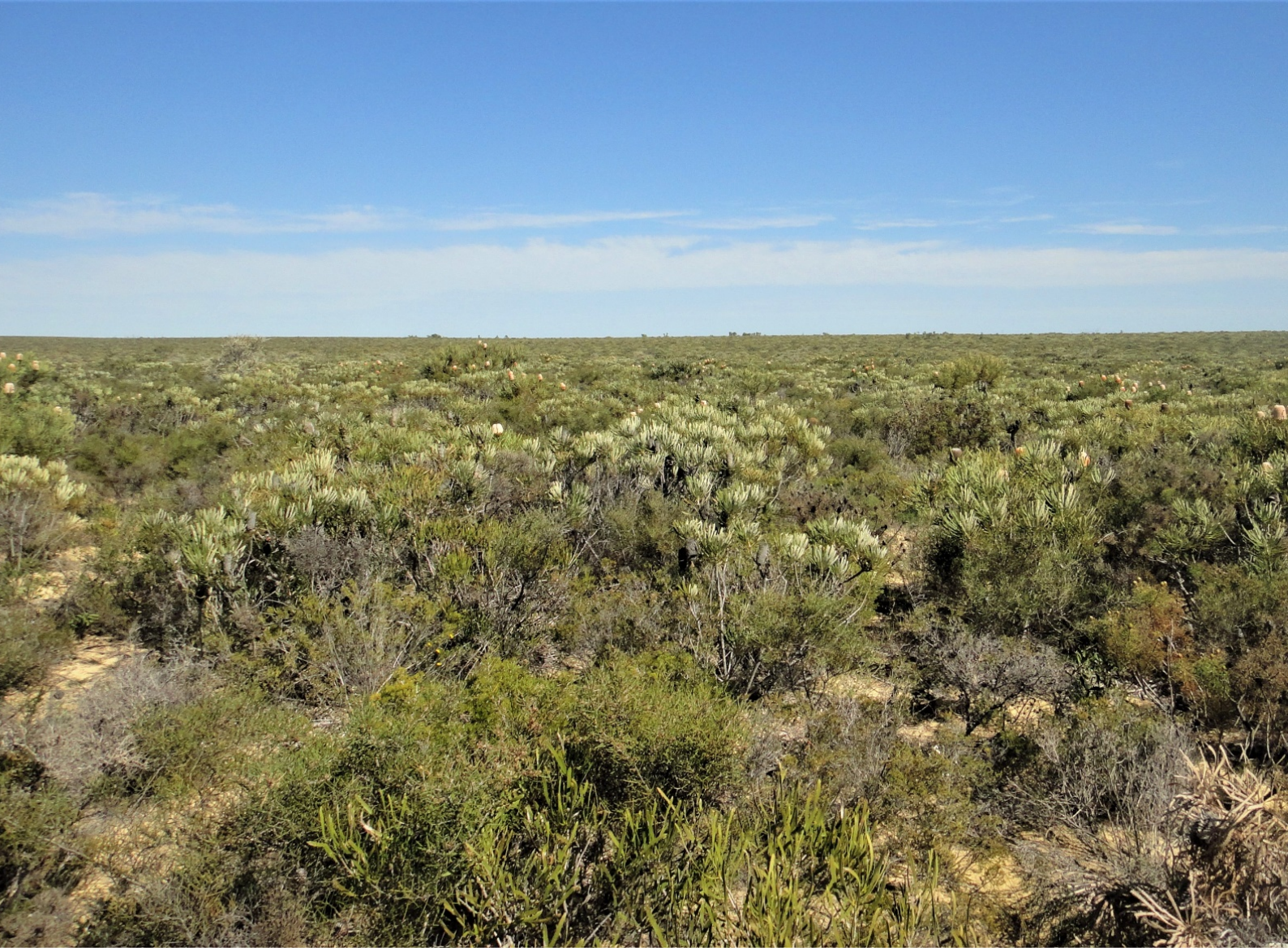

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ENVIRONMENTAL SCOPING DOCUMENT

ARROWSMITH NORTH SILICA SAND PROJECT

19 JANUARY 2022

PREPARED FOR VRX SILICA LIMITED
BY PRESTON CONSULTING PTY LTD

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DOCUMENT CONTROL

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Authorisation	Bruce Maluish – Managing Director VRX Silica Limited	 Signature	19/01/2022

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THE PROPOSAL

VRX, an Australian Stock Exchange listed company, is seeking to develop the Arrowsmith Silica Sand Project, a series of high-grade silica sand mines in the Geraldton Sandplain bioregions of Western Australia (WA). There are two sites which make up the Arrowsmith Silica Sand Project, Arrowsmith North (M 70/1389) and Central (M 70/1392). This ESD is for the Arrowsmith North Silica Sand Project only (Proposal).

The Proposal is located approximately 270 km north of Perth and lies primarily within mining lease M70/1389 held by Ventnor Mining Pty Ltd a 100% owned subsidiary of VRX. The regional location of the Proposal is shown in Figure 1.

A summary of the Proposal is provided in Table 1 and the key proposal elements which are likely to cause an impact on the environment are summarised in Table 2. The development envelopes and indicative disturbance footprint for the Proposal are shown in Figure 2. Access to the site will be via a single access corridor within the Access Development Envelope which will connect the Mine Development Envelope to the Brand Highway.

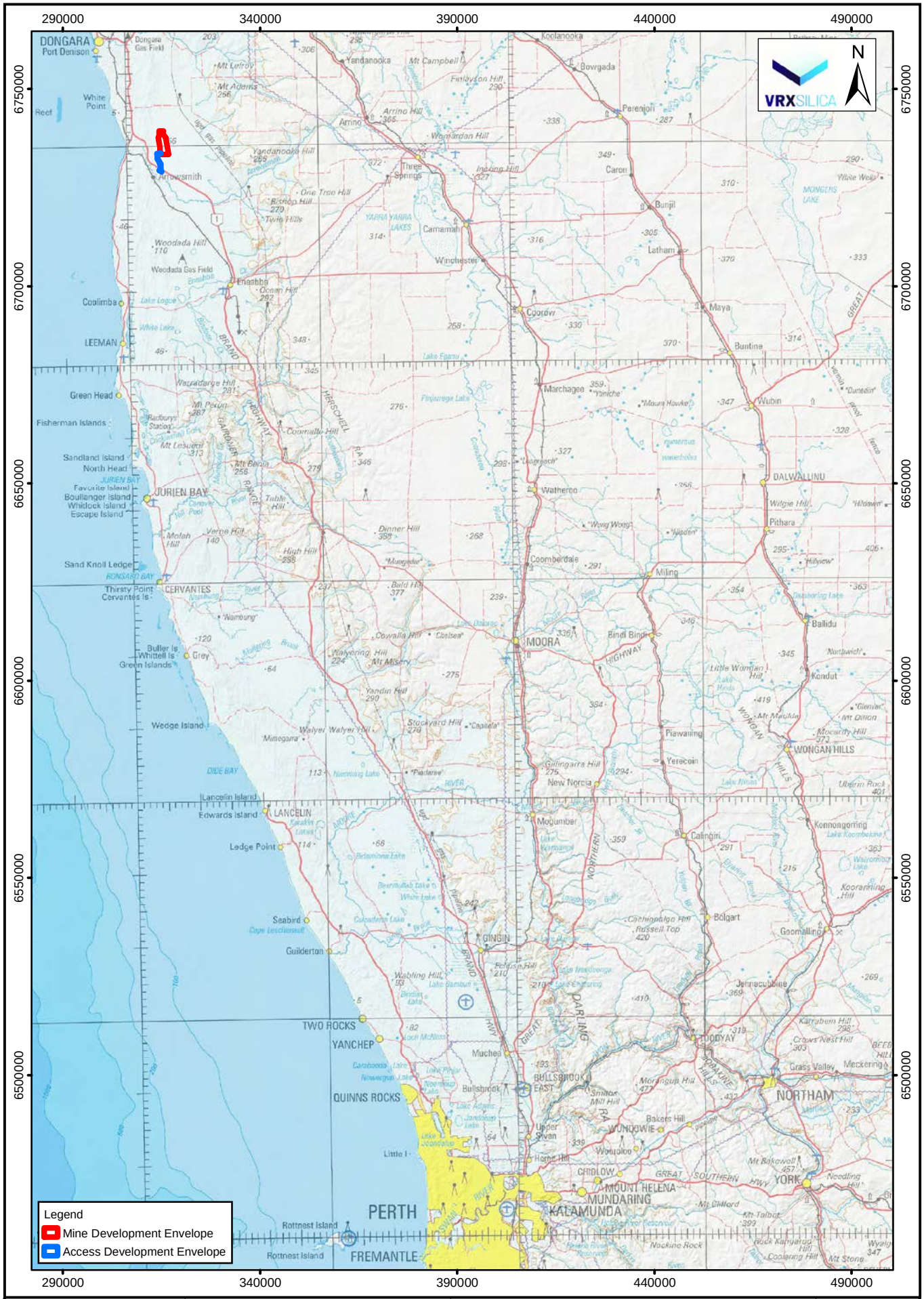
Table 1: Summary of the Proposal

Proposal Title	Arrowsmith North Silica Sand Project
Proponent Name	VRX Silica Limited
Short Description	The Proposal is to develop a high-grade silica sand mine in the Geraldton Sandplain bioregion of WA, approximately 270 km north of Perth. The Proposal will produce high-grade silica sand via extraction and mechanical upgrading. The Proposal includes the clearing of native vegetation, progressive rehabilitation, sequential block mining of silica sand, development of a mine feed plant, moveable surface conveyor, pipeline, processing plant, freshwater supply bore, access corridor, laydown, administration, water storage and associated infrastructure including gas fired power station, communications equipment, offices, workshop and laydown areas.

Table 2: Location and proposed extent of physical and operational elements

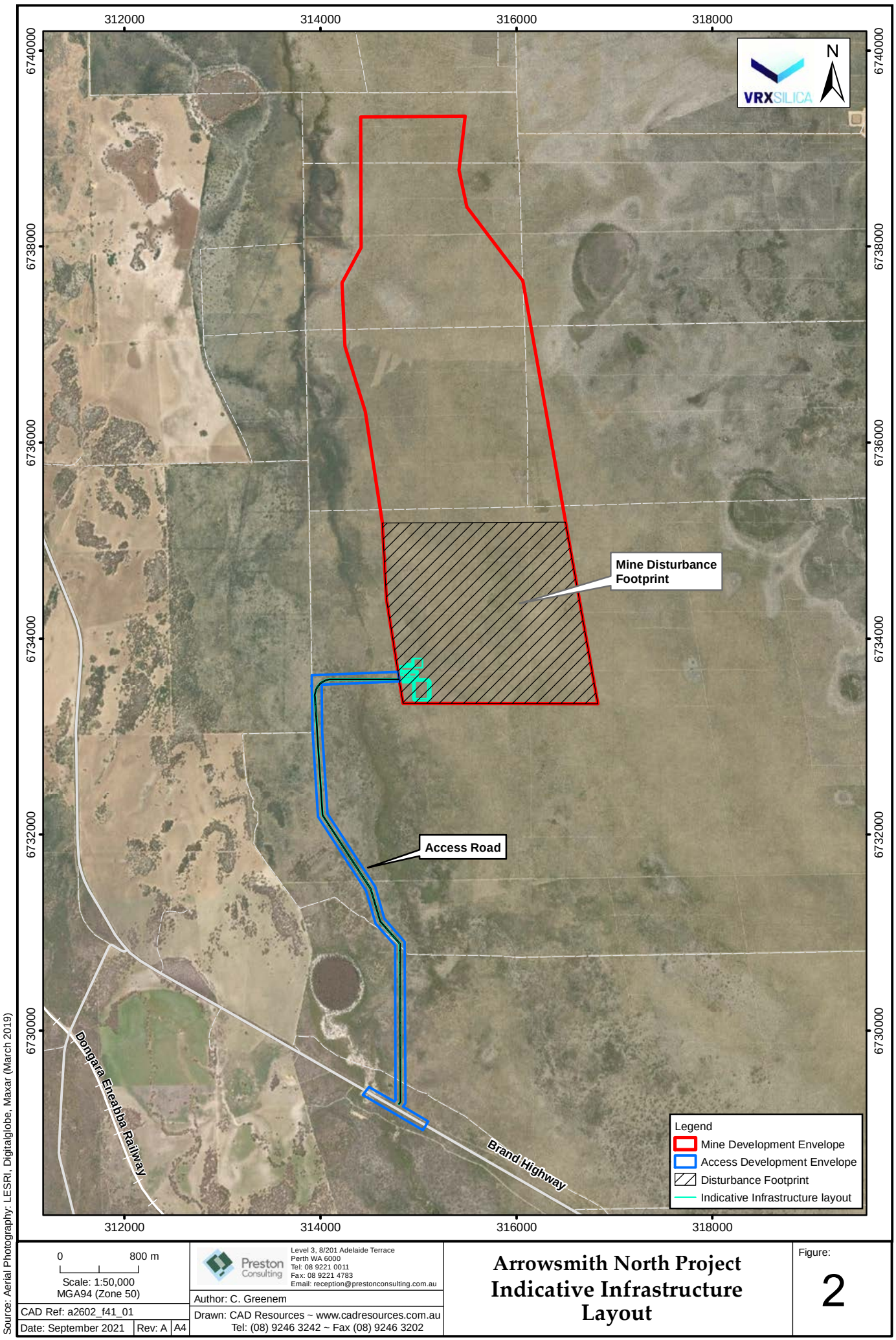
Element	Location	Proposed Extent
Physical Elements		
Mine and associated infrastructure	Figure 2	Clearing of no more than 360 ha within the 1,025 ha Mine Development Envelope
Access road	Figure 2	Clearing of no more than 6.5 ha of native vegetation within the 61 ha Access Development Envelope
Operational Elements		
Mining and Vegetation Direct Transfer (VDT)	Figure 2	Topsoil and vegetation is to be transferred to rehabilitation areas via VDT method. The total of all cleared areas within the Mine Development Envelope is to be no more than 10 ha at any time (i.e. excluding rehabilitation areas)
Groundwater Abstraction	Figure 2	Abstraction of up to 0.9 GL per annum from the Yarragadee aquifer.

The Proposal was referred to the EPA on 17 March 2021 for assessment under Part IV of the *Environmental Protection Act 1986* (EP Act). On 18 May 2021, the EPA determined that the Proposal be assessed at a Public Environmental Review level of assessment (4 week public review period) requiring the preparation and submission of an ESD by the proponent (this document).



0 20 km Scale: 1:1,300,000 MGA94 (Zone 50) CAD Ref: a2602_f41_02 Date: September 2021 | Rev: A | A4	Preston Consulting Level 3, 8/201 Adelaide Terrace Perth WA 6000 Tel: 08 9221 0011 Fax: 08 9221 4783 Email: reception@prestonconsulting.com.au Author: C. Greenem Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax (08) 9246 3202	**Arrowsmith North Project** **Regional Location of the Proposal**	Figure: 1

Figure 1: Regional setting of the Proposal



Source: Aerial Photography: LESRI, Digitalglobe, Maxar (March 2019)

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Scale: 1:50,000
MGA94 (Zone 50)

CAD Ref: a2602_f41_01

Date: September 2021 | Rev: A | A4

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Arrowsmith North Project
Indicative Infrastructure Layout

Figure: 2

Figure 2: Proposal Development Envelopes and Indicative Infrastructure Layout

1 INTRODUCTION

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

VRX Silica Ltd (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, 2021b).

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, 2021c) and the EIA (Part IV Divisions 1 and 2) Procedures Manual (EPA, 2021b), and the Instructions and Template: How to Prepare an Environmental Review Document (ERD; EPA, 2021d & e).

Proposal information is provided in Table 3.

Table 3: Proposal information

Proposal information	
Proposal name	Arrowsmith North Silica Sand Project
Proponent	VRX Silica Limited
Assessment number	2291
Local Government area	Shire of Irwin
Public review period	4 weeks
EPBC reference no.	2020/8788

1.1 INDICATIVE TIMING OF THE ENVIRONMENTAL REVIEW

Table 4 sets out the indicative outline of the timing of the environmental review (indicative timeline) agreed between the EPA and the proponent.

Table 4: Indicative timing of the environmental review

Key assessment milestones	**Completion date**
EPA approves ESD	March 2022
EPA notifies proponent and publishes ESD	March 2022
Proponent submits first draft ERD	15 April 2022
EPA provides comment on first draft ERD *(6 weeks from receipt of ERD)*	27 May 2022
EPA accepts ERD *(assumes no further revisions required)*	27 May 2022
EPA authorises release of Environmental Review Document for public review *(2 weeks from EPA approval of ERD)*	10 June 2022
Proponent releases Environmental Review Document for public review for 4 weeks	10 June 2022
Close of public review period	8 July 2022

Key assessment milestones	Completion date
EPA provides Summary of Submissions *(3 weeks from close of public review period)*	29 July 2022
Proponent provides Response to Submissions	19 August 2022
EPA reviews the Response to Submissions *(4 weeks from receipt of Response to Submissions)*	16 September 2022
EPA accepts and publishes proponent's response to submissions	16 September 2022
EPA prepares draft assessment report and completes assessment *(6 weeks from acceptance of proponent's response to submissions)*	28 October 2022
EPA finalises Assessment report (including two-week consultation on draft conditions) and gives report to Minister *(6 weeks from completion of assessment)*	9 December 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 under a Bilateral Agreement between the Commonwealth of Australia and the State of Western Australia made under section 45 of that Act or an accredited process under section 87 of the Act. The relevant matters of national environmental significance (MNES) for this Proposal are:

- Listed threatened species and communities (sections 18 & 18A).

Matters to be specifically surveyed and included in the assessment documentation are provided in 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 *Environmental Protection and Biodiversity Conservation Regulations 2000.*

MNES that may be impacted by the Proposal (including but not limited to those matters identified in Appendix A) will be identified in the ERD and the potential impacts on these matters addressed within each relevant preliminary key environmental factor identified in Table 5, with a separate MNES section that details the potential impacts on these matters. 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, 2021d & e).

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 - 6 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 Section 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;
- Social Surroundings;
- Greenhouse Gas Emissions; and
- Air Quality.

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 ERD (EPA, 2021d & e).

Table 5 outlines the proposal specific additional work required as it relates to preliminary key environmental factors.

Table 5: Specific additional work required

Flora and Vegetation	
Required work	**1.** A desktop review of available technical reports, relevant databases and spatial data to identify the potential flora and vegetation that may be present. **2.** A flora and vegetation survey in accordance with Department of Agriculture, Water and the Environment (DAWE) and EPA guidance: i. A consolidated report including the integrated results of all surveys; ii. All survey reports and data should be submitted via the Index of Biodiversity Surveys for Assessments (IBSA) Submissions with the IBSA number provided for verification. iii. If previous studies are used for context, justification will be provided to demonstrate that they meet EPA Guidance and maps will be provided to show the location of previous surveys in relation to the Proposal. **3.** Demonstrate how surveys are relevant, representative and demonstrate consistency with current EPA policy and guidance. Ensure database searches and taxonomic identifications are up to date. **4.** Provide a figure depicting survey effort applied in relation to the study area and development envelopes, identifying the direct and indirect impact areas. **5.** Provide a comprehensive overview of Vegetation Direct Transfer (VDT) methods including detailed account of implementation across differing vegetation communities. Prior trials and evidence of the effectiveness of trials will be included. **6.** A comprehensive Dieback survey of all proposed disturbance areas. **7.** Prepare and submit a Dieback Management Plan addressing dieback risks, impacts and management strategies. **8.** Determine whether any flora species recorded are significant (including those listed as Priority species under the *Biodiversity Conservation Act 2016* (BC Act) or listed as threatened under the EPBC Act or BC Act), and provide an analysis of local and regional context, including targeted surveys if required (refer to Environmental Factor Guideline – Flora and Vegetation for definition of significant flora). Discuss the regional and cumulative impacts of other existing or reasonably foreseeable development in the vicinity of the Proposal with the potential to impact the flora and vegetation values. These may include rehabilitation, projected climate change

	impacts, fire, mining, disease, weed invasion; impacts to biodiversity, recreation and water management. **9.** Determine whether any vegetation identified is significant (including those listed as a Priority Ecological Community under the BC Act or Threatened Ecological Community under the EPBC Act or BC Act), and provide an analysis of local and regional context, (refer to Environmental Factor Guideline – Flora and Vegetation for definition of significant vegetation). **10.** 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 development envelopes, direct and indirect impact areas, and local and regional contexts. **11.** 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. Include figures showing the predicted extent of loss and corresponding vegetation quality breakdown. **12.** Provide a quantitative assessment of impact: i. 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). ii. For all vegetation units (noting threatened and priority ecological communities and significant vegetation) this includes; • Area (in hectares) and proportions directly or potentially indirectly impacted; and • Proportions/hectares of the vegetation unit currently protected within conservation estate (where known). **13.** Describe the application of the mitigation hierarchy in the proposal design, construction, operation and closure. Specific, measurable, achievable, realistic and time-bound actions will be actioned to minimise and mitigate Proposal impacts. Include descriptions of management and/or monitoring plans to be implemented pre- and post-construction to demonstrate that residual impacts are not greater than predicted. Management and/or monitoring plans are to be presented in accordance with EPA instructions. **14.** 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. **15.** Demonstrate that all practicable measures have been taken to reduce the area of the proposed disturbance footprint based on progress in the Proposal design and understanding of the environmental impacts. **16.** Discuss proposed management, monitoring and mitigation methods to be implemented demonstrating that the design of the Proposal has addressed the mitigation hierarchy in relation to impacts on flora and vegetation. **17.** Discuss management measures, outcomes / objectives sought to ensure residual impacts (direct and indirect) are not greater than predicted. **18.** 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 (EPA, 2014), the EPBC Act Environmental Offsets Policy and include reference to the Commonwealth Offset Assessment Guide for any MNES. **19.** 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 six offsets principles in the WA Environmental Offsets Policy and offset principles in the EPBC Act Environmental Offsets Policy. Spatial data defining the area of significant residual impacts will also be provided. **20.** Demonstrate and document in the ERD how the EPA objective for this factor can be met. **21.** 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. **22.** A chapter of the ERD will be dedicated to discussing the impacts of the proposal on MNES and make reference to all relevant standards, policies and other guidance material published by DAWE. Justification will be provided for any instances where published guidance is not followed. This chapter will include a discussion to demonstrate the Proposal is consistent with Australia's obligations under: i. the Biodiversity Convention; ii. the Apia Convention; iii. Convention on International Trade of Endangered Species (CITES); and iv. Each relevant recovery plan and threat abatement plan.
Terrestrial Fauna	
Required work	**23.** 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: i. A Basic (Level 1) survey and fauna habitat assessment; and/or ii. A Detailed (Level 2) survey including sampling inside and outside the impact areas that may be directly or indirectly impacted; and/or iii. Targeted surveys for significant fauna that may be directly or indirectly impacted. If multiple surveys are conducted to support the assessment, a consolidated report will be provided including integrated results of the surveys. If previous studies are relied on for context, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance. Maps will also be provided to illustrate the location of previous surveys in relation to the Proposal. A map of the survey effort applied in relation to the fauna habitats, the study area, Development Envelopes, identifying the direct and indirect impact areas. **24.** Identify and describe the fauna assemblages present and likely to be present within the Development Envelopes that may be impacted by the proposal. **25.** 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. **26.** Provide figure(s) and maps showing the extent of fauna habitats in relation to the Proposal and species distributions. **27.** All survey reports and data should be submitted via IBSA Submissions with the IBSA number provided for verification. **28.** Identify and describe the fauna assemblages present and likely to be present within the development envelopes that may be impacted by the Proposal. **29.** Identify significant and restricted fauna and describe in detail their known ecology, likelihood of occurrence, habitats and known threats. **30.** 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. **31.** Map the locations of significant and restricted fauna records in relation to the fauna habitats, the study area, the development envelope, and direct and indirect impact areas. **32.** 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. **33.** 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. **34.** Outline the proposed avoidance and mitigation measures to reduce the potential impacts of the Proposal. Include descriptions of proposed management and/or monitoring plans 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. **35.** Predict the residual impacts from the proposal on terrestrial fauna after considering and applying the mitigation hierarchy. **36.** Discuss closure and rehabilitation management measures, outcomes / objectives to be implemented. **37.** Perform a materials balance to determine the volumes of materials required for rehabilitation and materials available for rehabilitation. **38.** 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 (EPA, 2014), the EPBC Act Environmental Offsets Policy and include reference to the Commonwealth Offset Assessment Guide for any MNES. **39.** 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 six offsets principles in the WA Environmental Offsets Policy and offset principles in the EPBC Act Environmental Offsets Policy. Spatial data defining the area of significant residual impacts will also be provided. **40.** Demonstrate and document in the ERD how the EPA objective for this factor can be met. **41.** 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. **42.** A chapter of the ERD will be dedicated to discussing the impacts of the proposal on MNES and make reference to all relevant standards, policies and other guidance material published by the DAWE. Justification will be provided for any instances where published guidance is not followed. This chapter will include a discussion to demonstrate the Proposal is consistent with Australia's obligations under: i. the Biodiversity Convention; ii. the Apia Convention; iii. CITES; and iv. Each relevant recovery plan and threat abatement plan.
Inland Waters	
Required Work	**43.** Desktop water supply assessment to identify potential water supply sources for the 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) and identification of other groundwater users. **45.** Hydrogeological investigations / modelling and analysis to identify sustainable water supply sources for the Proposal (in consultation with DWER) and predicted drawdown of the Yarragadee aquifer. **46.** Provide a water balance for the mining operations. **47.** Sensitivity analysis to identify areas that may be impacted by changes in superficial groundwater levels within the mapped drawdown extent. **48.** Characterisation and assessment of the impacts of groundwater drawdown on other users, overlying aquifers, surface water expressions and other environmental values. **49.** Hydrological investigations / modelling and analysis to characterise the surface water systems that may be directly or indirectly impacted by the Proposal. **50.** Description of the design and location of any surface water diversions, with the potential to impact surface water or groundwater. Define whether the diversions will be permanent or temporary. **51.** Characterisation and assessment of the resultant changes to surface water regimes as a result of the implementation of the Proposal. **52.** Mapping and spatial data that shows and defines the extent of the predicted direct and indirect hydrogeological and hydrological impacts to environmental values.

	53. Physical and chemical waste characterisation studies to determine: i. The toxicity of any flocculants proposed to be used; ii. If leaks and spills of slurry sands have the potential to contaminate inland waters and/or soils; and iii. Identify potential residue impacts on post-closure rehabilitation. **54.** 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 necessary. **55.** Analyse, discuss and assess surface water and groundwater impacts. The analysis will include: i. Changes in groundwater levels and changes to surface water flows associated with the Proposal; ii. Changes in groundwater and surface water quality associated with the Proposal; iii. The nature, extent and duration of impacts; iv. Impacts to other water users; and v. Impacts on the environmental values of any sensitive receptors. **56.** Discuss the proposed management, monitoring and mitigation to avoid and minimise groundwater and surface water impacts, at local and catchment scale, as a result of implementing the Proposal. **57.** Demonstrate and document in the ERD how the EPA's objective for this factor will be met. **58.** 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 (EPA, 2014). 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.
Social Surroundings	
Required Work	**59.** Undertake a heritage assessment (Aboriginal and European), utilising desktop information, and archaeological and ethnographic heritage surveys as required in order to: i. Make an assessment of listed heritage sites; ii. Determine the importance of the site from an Aboriginal perspective (including heritage sites, and traditional uses such as bush tucker and medicine); and iii. Assess the likelihood of significant European or Aboriginal heritage sites being present on site. Should unavoidable disturbances to Aboriginal heritage sites and/or places be proposed, approval under the *Aboriginal Heritage Act 1978* will sought. **60.** Conduct consultation with traditional owners (Yamatji Marlpa Aboriginal Corporation; YMAC) during the assessment process to determine the heritage values of the development envelopes. **61.** Undertake consultation with traditional owners and knowledge holders in reference to the Arrowsmith River Registered Aboriginal Site (ID: 30068). **62.** Conduct a survey of the development envelopes to identify any Aboriginal Heritage Places that may exist. **63.** Undertake an initial noise assessment based on predicted noise levels and distances to receptors to identify the risk of noise impacts. If noise impacts may be significant then complete a noise assessment including ambient baseline noise monitoring, identification of sensitive receptors, noise modelling based on typical worst-case meteorological conditions and an analysis of modelling results against Environmental Protection (Noise) Regulations 1997 and current ambient noise levels in the area. **64.** Discuss how the Proposal meets the principles of ecologically sustainable development, as defined in s. 3A of the EPBC Act. **65.** Characterise the values and significance of social surroundings in the vicinity of the Proposal. **66.** Identify the proposed activities and the potential scale and significance of direct and indirect impacts to social surroundings.

	67. Discuss the proposed management, monitoring and mitigation to prevent impacts to social surroundings as a result of implementing the proposal. **68.** Discuss how Part V of the EP Act will regulate nuisance noise and other emissions during construction and operation of the Proposal to ensure compliance with the Environmental Protection Regulations. **69.** To satisfy EPBC Act requirements, identify and describe potential positive and negative economic and social impacts of the Proposal, including: i. Estimates of any anticipated economic costs and/or benefits (in AUD); ii. Explanations for any estimations of costs and/or benefits; iii. Potential employment opportunities expected to be generated at each phase of the Proposal; and iv. Details of any public and stakeholder consultation activities, including the outcomes. **70.** Discuss closure and rehabilitation management measures, outcomes / objectives to be implemented. **71.** Demonstrate how the EPA's objective for this factor will be met.
Greenhouse Gas Emissions	
Required Work	**72.** Estimate the expected Scope 1 (direct), Scope 2 (energy indirect) and Scope 3 greenhouse gas emissions over the life of the Proposal. The estimates will include: i. The detailed methods used to estimate emissions; ii. A breakdown of annual and total of estimated Scope 1, Scope 2 and Scope 3 greenhouse gas emissions in tonnes of CO2-e by all sources. Consider all proposed activities in determining the sources of emissions (e.g. mining, processing, clearing of land, etc.); iii. Projected emissions intensity/intensities (emissions per unit of production) for the Proposal, including each calculation and calculation methodology; and iv. Benchmarking of the Proposal's annual emissions and emissions intensity against other comparable projects. **73.** Demonstrate and document how the EPA's objective for this factor can be met.
Air Quality	
Required Work	**74.** Undertake a desktop assessment to evaluate potential air emissions from the Proposal and consider the significance of the potential impacts on the local airshed and nearest sensitive receptors. If the Proposal has the potential to impact ambient air quality at sensitive receptors then conduct an air quality assessment in accordance with EPA and contemporary guidance to predict air emissions and impacts on ambient air quality. The level of assessment will be informed by the results of the desktop assessment and based on the guidance of an air quality specialist, and may include: i. Atmospheric dispersion modelling; ii. Operational dust analysis; iii. Dust characteristics analysis; iv. A review of the location and distance to sensitive receptors; v. An analysis of existing levels of dust and other air pollutants; vi. Complaints data analysis; vii. Community surveys; and viii. Comparison with similar operations. **75.** Demonstrate how the mitigation hierarchy of avoid, minimise, mitigate has been applied during the mine planning and design stages of the Proposal. **76.** Discuss the proposed management, monitoring and mitigation to prevent impacts to air quality as a result of implementing the Proposal. **77.** Discuss how Part V of the EP Act will regulate air emissions during construction and operation of the Proposal to ensure compliance with the Environmental Protection Regulations. **78.** Demonstrate and document how the EPA's objective for this factor can be met.

2.3 CUMULATIVE IMPACT ASSESSMENT

The ERD will include a cumulative impact assessment to assess the Proposal's 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 6.

Table 6: 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 boundary (10 km, 15 km and 20 km) will be reviewed
	State-wide Pre-European extent	Flora and Vegetation	
	Priority flora and Significant flora habitat	Flora and Vegetation	
	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 aquifer	The Yarragadee aquifer	Inland Waters	Impacts from other proposals within the Dongara groundwater subarea (part of the greater Arrowsmith Groundwater Area) defined by the Department of Water and Environmental Regulation (DWER) in the Arrowsmith Groundwater Allocation Plan (Department of Water, 2010).
Mining (excavation, ore handling, processing and export) and power production from the combustion of natural gas	Air quality	Air Quality	If the Proposal is likely to result in air pollution or noise above background levels at the nearest sensitive receptors then 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.
	Amenity (Noise)	Social Surroundings	
	Greenhouse Gas	Greenhouse Gas Emissions	Greenhouse gas emissions will be reviewed against the cumulative emissions within WA to determine the contribution made by the Proposal.

3 DECISION MAKING AUTHORITIES

The relevant Decision Making Authorities (DMAs) identified by the EPA during their assessment of the referral are listed in Table 5. Additional decision-making authorities may be identified during the EPA's assessment of the Proposal.

Table 7: Decision Making Authorities

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	Relevant Key Environmental Factor and Objective	Can the DMA mitigate impacts and how will the EPA's factor be met
Minister for Environment DWER	EP Act Part V	**Works Approval** - required for the construction and commissioning of the Processing Plant and disposal of screened material back into the mine pits (during commissioning) **Licence** - required for the operation of the Processing Plant and disposal of screened material back into the mine pits	Noise emissions	**Social Surroundings** EPA's objective: *To protect social surroundings from significant harm.*	Yes While not expected to be significant, the primary source of noise emissions from the Proposal is the Processing Plant and the design of the plant will be assessed under Part V of the EP Act to ensure noise emissions are minimised and do not result in significant impacts to any sensitive receptors. Noise emissions from other aspects of the site 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	**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 While not expected to be significant, a primary source of dust emissions from the Proposal is the Processing Plant and the design of the plant will be assessed under Part V of the EP Act to ensure dust emissions are minimised and do not result in significant impacts to any sensitive receptors. In addition to regulation under Part V of the EP Act, dust emissions from all aspects of the site are regulated under the *Mining Act 1978* (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.
			Disposal of screened material back into mined areas and unintentional discharge of potentially	**Inland Waters** EPA's objective: *To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.*	Yes The Works Approval and Licence will regulate pollution of land or waters from the disposal of screened material or any spills of slurry or hydrocarbons within the Processing Plant areas. Leaks and spills from all other aspects of the site are regulated under the *Mining Act 1978* (refer below) and are not expected to be significant. These emissions are unlikely to require additional

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
			contaminated water (stormwater), hydrocarbons, and/or sand slurry	**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*	regulation under Part IV of the EP Act in order to meet the objective for this factor.

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
Minister for Mines and Petroleum Executive Director, Resource and Environmental Compliance Division (Department of Mines, Industry Regulation and Safety (DMIRS)) State Mining Engineer (DMIRS)	*Mining Act 1978* (WA) *Mines Safety and Inspection Act 1994* (WA)	**Mining Proposal and Mine Closure Plan (MCP)** Required for any mining-related disturbance within 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. A Mining Proposal will be submitted to DMIRS prior to any disturbance at the Proposal and will include auditable outcomes for 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 will be submitted to DMIRS with the Mining Proposal prior to any disturbance at the Proposal and will be revised every 3 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, the Proposal is not expected to leave any open excavations at closure (mining includes removal of sand from the top of a dune). Regardless, a MCP will include an auditable outcome that the landscape will be safe and stable 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 1978* 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.

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
			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, VDT, minimising the clearing footprint and taking accurate records. A MCP will be submitted to DMIRS with the Mining Proposal prior to any disturbance at the Proposal and will be revised every 3 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 1978* 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.
			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 approved Mining Proposal and MCP will define outcomes to ensure that the Factors defined in DMIRS's Environmental Objectives - Policy and Mining (DMIRS, 2020) are met for the Proposal. The DMIRS Factor: Biodiversity, is relevant to this impact: DMIRS's objective for this factor is: *Maintain representation, diversity, viability and ecological function at the species, population and community level.* These outcomes will be defined and approved by DMIRS to ensure that impacts associated with weeds are mitigated to an acceptable

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
					level. This will include an auditable outcome to prevent the introduction or spread of any new weed species or populations during construction, operation or closure. By meeting these outcomes and the objective of DMIRS's Biodiversity Factor, the Mining Proposal and MCP will ensure that the EPA's objective for flora and vegetation is met. Therefore, further regulation for the impact of the introduction and spread of weeds 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. Approval of a Mining Proposal and Mine Closure plan will ensure that the Factors defined in DMIRS's Environmental Objectives - Policy and Mining (DMIRS, 2020) are met for the Proposal. The DMIRS Factor: Rehabilitation and Mine Closure, is relevant to this impact. DMIRS's objective for this factor is: *Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/non-contaminating, and capable of sustaining an agreed post-mining land use, and without unacceptable liability to the State.* By meeting the objective of DMIRS's Rehabilitation and Mine Closure Factor, the Proposal will also meet the EPA's objectives for social surroundings 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.
		Project Management plan Required for the construction and	N/A - this approval is predominantly related to safety and therefore not expected to regulate impacts to the environment		

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
		operation of the Proposal			
Minister for Mines and Petroleum Chief Dangerous Goods Officer (DMIRS)	*Dangerous Goods Safety Act 2004* (WA)	**Dangerous Goods (DG) Licence** May be required for the bulk storage of fuel if above specified limits (unlikely)	Contamination of soils, groundwater and surface water (hydrocarbon spills) Fire (combustion of stored fuel)	**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** EPA's objective: *To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*	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 DG Licence provides additional mitigation for the design and storage of larger volumes of dangerous goods (if large volumes of hydrocarbons (>100,000 L) are required to be stored on site). A DG Licence sets standards for the way in which DGs are stored on site. These standards are aimed at ensuring DGs are stored safely and in such a way that will not result in impacts to the environment. Having a DG Licence ensures potential spills and combustion risks from the Proposal are mitigated. A DG licence (in combination with the Part V and *Mining Act 1978* 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 DG is therefore not expected to be required under Part IV of the EP Act.
Minister for Lands Minister for Planning Chief Executive Officer (Shire of Irwin)	*Local Government Act 1995* (WA) *Planning and Development Act 2006* (WA)	N/A - a development application is not required as this Proposal will be approved under the *Mining Act 1978.*			

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
Chief Executive Officer (DWER) Minister for Water	*Rights in Water and Irrigation Act 1914* (WA)	**26D licence** Required for the construction of a bore to abstract groundwater **5C licence** Required for the abstraction of groundwater	Abstraction of groundwater from the Yarragadee aquifer	**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. A 26D licence for the Proposal has been issued. 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 drilling and abstraction of groundwater is therefore not expected to be required under Part IV of the EP Act.
Commissioner for Main Roads Western Australia	*Main Roads Act 1930* (WA)	**Application to 'Undertake Works within Road Reserve'** Intersection works within the Brand Highway road corridor	N/A - this approval is safety and planning based and therefore not expected to regulate impacts to the environment		

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			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 Act 1972* (AH Act; WA); or *Aboriginal Cultural Heritage Act 2021* (WA; ACH Act) *Note: A 12 month transitional period during which the regulations, statutory guidelines and operational policies of the ACH Act will be developed. During this time the AH Act will remain in force to enable proponents to seek Section 18 consent if required.*	**Application for a permit under Part 6 of the ACH Act.** Required for consent to impact any Aboriginal Heritage sites (if not able to be avoided)	Disturbance of Aboriginal Heritage Sites	**Social Surroundings** EPA's objective: *To protect social surroundings from significant harm.*	Yes. Given the flexibility available to the Proposal the disturbance of Aboriginal Heritage sites is unlikely to be required. However, an application for a permit under Part 6 of the ACH Act will assess the significance of the proposed disturbance and determine what mitigation measures are required to obtain consent for any disturbance to an Aboriginal Heritage Sites. This consultation and assessment process will meet the EPA's objective for Social Surrounds by protecting registered Aboriginal Heritage sites from significant harm.
			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). Given the flexibility available to the Proposal areas or artefacts of significant Aboriginal cultural value are expected to be able to be avoided. However, if disturbance or indirect impacts within these areas cannot be avoided then assessment and potential regulation under Part IV of the EP Act may be required.
Minister for the Environment (Cth)	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)	**s.133 Approval** - required for the assessment of the Proposal's impacts on MNES	Direct impacts to Threatened Fauna (Vehicle Strike)	**Terrestrial Fauna** EPA's objective: *To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*	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.
			Clearing of potential Threatened Flora or Fauna habitat	**Flora and Vegetation** EPA's objective: *To protect flora and vegetation so that biological diversity*	

DMA and department (if relevant)	Legislation or agreement regulating the activity	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)		
			Relevant Impact	**Relevant Key Environmental Factor and Objective**	**Can the DMA mitigate impacts and how will the EPA's factor be met**
				and ecological integrity are maintained **Terrestrial Fauna** EPA's objective: *To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*	

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 VRX'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

VRX acknowledges that it must consult with stakeholders who are affected by or are interested in the Proposal.

This includes the DMAs (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' (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.

VRX will 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
AH Act	*Aboriginal Heritage Act 1972*
ACH Act	*Aboriginal Cultural Heritage Act 2021*
ASS	Acid Sulphate Soils
BC Act	*Biodiversity Conservation Act 2016* (WA)
CITES	Convention on International Trade of Endangered Species
Cth	Commonwealth
DMA	Decision Making Authority
DAWE	Department of Agriculture, Water and the Environment
DG	Dangerous Goods
DMIRS	Department of Mines, Industry Regulation and Safety
DotE	Department of the Environment
DoW	Department of Water
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EIA	Environmental Impact Assessment
EP Act	*Environmental Protection Ac*t 1986 (WA)
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ERD	Environmental Review Document
ESD	Environmental Scoping Document
GL	Gigalitre
IBSA	Index of Biodiversity Surveys for Assessments
MNES	Matters of National Environmental Significance
Proposal	Arrowsmith North Silica Sand Project
SRE	Short Range Endemics
VDT	Vegetation Direct Transfer
AUD	Australian Dollars
VRX	VRX Silica Limited
WA	Western Australia

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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 MNES - Listed threatened species and communities (sections 18 & 18A).

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.

Table 1: Listed threatened species and communities (sections 18 & 18A)

Notes:

1. 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.
2. Listed references should not be relied upon as complete or exhaustive.
3. References in this column are not included in the reference list at Section 7.

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 (*Calyptorhynchus latirostris*).	Department of Parks and Wildlife (DPaW; 2013). Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan.	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)	Referral guidelines for three species of Western Australian black cockatoos (DSEWPaC, 2012)

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 (*Leipoa ocellata*)	Benshemesh, J. (2007). National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia. Recovery Plan.	Department of the Environment (2015). Threat abatement plan for predation by feral cats. Canberra, ACT: Commonwealth of Australia. Department of the Environment and Energy (2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia. Department of the Environment and Energy (2017). Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017). Canberra, ACT: Commonwealth of Australia. DEWHA (2008). Threat abatement plan for competition and land degradation by unmanaged goats. DEWHA, Canberra. DEWHA (2008). Threat abatement plan for predation by the European red fox. DEWHA, 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 (*Apus pacificus*)	There is no adopted or made Recovery Plan for this species	Department of the Environment (2015). Threat abatement plan for predation by feral cats. 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]
Flora and Vegetation							
Irwin's Conostylis (*Conostylis deilsii* subsp. *Teres*)	There is no adopted or made Recovery Plan for this species	Department of the Environment and Energy (2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016). Conservation Advice Conostylis dielsii subsp. teres Irwin's conostylis. 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). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016). Conservation Advice Conostylis micrantha small flowered conostylis. Canberra: Department of the Environment. Available	Listing assessment information may be available in the approved Conservation Advice	N/A	N/A	N/A
Red Snakebush (*Hemiandra gardneri*)	There is no adopted or made Recovery Plan for this species	Department of the Environment and Energy (2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia.	Threatened Species Scientific Committee (2016). Conservation Advice Hemiandra gardneri red snakebush. Canberra: Department of the Environment.	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]
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 (2008). Approved Conservation Advice for *Paracaleana dixonii* Hopper & A.P.Br. nom. inval. (Sandplain Duck Orchid). 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