



WEST ERREGULLA PROCESSING PLANT AND PIPELINE

Response to Submissions

EPA Assessment No. 2305

Revision 2

May 2023



DOCUMENT CONTROL

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1 Introduction

1.1 Overview

AGI Operations Pty Limited (AGIO; the Proponent) is proposing to construct and operate a gas processing plant and pipeline near Dongara, Western Australia collectively referred to as the West Erregulla Gas Project (WER). The processing plant will process gas produced by Warrego Energy and Strike Energy from upstream wells. The processed gas will then be transported via a new interconnecting pipeline to tie into the Dampier to Bunbury Natural Gas Pipeline (DBNGP).

The Proponent referred the Proposal to Environmental Protection Authority (EPA) on the 8th of April 2021. In August 2021, the EPA determined the Proposal required assessment at the level of "Referral Information with additional information required" and a two-week public review period. Following the provision of additional information to the EPA, the referral information and additional information was released for public review from the 16th May 2022 through to 30th May 2022.

1.2 Purpose and structure of this document

The purpose of this Response to Submissions (RtS) document is to:

- Provide a summary of submissions received during the public comment period.
- Respond to the matters raised in the submissions.
- Present additional information or modify aspects of the Proposal where required to respond to the submissions received.
- Amend environmental commitments and/or include additional environmental commitments in response to the submissions received.

2. Submissions received

2.1 Summary of submissions received

A total of 19 submissions were received during the two-week period. Many of the submissions covered the same general issues. The key issues raised in the submissions included:

- The effects of climate change and increases in greenhouse gas emissions.
- The potential for extraction of gas by fracking.
- The cumulative impacts of this proposal and other developments in the region.
- Impacts on threatened flora species.
- Insufficient detailed analysis of the impacts to priority flora.
- Inadequate management of priority flora.
- Impacts on habitat for terrestrial fauna, in particular Carnaby's Black Cockatoo.
- The risks to surface water and groundwater.
- Impacts on neighbouring farms and communities.

In accordance with the public review period set by the EPA, the 'EPA seeks information that will inform its consideration of the likely effect of the proposal, if implemented, on the environment.' A response to each of the submissions received is provided in the following Section.

AGIO notes that the 19 submissions received is less than has been received by the EPA on other similar proposals, including that 43 submissions were received on the Waitsia proposal.

2.2 Proponent response to submissions

Detailed responses to all comments contained in the submissions received are provided in Table 2-1.

2.3 Additional information in response to subsequent EPA requests

As a follow up to Revision 0 of this RtS document, the EPA issued additional information requests to ensure all documentation was fit for purpose to support the assessment.

As such, additional tables were provided and responded to in August 2022 and February 2023. The final response tables, figures and updated appendices are included in this RtS.

Table 2-1 Response to submissions (received 17 June 2022)

Item	Submitter	Comment / Query	Response	Document Reference
General				
1	Lock The Gate Alliance (LTGA)	<p>The West Erregulla Processing Plant and Pipeline over 60+ years, while in itself a significant proposal cannot be assessed in isolation. Strike's whole Greater Erregulla project must be considered, including the West Erregulla Field Development Program including the extra wells originally shown in Natta 3D Seismic Survey, and Strike's plans for the South Erregulla-1 gas well and potential gas field, the Major 2D seismic project (South Erregulla), and their plan for Project Haber, a proposed urea plant in Geraldton where they plan to use gas from the Perth Basin/West Erregulla.</p> <p>Anticipated future gas wells in the West Erregulla area that will be linked to this processing plant, should be included as 'foreseeable activities', as well as any other future wells that would be developed adjacent to the current proposal area (i.e. North and South Erregulla), as a result of the Natta and Major seismic surveys. Therefore, the cumulative impacts are likely to be greater.</p> <p>Gas exploration and development happening in neighbouring areas including Waitsia, Lockyer Deep and surrounds should also be included in a cumulative assessment, also including their future plans.</p>	<p>Cumulative impacts are discussed within the Environmental Review Document (ERD). Greenhouse Gas (GHG) emissions from the West Erregulla project were assessed cumulatively with emissions from other existing regional projects and upstream sources in the Greenhouse Gas Management Plan (GHGMP), provided as Appendix I to the ERD. Other future projects in the region are proceeding through separate approvals processes. Those projects are operated by other proponents or have different ownership arrangements and are subject to commercial arrangements. This includes upstream wells and gas exploration which is outside of the scope of this project.</p>	ERD – Section 9 and Appendix I.
2	ANON-YGXY-DUGK-V ANON-YGXY-DUG1-2 ANON-YGXY-DUGC-M ANON-YGXY-DUG7-8 ANON-YGXY-DUG3-4 ANON-YGXY-DUG6-7 Northampton	<p>Several concerns were raised regarding the need for more gas projects in Western Australia. The focus should instead be on investing in renewable energy and technology.</p> <p>In the Australian Energy Market Operator (AEMO) Report from the Climate Council dated 14 April 2022, Greg Bourne, Climate Councillor, energy expert and former President of BP Australasia said:</p> <p>"Australia needs to phase out fossil fuels as quickly as possible and replace them with clean and affordable renewables and</p>	<p>Gas is essential to our economy and modern lifestyles, providing nearly a quarter of Australia's total energy supply. Western Australia's strong and diverse resource industry has positioned the State front and centre in the economic landscape of Australia.</p> <p>Australian Gas Infrastructure Group (AGIG), of which AGIO is a part, own the Dampier to Bunbury Natural Gas Pipeline (DBNGP) which</p>	ERD – Section 9 and Appendix I.

Item	Submitter	Comment / Query	Response	Document Reference
	Environment Group ANON-YGXY-DUGX-9 ANON-YGXY-DUGE-P ANON-YGXY-DUGZ-B ANON-YGXY-DUGB-K	<p>storage. It's the quickest path to a cheaper, cleaner, safer, and more reliable electricity system.</p> <p>Coal and gas simply cannot compete with renewables and storage on price. Gas, in particular, is the most expensive source of power in the electricity network and adding more new gas power stations won't change that. Supporting or funding new fossil fuel projects will only drive-up power prices and make Australia more susceptible to global energy shocks".</p>	<p>plays an important role in this sector, by providing the natural gas that many major mining and resource customers need to power their operations. Manufacturing and minerals processing industries are also underpinned by energy produced from natural gas. The DBNGP proactively assists in the growth of Western Australia's resource industry.</p> <p>In fact, natural gas supplies more than half of WA's primary energy needs.</p> <p>The 2021 Western Australia Gas Statement of Opportunities (December 2021) by Australian Energy Market Operator (AEMO) identified a shortfall in gas supply between 2025 and 2027 by approximately 51 petajoules (PJ) (85 terajoules (TJ)/day) to meet domestic gas demand. This shortfall calculation assumes 87 TJ from the project already within its assumptions from 2023 and therefore if that 87 TJ was not available could create a significantly larger shortfall in domestic energy supply if this project does not proceed.</p> <p>AEMO identifies that the WA domestic gas demand is forecast to increase from 1,071 TJ/day in 2022 to 1,150 TJ/day in 2031 with an average annual rate of 0.8% as renewables can only partly replace coal plant retirements. This demand is driven by 15 new resource projects (committed) expected to add 78 TJ/day and the South West Interconnected Grid (SWIS) to grow from 129 TJ/day in 2022 to 143 TJ/day in 2031.</p> <p>The ERD outlines the environmental impact studies and work completed for the project and</p>	

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			<p>includes long term targets (emissions, rehabilitation and offsets) as well as cumulative impacts assessments.</p> <p>The GHGMP outlines the offset and minimisation of emissions in line with Government targets and policies.</p> <p>This project itself, already has industrial customers for the gas (not residential or public electricity generation) indicating the need for gas to keep industry operating in WA.</p>	
3	ANON-YGXY-DUG1-2 ANON-YGXY-DUGS-4 ANON-YGXY-DUG3-4 ANON-YGXY-DUGY-A ANON-YGXY-DUGT-5 ANON-YGXY-DUGE-P	<p>Several concerns raised in relation to the development potentially leading to the extraction of gas by fracking which uses extremely large amounts of water and could subsequently lead to potential pollution of groundwater from use of toxic chemicals. Granting permission for this development without safeguards around unconventional shale gas extraction ("fracking") may make it more difficult to limit this extremely dangerous and harmful activity later.</p>	<p>While outside of the scope of this proposal referral, the upstream West Erregulla gas field proposal is not an unconventional gas project and does not include any fracking processes. The project is a continuation of conventional gas extraction that has occurred in the Perth Basin gas field for the past 20 years.</p>	Not applicable.
4	ANON-YGXY-DUGY-A ANON-YGXY-DUGF-Q ANON-YGXY-DUGZ-B	<p>Concerns were raised regarding lack of clarity, limitation of scope of the plan and the life of the project. While the proposed development begins with six wells, it is a 20-year development and may expand potentially into tens or hundreds more gas wells. Any such long-term development plan should be required to address the full 20+ year footprint. More information is required regarding the potential impacts, how they will be mitigated and footprint of the development in any related proposal.</p> <p>The two West Erregulla gas proposals encompassing the development of a gas processing plant and pipeline in addition to a field development program including the drilling of two further wells is of great concern.</p> <p>This proposal constitutes a significant expansion of onshore gas fields in WA, alongside the Waitsia Gas Plant. It is also</p>	<p>The State Government's GHG Emissions Policy for Major Projects includes an aspirational target of net zero GHG emissions by 2050. The WA aspirational target of net zero emissions by 2050 does not preclude emissions. Rather, the target refers to net zero emissions statewide (after offsetting etc). Natural gas is not incompatible with achieving an economy-wide net zero emissions target.</p> <p>As a clean and reliable energy source, gas is expected to play a key role in the future energy mix with the potential to contribute to a reduction in global GHG emissions by displacing higher carbon-intensive power generation (e.g. oil and coal burning). Given this, by focusing on</p>	ERD – Section 9 and Appendix I.

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		<p>proposed to run for 60 years. There must be questions raised as to why approval would be given for a 60-year lifespan expansion for a large greenhouse gas emitting development, when our nation's strategy is now focused on a minimum 43% reduction in emissions within the next eight years, with associated reduction in funding new gas plants and processing.</p> <p>The cumulative impacts of this proposal alongside existing gas wells must be taken into consideration. This includes existing and new gas wells, processing plants, gas exploration and development in neighbouring areas including South Erregulla, Waitsia, North Erregulla/Lockyer Deep and surrounds.</p>	<p>providing clean, affordable and reliable energy, the West Erregulla Project can contribute to achieving the aspirations of the agreements and targets.</p> <p>AGIO supports and shares the Commonwealth and State Governments' aspiration of net zero emissions by 2050. In preparing the GHGMP, AGIO has ensured the proposed controls and impact and risk levels are consistent with national and international standards, law, and policies including Australia's implementation of the Paris Agreement on climate change through domestic legislation. AGIO as the operator will actively manage and mitigate its GHG emissions.</p> <p>See the response to Item 1 above for the consideration of cumulative impacts.</p>	
Flora and vegetation				
5	Department of Biodiversity, Conservation and Attractions (DBCA)	<p>The documentation indicates that one threatened orchid species, <i>Paracaleana dixonii</i> (Sandplain duck orchid, ranked vulnerable) has been recorded within the development envelope, with one individual located within the proposed disturbance footprint. While the documentation indicates that there are likely to be additional individuals impacted by the proposal, that were not recorded during surveys, it fails to acknowledge that the proposal will impact on a known population of <i>P. dixonii</i>, comprising at least 24 individuals.</p> <p>It is recognised that a targeted survey was conducted at the correct time of year and one individual was recorded within the disturbance footprint, however the survey methodology (i.e. irregular track spacing) and effort (i.e. low intensity) is unlikely to have fully identified all individuals within the known local population to be impacted by the proposal. This is</p>	<p>A detailed and targeted flora survey and vegetation condition assessment (Eco Logical 2021) has been undertaken for the entire Development Envelope. The initial field survey was undertaken from 7-10 September 2020. In order to capture Threatened and Priority flora known to commence flowering from October onwards, a follow up targeted survey was conducted from the 8-9 October 2020. The threatened flora <i>Paracaleana dixonii</i> (sandplain duck orchid) was not recorded during these surveys, however one historical DBCA record of this species was found in the desktop database search. The historical record was from 2011</p>	ERD – Section 6.5, Appendix D and Appendix M

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		<p>particularly relevant for the Sandplain duck orchid as it is cryptic in nature and known to only grow to a height of 10 to 20 centimetres, making it challenging to observe at distance in the field. It is therefore difficult to confirm with certainty, the occurrence and extent (including populations and number of individual plants) of these species in the development envelope.</p> <p>Any impact (direct or indirect) on <i>P. dixonii</i> is considered the taking of threatened flora (i.e. known individuals, underground tubers and seed) under section 40 of the <i>Biodiversity Conservation Act 2016</i> (BC Act).</p> <p>Consequently, the proponent will require Ministerial Authorisation under the BC Act for the take or potential take of individuals of threatened flora.</p> <p>The proponent should provide further information or undertake further investigations (targeted surveys) to clarify the full extent of impacts (direct and indirect) of the proposal on individuals of the threatened flora <i>P. dixonii</i>, prior to implementation of the proposal.</p> <p>A condition of approval should be applied requiring a clear limit for impacts (direct and indirect) on threatened flora individuals resulting from the implementation of this proposal.</p>	<p>and detailed a finding of 24 plants at one location within the Development Envelope.</p> <p>A further targeted Threatened and Priority Flora Survey of the Disturbance Footprint was undertaken 14-15 December 2021 (Mattiske 2021). This survey was primarily commissioned to assess the presence of <i>Paracaleana dixonii</i>. One individual <i>Paracaleana dixonii</i> plant was recorded during this survey. The location of this individual plant coincided with where the historical DBCA record was previously identified in 2011.</p> <p>Another targeted survey in December 2022 (ELA 2023) identified a single individual of <i>Paracaleana dixonii</i> in the direct vicinity of the previously recorded (Mattiske 2021) plant. An exclusion zone (10m x 10m) shall be established around this area to prevent any disturbance.</p> <p>It is considered that the survey effort undertaken for <i>Paracaleana dixonii</i> is appropriate for this Proposal and in accordance with the relevant EPA survey requirements. However, as this specific species is known to be cryptic in nature, the Proponent has taken a conservative approach in offsetting all potential habitat which may support <i>Paracaleana dixonii</i>, rather than just the individual plant recorded in 2021 (or 24 individual plants in the historical 2011 DBCA record).</p> <p>The Proponent is aware that Ministerial authorisation is required for the taking of threatened flora under the BC Act.</p>	

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			An assessment of the likely impacts on Priority flora species as a result of the Proposal is provided in Section 6.5 of the ERD. The Proponent considers that a specific limit for the removal of known individuals of threatened flora is not required, as the removal of known individuals is already effectively limited by the defined extent of the Disturbance Footprint.	
6	DBCA	<p>The documentation indicates that ten priority flora species (i.e. two Priority 1, five Priority 3 and three Priority 4) have been recorded in the development envelope, with all species recorded within the disturbance footprint and at risk of potential impact, including:</p> <ul style="list-style-type: none"> • <i>Micromyrtus rogeri</i> (Priority 1); • <i>Lasiopetalum ogilvieanum</i> (Priority 1); • <i>Banksia fraseri</i> var. <i>crebra</i> (Priority 3); • <i>Guichenotia alba</i> (Priority 3); • <i>Hemiandra</i> sp. <i>Eneabba</i> (H. Demarz 3687) (Priority 3); • <i>Mesomelaena stygia</i> subsp. <i>deflexa</i> (Priority 3); • <i>Stylidium drummondianum</i> (Priority 3); • <i>Banksia scabrella</i> (Priority 4); • <i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> (Priority 4); and • <i>Stawelia dimorphantha</i> (Priority 4). <p>Based on the information provided, it appears that several priority flora species may be subject to high impacts at a local scale. For example, the proposed development is likely to result in a 27.1 per cent (58 of 214 individuals) impact on the local population of the Priority 1 <i>Lasiopetalum ogilvieanum</i> flora species. Consequently, clearly defined limits should be imposed to ensure impacts on local populations of priority flora</p>	An assessment of the likely impacts on Priority flora species as a result of the Proposal is provided in Section 6.5 of the ERD. The Proponent considers that a specific limit for the removal of known individuals of threatened flora is not required, as the removal of known individuals is already effectively limited by the defined extent of the Disturbance Footprint.	ERD - Section 6.5.

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		are limited to the number of individuals identified as occurring within the disturbance footprint.		
7	Department of Water and Environmental Regulation (DWER)	The ERD includes sufficient information about the presence of a population of <i>P. dixonii</i> , which is Endangered under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) and Vulnerable under the BC Act, that occurs within the disturbance footprint to determine there is a high likelihood of significant impact. Redesign of the disturbance footprint to avoid impacts to the known population of the threatened flora <i>P. dixonii</i> is recommended, consistent with the approved conservation advice under the EPBC Act (DAWE 2008) and Woodman Environmental Consulting (2013).	As addressed in Item 5 above, an exclusion zone (10m x 10m) will be created around the location of the <i>P. dixonii</i> to avoid directly impacting the individual identified.	
8	DWER	<p>There are also substantial impacts to the following priority flora:</p> <ul style="list-style-type: none"> • <i>Micromyrtus rogeri</i> (P1) • <i>Lasiopetalum ogilvieanum</i> (P1) • <i>Banksia fraseri</i> var. <i>crebra</i> (P3) – there is no regional information presented in Table 6-12, but Section 6.5.1.2 (p. 69) states the WA Herbarium has 15 collections across 183 km. <p>Several significant flora that will be substantially impacted by the proposal do not occur within any areas protected for conservation, such as <i>L. ogilvieanum</i> (P1) and <i>M. rogeri</i> (P1).</p> <p>The ERD does not adequately describe the impacts to all significant flora relative to their local or regional context. The local and regional context are not defined. There is no analysis presented in the ERD of the proportion impacted of the total number of populations known of each species. For example, Table 6-12 presents proportions of individuals impacted relative to the “broader local area”, an undefined extent that is presumed to be total estimated number of individuals.</p>	<p><i>Banksia fraseri</i> var. <i>crebra</i> (P3) was not confirmed as present within the local area within either Woodman (2012) or Woodman (2021) due to insufficient material available to provide to the herbarium. However, Appendix H of the West Erregulla Field Development Program identifies 500 individuals recorded from 89 populations within the regional area. These individuals were identified within the <i>Flora and Vegetation Survey of Natta 3D Seismic Survey Area</i> (Strategen JBS&G, 2021). This information was not available at the time of preparation of the ERD. This survey area includes the western extent of the disturbance footprint for this Proposal. The Seismic Survey Area covered an area of approximately 15,854 ha. In consideration of these results the Proposal will impact on 8.6% of the <i>Banksia fraseri</i> var. <i>crebra</i> individuals mapped within the regional area and 5.6% of the populations mapped. It is identified within Strategen JBS&G</p>	<p>ERD – Section 6.5.1.2</p> <p>Updated ERD Tables in Section 4 of this RtS.</p>

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		There is no definition of population or subpopulation of flora. For example, Table 6-12 states that <i>Banksia scabrella</i> (P4) has 485 populations within the Plant and along the 16.5 kilometre (km) Pipeline Development Envelope; this indicates that the standard definition (DBCA 2017) of a discrete group of individuals separated from other groups by at least 500 metres (m) was not used and may be overstated.	<p>(2021) that <i>Banksia fraseri</i> var. <i>crebra</i> is widespread across the survey area.</p> <p>The broader local area is defined at paragraph two of Section 6.5.1.2 of the ERD - <i>An analysis of this loss in the local context has included numbers of Priority Species recorded within the broader local area inclusive of the Development Envelope, the area described in Woodman Environmental Consulting (2013) as well as publicly available reports or reports obtained by the Proponent for projects detailed in Table 6-13.</i></p> <p>As such it is considered that Table 6-12 assesses the impacts to significant flora within their local and regional context. The paragraphs related to each priority species at Section 6.5.1.2 also describe the impacts to significant flora within their local and regional context.</p> <p>The West Erregulla Pipeline Flora and Fauna Survey (Ecological Australia, 2021) presents priority flora as records and abundance. Where a single point location (record) represents a broader group of individuals (abundance). This was presented as populations and individuals in the ERD, and so overstates the number of populations. The number of populations of each threatened and priority species has been assessed in accordance with the standard definition (DBCA 2017) and is provided in Section 4.1 of this document. An assessment of the loss of populations within the local and regional context is also included.</p>	
9	DWER	To inform the assessment, maps incorporating the following changes should be provided:	The following maps have been updated as requested:	Updated ERD Mapping in

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		<ul style="list-style-type: none"> Figure 6-1 needs to include the Ecologia (2018) and Matiske (2021) survey areas. Figure 6-3 needs georeferencing. Figure 6-3 needs the missing map (page three of three pages). Figure 6-4 needs species names in the legend. Outcome of all significant flora studies (i.e. combine Figures 6-3 and 6-4). 	<ul style="list-style-type: none"> Figure 6-1 Figure 6-4 <p>Figure 6-3 is georeferenced. The map was created within a Geographical Information System and all data shown within the map has been appropriately georeferenced.</p> <p>All three pages of Figure 6-3 are included at Appendix A of this document.</p> <p>Figure 6-4 shows the outcome of all significant flora studies.</p>	Section 6 of this RtS
10	DWER	The ERD has adequately described impacts to vegetation. Eco Logical Australia (2021) described six vegetation communities within the development envelope that correspond to five Woodman Environmental Consulting (2013) vegetation types (VTs). However, the direct impacts to the local vegetation communities are not substantial (Table 6-11).	Noted.	ERD – Section 6.5
11	DWER	Mitigation measures proposed are not described in sufficient detail. For example, the ERD summarises avoidance measures for loss of flora in Table 6-16 (p. 78) as “pre-clearance site walkover with a qualified ecologist will be undertaken to avoid conservation significant flora or fauna where practicable.” Detail should include seasonality of the walkover appropriate to the significant flora to be targeted. Detail should include what actions are proposed to be undertaken, such as realignment of the pipeline, should significant flora be discovered during the pre-clearance walkover.	<p>A pre-clearance walkover took place in December 2022 (ELA 2023) to coincide with the flowering of <i>P. dixonii</i>. This survey identified a single individual of <i>Paracaleana dixonii</i> in the direct vicinity of the previously recorded (Matiske 2021) plant. An exclusion zone (10m x 10m) shall be established around this area to prevent any disturbance.</p> <p>No other significant flora were identified during this walkover (as identified in Item 6).</p>	ERD – Section 6.7
12	DWER	The ERD states that tree and woody shrubs will not be permitted to recolonise within a 6 m wide corridor above the pipeline, a total of 8 ha of the disturbance footprint (Section 6.6, p. 77), in addition to the permanent 3 m wide access track (Appendix 3, Table 3-1, p. 23). Several of the tree and woody shrub shrubs that occur along the pipeline corridor are	Noted. Impacts to Priority Flora species have considered the clearing of the entire 30 m width of the disturbance footprint, including the pipeline corridor and the proposed access track.	ERD - Section 6.7

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		<p>significant flora, and therefore, initial impacts to the following should be minimised:</p> <ul style="list-style-type: none"> • <i>Banksia fraseri</i> var. <i>crebra</i> (P3) • <i>Banksia scabrella</i> (P4) • <i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> (P4) 	Vegetation clearing will be kept to the minimum amount necessary to allow access for approved works and stockpiled separately.	
13	Conservation Council of Western Australia (CCWA)	<ol style="list-style-type: none"> 1. The majority of intact vegetation in the development envelope is considered to be in excellent condition. 2. Dieback has not been identified in the development envelope but the area is considered to be marginally vulnerable to dieback infestation and spread. 3. At least 10 conservation significant flora species are known to occur in the development envelope. 4. One species, <i>Lasiopetalum ogilvieanum</i>, is of particular concern, and will be significantly reduced in the clearing operations. While specific rehabilitation criteria have been set for this species, CCWA highlights that this is no guarantee that a rehabilitation program will be successful. 5. The Proposal will likely produce extreme stresses to Threatened and Priority listed flora through land clearing, fragmentation of native vegetation, introduction and spread of pests and diseases, from site operation dust impacts, through accidental bushfires and hydrological changes. 6. Vegetation loss will cumulatively add to impacts from other industry in the region. 7. The Proponent provides data in its Field Development Program environmental reports relating to the contribution of other projects to native vegetation losses, demonstrating that more than half of vegetation in the Lesueur Sandplain subregion has been lost to agriculture and other industries since European settlement. The data from the Processing Plant and Pipeline (i.e., this Proposal) 	<ol style="list-style-type: none"> 1. Recognised in Section 6.3.2.5 of the ERD. 2. Dieback (<i>Phytophthora cinnamomi</i>) has not been identified as being present within the Development Envelope; however, the Proponent has established dieback management measures included in the CEMP to reduce the risk of dieback being spread or introduced into the Development Envelope. This is further addressed in Section 6.5 of the ERD. 3. Noted. No response required. 4. Noted. However, this genus is known to be able to be propagated from seed (Wildflower Society of Western Australia, 2007). The species is also known from the broader local area with 113 individuals from 26 populations mapped within the Woodman (2013) survey. Therefore, the Proposal will result in a reduction of 27.10% of number of individuals of this species within the broader local area. 5. An assessment of the likely impacts to Threatened and Priority listed flora as a result of this Proposal is detailed in the ERD. The issues raised in this comment have all been considered as part of the environmental impact assessment. 	ERD - Section 6

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		<p>lists the disturbance of 3,471.3 ha of native vegetation from future projects in proximity to the proposal.</p> <p>8. For the clearing activities listed, habitat fragmentation, wetland impacts, species loss or the carrying capacity of an ecosystem are not discussed in any detail. These criteria are critical to define the population dynamics of the areas under investigation and whether seemingly small habitat losses will create much larger ecosystem level impacts.</p> <p>9. The proposal will produce unacceptable residual impacts to the environment.</p> <p>10. The proponent's ecological assessment is rudimentary. A more detailed review of the impacts from vegetation clearing and endangered species loss is required.</p>	<p>6. Noted. Cumulative vegetation loss is considered in Section 14 of the ERD.</p> <p>7. Recognised in Section 6.5.3.1 of the ERD.</p> <p>8. Habitat fragmentation and species loss are addressed throughout the ERD. Wetland impacts are not relevant to this location.</p> <p>9. The minimal width of the pipeline (30m) and rehabilitation works reduces and minimises the potential for medium to long term habitat fragmentation over the pipeline area.</p> <p>10. The use of multiple surveys in the area and those specific to the project have allowed for impact assessment to be conducted in line with EPA guidelines and methodologies.</p>	
14	LTGA	<p>The project is proposed on unallocated crown land with significant biodiversity values, and the project will cause fragmentation, increase the spread of weeds and risk the spread of dieback into a dieback-free area.</p> <p>The project will clear 90 ha of native vegetation that is known or likely habitat for important plants and animals.</p> <p>Loss of Priority flora species including 10 individuals of <i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> (P4) species, and up to 5,010 individuals (46.5% of individuals in recorded in development envelope) of <i>Banksia scabrella</i> (P4) species.</p> <p>Eight flora species listed as Priority by DBCA were recorded within the development envelope from the 2020 field survey.</p>	<p>Biodiversity impacts are outlined in the ERD and biodiversity offsets and rehabilitation works are proposed to minimise biodiversity impacts.</p> <p>The spread of weeds, dieback and other fungal diseases are controlled through the Construction Environmental Management Plan, such that they are not considered a risk to flora and fauna habitats that are to be retained outside of the Disturbance Footprint.</p> <p>The minimal width of the pipeline (30m) and rehabilitation works reduces and minimises the potential for medium to long term habitat fragmentation over the pipeline area.</p>	ERD - Section 6
15	ANON-YGXY-DUGE-P ANON-YGXY-DUGB-K	<p>Australia cannot afford further destruction of bushland, we have already lost too much, and with it, irretrievable numbers of animal and plant species.</p>	<p>Noted. Biodiversity impacts are outlined in the ERD and biodiversity offsets and rehabilitation works are proposed to minimise biodiversity impacts.</p>	ERD - Section 6

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16	ANON-YGXY-DUGZ-B	<p>The clearing of nearly 100 ha of pristine native vegetation will directly impact the endangered Sandplain Duck Orchid. Additionally numerous other species will be lost forever in association with the lifespan of this project.</p> <p>Indirect impacts within an otherwise pristine environment include fragmentation of vegetation and wildlife corridors, spreading of weeds, dust impacts and the risk of dieback into a dieback-free area.</p>	<p>Noted. An exclusion zone is proposed to avoid direct impacts to the Sandplain Duck Orchid.</p> <p>The spread of weeds, dieback and other fungal diseases are controlled through the Construction Environmental Management Plan, such that they are not considered a risk to flora and fauna habitats that are to be retained outside of the Disturbance Footprint.</p>	ERD - Section 6
Terrestrial fauna				
17	CCWA	<p>The proposal will produce residual impacts to Carnaby's Black Cockatoo populations through the clearing of up to 90 ha of native vegetation and 37.7 ha of foraging habitat. This is in addition to the habitat loss from the associated West Erregulla Field Development Program.</p>	<p>The proposal impacts on low quality, foraging habitat for the Carnaby's Cockatoo. The loss of this habitat is to be mitigated through rehabilitation and the provision of land-based offsets. Whilst rehabilitation will not provide immediate foraging habitat, suitable foraging material is likely to be present within a five-year time frame within rehabilitated areas.</p> <p>Management actions including weed control and pest animal control will be undertaken at the offset site to produce a gain in biodiversity values present at the offset site. The offset site and associated gains have been calculated in accordance with EPA (GoWA, 2011) and DAWE policy (DSEWPac, 2012).</p>	ERD - Section 7
18	CCWA	<p>While the proponent has referred to invertebrate assessments, these appear incomplete in their content. For example, the full lifecycle requirements of the invertebrate fauna do not appear to be appreciated, with flora impacts being the main criterion for risk assessments.</p> <p>More specialist invertebrate evaluations and the inclusion of breeding sites (e.g. underground), larval stage lifecycle</p>	<p>The Short-range Endemic desktop assessment was prepared in consideration of the <i>Technical Guidance: Sampling Methods for Short Range Endemic Invertebrate Fauna</i> (EPA 2016b). Given the level of risk of significantly impacting on invertebrate populations, including short range endemic the level of assessment is considered adequate for the Proposal. Given the relatively narrow width of clearing, in</p>	ERD - Section 7.3.2.1

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		requirements, and the mobility of species should be undertaken in the assessments. Assessments are preliminary and largely speculative in regard to the risk of invertebrate population decline.	comparison to the broader landscape and the presence of similar habitats to the disturbance footprint outside of the footprint it is not considered that the proposal will have a significant impact on invertebrate populations.	
19	CCWA	Reducing cumulative impact to fauna to a percentage value of land cleared does not adequately represent the risks to species with low numbers or with restricted distributions (which could fall within the proportionally small areas subject to clearing).	Impacts to fauna are described with the ERD. Consideration is given to conservation significant fauna and short-range endemics that may have low numbers or restricted distributions. The conclusion of the ERD is that the proposal will not have a residual significant impact on any species considered likely to be present within the Disturbance Envelope, other than the Carnaby's Cockatoo. For this reason offsets have been provided to compensate for the residual impact to the Carnaby's Cockatoo.	ERD - Section 7, Section 11
20	CCWA	The proponent claims "The disturbance footprint is surrounded by an extensive area of remnant vegetation that will be retained and supports similar habitat for fauna species. As such the proposal would not result in any declared or rare species being unable to be maintained." CCWA is concerned that the proponent is suggesting that displaced species will simply be able to relocate to an another (already inhabited) ecosystem, without consideration of individual species mobility, the ecological carrying capacity of the remnant habitat and other more complex ecological factors.	Four conservation significant fauna species have been identified as potentially occurring within the Development Envelope: Carnaby's Cockatoo, Fork-tailed Swift, Grey Falcon and Peregrine Falcon. These are all highly mobile avian species that are known to utilise diverse and wide-ranging habitats, found within and outside of the Development Envelope.	ERD - Section 7
21	CCWA	There are potential indirect impacts to a range of fauna through habitat fragmentation, disturbance from proposal operations, increased predation through change in habitat composition and the protection it affords, and accidental bushfire.	The Proposal is primarily a thin, linear footprint which is surrounded by remnant vegetation. Fauna species are expected to be able to freely cross this corridor following construction as the pipeline will be buried and the corridor profile revegetated, with the exclusion of a 6m wide where only understory will be reinstated. All	ERD – Section 7.5

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		The risks from further habitat fragmentation require review, given the significant vegetation losses since European settlement.	other issues raised in this comment have been addressed in Section 7.5 of the ERD.	
22	LTGA	<p>Four conservation significant fauna species were identified as potentially occurring, based on the species habitat preferences and proximity of records to the survey area (ELA 2021). These are:</p> <ul style="list-style-type: none"> • Carnaby's Cockatoo (<i>Calyptrorhynchus latirostris</i>; listed as EN under the EPBC Act and BC Act) • Fork-tailed Swift (<i>Apus pacificus</i>; listed as MI under the EPBC Act and BC Act) • Grey Falcon (<i>Falco hypoleucos</i>; listed as VU under the BC Act) • Peregrine Falcon (<i>Falco peregrinus</i>; listed as OS under the BC Act). 	Noted – this information is described within the ERD at Section 7.3.5	ERD – Section 7.3.5
23	ANON-YGXY-DUGZ-B	<p>The clearing of nearly 100 ha of pristine native vegetation will directly impact the endangered Sandplain Duck Orchid. Additionally numerous other species will be lost forever in association with the lifespan of this project.</p> <p>The proposal indicates a permanent loss of over 50% of native vegetation in excellent condition. This includes the loss of foraging habitat for the Carnaby's Cockatoo. The plan to offset this loss with conservation of a 167 ha lot with similar foraging habitat does not compensate for the loss of yet more habitat for these endangered birds.</p> <p>This is not a net gain for the Cockatoos.</p> <p>Whichever way this offset is presented, the fact remains that further loss of Cockatoo habitat will occur if this proposal proceeds. When the cumulative impacts to Carnaby's Cockatoo from existing and foreseeable projects are totalled it is 1,428 ha of suitable foraging habitat. This is simply unacceptable for</p>	<p>AGIG have followed the EPA and Commonwealth policy with regard to offsets.</p> <p>The proposal impacts on low quality, foraging habitat for the Carnaby's Cockatoo. The loss of this habitat is to be mitigated through rehabilitation and the provision of land-based offsets. Whilst rehabilitation will not provide immediate foraging habitat, suitable foraging material is likely to be present within a five-year time frame within rehabilitated areas.</p> <p>Management actions including weed control and pest animal control will be undertaken at the offset site to produce a gain in biodiversity values present at the offset site.</p> <p>The Carnaby's Cockatoo offset calculations, as well as rehabilitation works provide adequate offset for proposed disturbance to low quality</p>	ERD – Section 11

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		a bird with declining breeding and surviving individuals, mostly a direct result of loss of habitat.	foraging habitat as outlined in the calculations and offset information in the ERD.	
24	ANON-YGXY-DUGZ-B	<p>Of significant concern are the trenches that will be dug for the pipeline. These are 1.5-2 m deep and a potential death trap for numerous species – both large and small fauna. With trench times open for up to 7 days, the impacts on trapped wildlife will be significant as they may suffer dehydration, stress and food loss for lengthy periods. Fauna mortality will be a direct result of this open trench.</p> <p>I am sceptical about the company's claim that a fauna handler will be utilised to clear trapped fauna before backfilling occurs. It is highly unlikely individual fauna would survive long enough for a fauna handler to be contacted, appropriately scheduled, and then transported to the destination. This could be hours and potentially days before fauna is rescued.</p>	<p>The CEMP contains a range of measures to ensure that fauna do not become trapped in trenches including:</p> <ul style="list-style-type: none"> • Completion of daily trench inspections within 3 hours of sunrise • Installation of fauna egress from excavations or trenches (i.e. exit ramps every 500m of trench at a minimum and each excavation) • Inspection of pipework for fauna prior to welding, including use of caps for pipe sections • Installation of fauna shelters every 100m if trench is >500m in length • Fauna ramps to be placed at both ends of trenches (intervals not to exceed 1 km) • Completion of a fauna inspection within 30mins prior to lowering in/backfill operations commencing. 	West Erregulla Construction Environmental Management Plan (Rev 1)
Inland Waters				
25	CCWA	<p>The risks to surface waters from the proposal are not adequately addressed.</p> <p>The proponent claims "The Development Envelope is devoid of any significant surface water features; however small ephemeral drainage lines do dissect the Development Envelope and surrounding area."</p> <p>There are risks of impact to surface waters through alteration of hydrological regimes of these ephemeral drainage lines from</p>	<p>The Development Envelope is devoid of any significant surface water features. The project has been designed to appropriately contain and manage stormwater, formation water and hazardous substances to ensure hazardous materials and potentially contaminated water is not released to the environment.</p> <p>The pipeline will be buried and the land surface reinstated. The Disturbance Footprint will be re-</p>	ERD – Section 8

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		<p>the buried pipeline, and also from unplanned pollution events producing land and surface water contamination.</p> <p>The risks to surface waters require review. The ecological significance of ephemeral streams is downplayed by the proponent.</p>	<p>contoured to match the surrounding landforms and erosion controls constructed where necessary to minimise sedimentation of run-off.</p>	
26	CCWA	<p>There are risks to the groundwater from abstraction.</p> <p>The proposal will use up to 40,000 kilolitres (kL) per annum(?) of groundwater for drilling, dust suppression and camp domestic supplies.</p> <p>Previous studies from the broader development area (cited in Aquaterra Groundwater Assessment report for West Erregulla Field Development Program) showed exceedances of environmental and human health criteria for metals and hydrocarbons. This data is not included for the West Erregulla Processing Plant and Pipeline Proposal. The data showed the groundwater to be unsuitable for dust management and domestic supply.</p> <p>The risks from groundwater abstraction requires review and should include assessment of cumulative abstraction in the region and with regard to use of water that does not meet the relevant environmental/health criteria.</p>	<p>Groundwater for the project will be extracted from a licensed existing bore and will be within the licensed limits. Wherever water demand is above this threshold, including demand from works undertaken for the West Erregulla Field Development Program, water requirements will be sourced from commercial standpipes located within the Shire of Irwin and the Shire of Mingenew and trucked to site. Water demand is expected to be greatest during the construction phase with minimal demand during operations.</p> <p>The cumulative use of groundwater from the Yarragadee Aquifer is described within the ERD. The ERD concludes that the Proposal, will not cumulatively contribute to a significant impact on the Yarragadee Aquifer.</p> <p>The depth to groundwater within the Development Envelope is approximately 130 mbgl. The proposed works are to a maximum depth of 5 mbgl, so there will be no interaction with groundwater, other than the abstraction from the existing bore.</p> <p>The CEMP provides for a potential construction camp. Where a construction camp is used, potable water would be trucked to site and stored in suitable temporary tanks for consumption. As detailed within the CEMP for the permanent accommodation, potable water</p>	ERD - Section 8 West Erregulla Construction Environmental Management Plan (Rev 1)

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			<p>will be provided via treatment of raw water through a Reverse Osmosis unit on site.</p> <p>The quality of the groundwater to be abstracted from the bore is considered suitable for dust suppression. Water for dust suppression would be utilised within the cleared disturbance footprint. Given as stated within the Groundwater Investigation (MDW Environmental Services, 2015), metal and nutrient concentrations are similar to those expected in the natural environment, it is considered appropriate to utilise the water for dust control.</p>	
27	LTGA	<p>Potential direct impacts of the proposal on inland waters have been identified as:</p> <ul style="list-style-type: none"> • Drawdown of the Yarragadee Aquifer for water supply 20kL/day of water. <p>Just south of this proposal is a significant artesian groundwater source that provides drinking water to nearby towns and localities including Arrino, Morawa, Perenjori and Latham.</p>	<p>Groundwater for the project will be extracted from a licensed existing bore and will be within the licensed limits. Wherever water demand is above this threshold, including demand from works undertaken for the West Erregulla Field Development Program, water requirements will be sourced from commercial standpipes located within the Shire of Irwin and the Shire of Mingenew and trucked to site. Water demand is expected to be greatest during the construction phase with minimal demand during operations.</p> <p>The cumulative use of groundwater from the Yarragadee Aquifer is described within the ERD. The ERD concludes that the Proposal, will not cumulatively contribute to a significant impact on the Yarragadee Aquifer.</p> <p>The depth to groundwater within the Development Envelope is approximately 130 mbgl. The proposed works are to a maximum depth of 5 mbgl, so there will be no interaction</p>	ERD – Section 8

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			with groundwater, other than the abstraction from the existing bore.	
28	LTGA	<p>In addition, activities that have the potential to cause indirect impacts to inland waters include:</p> <ul style="list-style-type: none"> • Alteration of surface water hydrological regime from installation of infrastructure. • Contamination of surface water due to increased erosion and sedimentation. • Contamination of surface water and groundwater quality from hazardous materials. 	<p>The Development Envelope is also devoid of any significant surface water features. The project has been designed to appropriately contain and manage stormwater, formation water and hazardous substances to ensure hazardous materials and potentially contaminated water is not released to the environment.</p> <p>The pipeline will be buried and the land surface reinstated. The Disturbance Footprint will be re-contoured to match the surrounding landforms and erosion controls constructed where necessary to minimise sedimentation of run-off.</p>	ERD – Section 8
29	ANON-YGXY-DUGZ-B	<p>The proposal will utilise groundwater from the Yarragadee Aquifer. This aquifer is currently utilised for town water supplies, mining and oil & gas operators, crop and fruiting agriculture and cattle grazing. The cumulative impacts of the existing gas wells and the entire Erregulla proposed development plans will extract a large amount of groundwater from the aquifer. This is a relied water source for rural and urban communities across the Mid-West, the Wheatbelt and to some extent Perth.</p> <p>The below extract is summarised from a recent study published in Nature's Scientific Reports, which examined the impact of pumping (using groundwater for productive activities) on water reserves and conditions. Dr Ben Mather's study Constraining the response of continental-scale groundwater flow to climate change published 16 March 2022. "Growing human reliance on surface water for urban use and groundwater for agriculture and mining are changing our naturally interconnected water system..... We are now seeing</p>	<p>Groundwater for the project will be extracted from a licensed existing bore and will be within the licensed limits. Wherever water demand is above this threshold, including demand from works undertaken for the West Erregulla Field Development Program, water requirements will be sourced from commercial standpipes located within the Shire of Irwin and the Shire of Mingenew and trucked to site. Water demand is expected to be greatest during the construction phase with minimal demand during operations.</p> <p>The cumulative use of groundwater from the Yarragadee Aquifer is described within the ERD. The Proposal will not cumulatively contribute to a significant impact on the Yarragadee Aquifer. The depth to groundwater within the Development Envelope is approximately 130</p>	ERD Section 8

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		<p>widespread and long-lasting effects from the last 20 years of groundwater pumping.”</p> <p>Since the year 2000, groundwater pumping has resulted in a 7 metre drop in aquifers across eastern Australia, and up to 17 metres in inland regions. This leads to increased pressure on surface water supplies. It can also increase water salinity during drought conditions; as groundwater levels drop and stop naturally replenishing rivers, water evaporation leaves salt behind, with negative implications for rural and urban water users”.</p> <p>There will be large impacts on groundwater levels and quality, and potential contamination of surface water which could pose hazardous risks to human health and terrestrial fauna/flora health.</p>	<p>mbgl. The proposed works are to a maximum depth of 5 mbgl, so there will be no interaction with groundwater, other than the abstraction from the existing bore.</p> <p>The Development Envelope is also devoid of any significant surface water features. The project has been designed to appropriately contain and manage stormwater, formation water and hazardous substances to ensure hazardous materials and potentially contaminated water is not released to the environment.</p>	
Terrestrial environmental quality				
30	Department of Primary Industries and Regional Development (DPIRD)	Most of this area is subject to extreme wind erosion risk if the surface is exposed. The protection offered by the surrounding vegetation (assuming it has recovered from the control burn undertaken in April 2019) should offer ample protection to the soils, therefore the likelihood of wind erosion is probably low in this area.	Noted	
31	DPIRD	Most soils in this location have high susceptibility to water repellence, increasing the risk of runoff and surface flow. The average slope is gentle across the site (about 2%) but it increases to 7% in some areas. The rocky breakaways and shallow soils may also generate high levels of runoff. While the soils identified across the area typically have rapid permeability, flows of water from intense rainfall events may be problematic, as identified by Ecological Australia (2021) in their hydrology report undertaken for the project. Appendix 1 contains an extract of the risk assessment from the report which gives a good summary of the risk of water erosion.	Noted. Water management and controls are built into the CEMP and operationally will be under any required licence and are addressed the CEMP.	West Erregulla Construction Environmental Management Plan (Rev 1)

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32	DPIRD	The soils in this area have extremely low capacity for soil water storage and they also have a poor capacity for microbial purification, particularly where the soils are rocky and shallow. The development is expecting to have wastewater disposed of onsite via septic tanks and leach drains. The water table has been measured at >130m below ground level which reduces the likelihood of contamination from nutrients.	Noted.	
33	DPIRD	The project also requires the storage and use of several noxious chemicals on the site. Given the rapid permeability of the soils in this area, and the identified risk of surface water flows, careful design and management of control structures such as bunds and linings for evaporation ponds need to be in place to reduce the likelihood of risk from spilled hydrocarbons or other noxious chemicals entering the environment.	Noted. The design of the plant and the controls outlined in the CEMP and ongoing through the plant include bunding, containment, dual lining of the evaporation pond and controls to reduce potential impacts from loss of containment from hydrocarbons or other hazardous substances or dangerous goods stored or handled onsite. Will be regulated under Part V and the dangerous goods framework.	West Erregulla Construction Environmental Management Plan (Rev 1)
34	DPIRD	With good surface water design and timing of works, coupled with careful management and storage of noxious chemicals, the impact on the immediate and surrounding environment from the development of the West Erregulla pipeline is expected to be low.	Noted	
Greenhouse Gas Emissions				
35	CCWA	Greenhouse gas emissions from the proposal are a 'risk event' in the context of current emissions trajectories for WA and will produce environmental harm. It is evident that the proposal will cumulatively add to WA's greenhouse gas emissions, producing environmental harm and, given the uncontested scientific evidence reflected in the IPCC Report, will propel us beyond the currently predicted 1.5 degrees of warming. In turn, this increases the risk of a tipping cascade whereby global warming diminishes the Earth's ability to reflect heat, absorb and retain greenhouse gas emissions.	The Commonwealth Government's policy aims to achieve the Nationally Determined Contribution (NDC) as committed to in the Paris Agreement, under which Australia has a target of reducing emissions by 26–28% below 2005 levels by 2030. Australia's Emissions Projections 2021 provides an indicative summary of how Australia is tracking to achieve its NDC of 26–28% below 2005 levels in 2030. Projected emissions to 2030 from the natural gas sector (direct combustion and fugitive) are included in	ERD – Section 9 and Appendix I

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		<p>The proponent claims that the proposal will produce approximately 105,951 tonnes per annum CO2 equivalent (tpa CO2-e) for the first two years, with a 9% reduction of emissions in year 3. Over the lifetime of the proposal the approximate lifetime scope 1 emissions will be 5,798,404 tCO2-e (assuming the same rate of production and no emissions reduction improvement beyond year 2). Scope 3 emissions are estimated to be 127,020 tpa CO2.</p> <p>The proposal is part of a larger project for the West Erregulla gas fields by the proponent. The emissions from this project should be considered alongside the emissions from West Erregulla Field Development Program, also currently under public review.</p> <p>The proposal's estimated annual scope 1 emissions are around 100,000 tpa CO2-e and there is a possibility of exceedance of this cut-off criteria for assessment. The proposal should be treated as exceeding the CO2 threshold and assessed accordingly.</p>	<p>the methodology used to underpin these projections. Natural Gas projects are built into the Commonwealth Government's plan to meet its NDC commitments.</p> <p>The State Government's GHG Emissions Policy for Major Projects includes an aspirational target of net zero GHG emissions by 2050. The WA aspirational target of net zero emissions by 2050 does not preclude emissions. Rather, the target refers to net zero emissions statewide (after offsetting etc). Natural gas is not incompatible with achieving an economy-wide net zero emissions target.</p> <p>As a clean and reliable energy source, gas is expected to play a key role in the future energy mix with the potential to contribute to a reduction in global GHG emissions by displacing higher carbon-intensive power generation (e.g. oil and coal burning). Given this, by focusing on providing clean, affordable and reliable energy, the West Erregulla Project can contribute to achieving the aspirations of the agreements and targets.</p> <p>AGIO supports and shares the Commonwealth and State Governments' aspiration of net zero emissions by 2050. In preparing the GHGMP, AGIO has ensured the proposed controls and impact and risk levels are consistent with national and international standards, law, and policies including Australia's implementation of the Paris Agreement on climate change through domestic legislation. AGIO as the operator will actively manage and mitigate its GHG emissions.</p>	

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36	LTGA	<p>The project will lead to increases in greenhouse gas emissions as stated by the company's own figures:</p> <ul style="list-style-type: none"> • Scope 1 emissions: 96,319 tCO₂-e per year. • Scope 3 emissions: 127,020 tCO₂-e per year. <p>This proposal does not achieve net zero greenhouse gas emissions (and would in fact enable further increases in emissions) and therefore is not consistent with the Commonwealth's obligations under the Paris Agreement nor the scientific consensus on the urgent need for emissions reductions to avoid catastrophic climate change impacts.</p>	See response to Item 35.	ERD – Section 9 and Appendix I
37	ANON-YGXY-DUG6-7 Northampton Environment Group ANON-YGXY-DUGX-9	<p>The project will lead to increases in greenhouse gas emissions at a time when the International Energy Agency (IEA) has asserted that "if governments are serious about the climate crisis, there can be no new investments in oil, gas and coal".</p> <p>This proposal constitutes a significant expansion of onshore gas fields in WA, alongside the Waitsia Gas Plant. The entire project is proposed to run for 60 years. Why should approval be given for a 60-year lifetime expansion for a large greenhouse gas emitting development, when our nation's strategy is now focused on a minimum 43% reduction in emissions within the next eight years.</p>	See response to Item 35.	ERD – Section 9 and Appendix I
38	ANON-YGXY-DUGZ-B	<p>This proposal does not address the likely and substantial escape of methane gas as an emitting pollution, nor the consideration of the cumulative impacts of total methane emissions from the Greater Erregulla proposed gas development. Methane is a potent greenhouse gas, 86 times more powerful than CO₂ when its atmospheric warming impacts are considered over a 20-year period. Fugitive methane emissions from methane leakage and venting in gas fields such as this one could release potent greenhouse</p>	<p>All fugitive GHG emissions related to the West Erregulla Project have been included in the GHGMP associated with the ERD. This includes emissions related to construction, distribution and leaks and emissions estimates have been derived in accordance with determinations outlined in the federally designated GHG accounting methodologies. Upstream emissions and Scope 3 emissions information is also provided with the GHGMP and the commitment</p>	ERD Section 9 and Appendix I

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		<p>emissions totals if factored in with carbon emissions over the short and long-term life of this project.</p> <p>A 2016 report by the Melbourne Energy Institute (MEI) reviewing the latest research on methane emissions from unconventional gas fields in the US found that:</p> <ol style="list-style-type: none"> 1. New measurements have recorded methane emissions of up to 17% of production, with an average of 10% across 5 gas basins - far above the 3% needed to make gas climate neutral against coal. 2. New top-down methods of measuring methane emissions (i.e. from satellites, aircraft) have revealed far greater emissions than have been recorded using 'bottom up' ground-based sampling methods. <p>Ref: Lafleur, D., Forcey, T., Saddler, H., and Sandiford. M. (2016) A Review of Current and Future Methane Emissions from Australian Unconventional Oil and Gas Production. Melbourne Energy Institute.</p> <p>The following recommendations were made for controlling and measuring methane emissions. This was in light of the serious risks of large-scale fugitive emissions identified by the MEI 2016 report:</p> <ul style="list-style-type: none"> • Reported methane-emission measurements should be independently verified by a regulatory body funded by a levy on the industry. • Methane emissions volumes should be explicitly limited by regulation. • Independently collected and analysed methane-emissions baseline data should be established. • Piloted and unpiloted aircraft and air quality monitoring towers should be used for top-down emission investigations. 	<p>of the AGIO to offset all emissions from the AGRU (approximately 60% of total emissions) reduce the emissions well below the EPA level of significance.</p> <p>As outlined in the GHGMP, AGIO will implement a fugitive emissions leaks program as just one of its controls to reduce emission impacts. AGIO processes and procedures will be developed and implemented to ensure emissions from plant operations and design will be minimised and actioned through consistent and constant monitoring, leak detection capability and frequent site inspections.</p> <p>The design of the plant also includes a flare rather than a vent to ensure emissions through the flare system are burnt (oxidised via combustion) which reduces methane to carbon dioxide reduces overall GHG emissions compared to venting.</p> <p>These processes will include (but not limited to) the following:</p> <ul style="list-style-type: none"> • Personnel profile (roster and onsite/offsite operations and response timeframes) • Leak monitoring • Leak detection devices • Response procedure • Critical spares inventory • Gas chromatographs (gas quality / specifications) • Flare monitoring (gas flow) • Pressure Safety / Pressure Relief Valves (PSV or PRV) release monitoring 	

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		<ul style="list-style-type: none"> Real time, top-down methane emissions monitoring should be made publicly available on a website. <p>The proposal without question, underestimates the impacts of total greenhouse gases emitted, inclusive of methane and does not properly address estimated methane emissions. In essence, the 20+ year total footprint of the whole Greater Erregulla Gas field should be considered.</p> <p>This is also at a time when the International Energy Agency advises no new gas fields should be approved.</p>	<ul style="list-style-type: none"> Custody transfer monitoring (upstream, midstream, downstream) <p>The Proposal is designed and will be constructed and operated in line with Australian and International Standards (e.g. AS2885, ASME B31.3).</p> <p>AGIO will continue to build on the long-term success of AGIO in the management of the DBNGP and other transmission, distribution and gas storage projects all of which have a high-quality environmental record and focus on the safe and effective handling and storage of gas.</p> <p>A component of this management action will be targeting ongoing improvements (reductions) in the amount of PSV/PRV releases to minimise emissions for these sources.</p>	
Social Surroundings				
39	Yamatji Southern Regional Corporation Ltd (YSRC)	<p>YSRC supports the proposed management and mitigation measures for the project and will work with the proponent to ensure that Aboriginal Heritage Monitors are available at appropriate times. In addition, YSRC requests that Aboriginal Heritage Monitors are present when any ground disturbing maintenance occurs within the construction environment and for any rehabilitation activities within the disturbance footprint.</p> <p>The YSRC is agreeable to working with the proponent to cooperatively address heritage matters in relation to the project and recommends that:</p> <ul style="list-style-type: none"> Prior to commencement of any open trench or other ground disturbance that operational practices are agreed to ensure that detailed cultural salvage can occur to ensure no cultural items and/or archaeological knowledge is lost. 	Noted. AGIO will continue to work with YSRC to address Aboriginal heritage matters and to implement the recommendations provided.	ERD – Section 10

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		<ul style="list-style-type: none"> • Prior to the commencement of ground disturbing works that a protocol is agreed for the appropriate management of salvaged materials. • Prior to the commencement of ground disturbing works that the proponent ensures that its personnel and project contractors are aware of their obligations under the Aboriginal Cultural Heritage Act 2021 and the Cultural Heritage Management Plan. • Prior to the commencement of ground disturbing works that the proponent agrees with the relevant YSRC representatives remediation and rehabilitation protocols where appropriate to minimise any ongoing impacts to places of heritage value. • During all initial ground disturbing works heritage monitors are engaged to manage the risks the works pose to subsurface and unrecorded heritage. • A clear protocol for the management of unplanned encounters with human remains, or suspected human remains, is established prior to the beginning of major works. 		
40	LTGA	The project will impact adjoining landholders and farmland, through air pollution, light and noise impacts, and increased risk of bushfires and weeds, without any rights for the community to say no or to veto the project, for a 60-year development. There is also a potential impact on mental health from these impacts.	The potential impact to Social Surrounding – Amenity and Air Quality are described within the ERD. The nearest populated centres include Mingenew and Dongara, located approximately 25 km north-east (approximately 35 km by road) and approximately 30 km north-west (approximately 70 km by road) from the Development Envelope respectively. The distance to the proposal means that these populated centres would not be impacted by noise and air pollution, vibration, dust and light pollution.	ERD – Section 10 and Appendix J.

Item	Submitter	Comment / Query	Response	Document Reference
			<p>The closest sensitive receptor is a residential property located to the south-east of the Proposal. This is over 5km from the plant location. The distance of the residential property from the Proposal, means that it will not be impacted by noise and air pollution, vibration or dust. The height of the flare has been minimised as much as possible to mitigate light pollution.</p> <p>The EPA environmental impact assessment process allows for the local community to put forward their concerns. Valid concerns are seriously considered by the EPA and make a difference to the assessment.</p>	
41	ANON-YGXY-DUGY-A ANON-YGXY-DUGZ-B	<p>Neighbouring farms and communities will be impacted by this proposal including noise and air pollution, vibration, dust and light pollution. The proposed development does not allow for veto rights for the local community, nor does it address their concerns.</p> <p>There will be a large increase in trucks, heavy haulage and other vehicles in addition to the actual construction and operation of the gas plant, pipeline and the field development program. Once again, the cumulative impacts from existing and future developments must be considered.</p>	See response to Item 40	ERD – Section 10 and Appendix J.
42	ANON-YGXY-DUGZ-B	There will be an increased fire risk, plus significant volumes of industrial wastes and hazardous wastes that will be produced alongside the construction and operation of this project.	The design of the plant and the controls outlined in the CEMP and ongoing through the plant include bunding, containment, dual lining of the evaporation pond and controls to reduce potential impacts from loss of containment from hydrocarbons or other hazardous substances or dangerous goods stored or handled onsite. The CEMP also outlines measures to minimise the	West Erregulla Construction Environmental Management Plan (Rev 1)

Item	Submitter	Comment / Query	Response	Document Reference
			risk of fire. Will be regulated under Part V and the dangerous goods framework.	
Offsets				
43	DBCA	<p>It is noted that a series of proposed actions to reduce residual impacts, through the application of the mitigation hierarchy including offsets, has been prepared by the proponent (section 11, pages 134-151 in the Environmental Review Document). For example, the proponent has proposed to offset the impacts on the threatened <i>P. dixonii</i> and <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo), by "...a combination of rehabilitation within the disturbance footprint and acquiring an area of land that supports habitat for <i>P. dixonii</i> and Carnaby's cockatoo and transferring the land to the conservation estate. Funding will be provided to enable the ongoing management of the land" (page 138).</p> <p>While some initial consultation with DBCA has commenced in relation to possible offsets, including the acquisition and management of land for conservation purposes, if there is further consideration or development of offsets for the proposal, the proponent should consult with DBCA as this relates to matters pursuant to the department's BC Act and Conservation and Land Management Act 1984 responsibilities.</p> <p>Please ensure that DBCA is provided with the opportunity to comment on possible conservation offset measures aimed at mitigating the residual impacts of the project on threatened flora and fauna species.</p>	<p>Noted. AGIG will continue to consult with DBCA in relation to the development of offsets for <i>Paracaleana dixonii</i> and <i>Calyptorhynchus latirostris</i>.</p>	ERD – Section 11
	CCWA	<p>The offsets for the proposal do not provide adequate protection for displaced species.</p> <p>Offsets for the loss of Carnaby's black cockatoo foraging habitats are proposed, including provisions for established vegetation and rehabilitation of site vegetation (albeit acknowledged by the proponent as inadequate in the short term). The offsets are yet to be secured. The Carnaby Black</p>	<p>AGIG have followed the EPA and Commonwealth policy with regard to offsets.</p> <p>The Proposal impacts on low quality, foraging habitat for the Carnaby's Cockatoo. The loss of this habitat is to be mitigated through rehabilitation and the provision of land-based offsets. Whilst, rehabilitation will not provide</p>	ERD - Section 11 West Erregulla Construction Environmental Management Plan (Rev 1)

Item	Submitter	Comment / Query	Response	Document Reference
		<p>Cockatoo offset provisions require review. These do not provide the required additional habitat for habitat lost to clearing.</p> <p>The environmental offsets proposed include the purchase and transfer of land to the conservation estate. That is, land presumably already being used as a resource for the same fauna under consideration.</p> <p>Therefore, there remains a net loss of habitat, even under the offsets proposed.</p> <p>Any provision for extra habitat through additional revegetation/land purchase schemes will, similarly, not address the requirement for mature, suitable habitat, now. In effect, environmental offset provisions for at-risk fauna requiring extra mature habitat immediately, are dysfunctional at policy level. It is not possible to manage the risks to endangered species, which rely on mature vegetation, under the proposed offsets mechanisms.</p> <p>The proposed Conservation Covenant cannot provide immunity from future mining proposals and can be removed from listing. CCWA question whether a Conservation Covenant can provide environmental values that can be guaranteed over a long period of time when the surrounding land is in such high demand by industry.</p> <p>Furthermore, the offset lands are in proximity to the gas fields development area and could be impacted by this proposal and others.</p> <p>Lighting, noise, flaring, emissions, and unplanned pollution events could still impact offset lands.</p>	<p>immediate foraging habitat, suitable foraging material is likely to be present within a five-year time frame.</p> <p>AGIG are committed to protecting the land-based offset in perpetuity and prohibiting future mining proposals.</p> <p>The offset is located approximately 3.5 km to the north of the Development Envelope. The area in between is heavily vegetated. It is therefore unlikely that lighting, noise and flaring will impact on the proposed offset location.</p> <p>The project has been designed to appropriately contain and manage stormwater, formation water and hazardous substances to ensure hazardous materials and potentially contaminated water is not released to the environment. The CEMP contains measures to minimise the risk of and mitigate any unplanned pollution events. As such it is unlikely that they would impact on the offset site located 3.5 km to the north.</p>	
45	ANON-YGXY-DUGB-K	<p>I do not agree with the concept of offsets being purchased by companies to mitigate land clearing. It is a farce, in my opinion, as the offset is usually already in existence, so in no way can replace what is cleared.</p>	<p>AGIG have followed the EPA and Commonwealth policy with regard to offsets, with the offsets to be managed in perpetuity. Management actions will be undertaken including weed management and pest control</p>	ERD – Section 11

Item	Submitter	Comment / Query	Response	Document Reference
			to improve biodiversity values within the offset site, to achieve a gain in biodiversity. The Proposal has followed the 3-step mitigation hierarchy to seek to where possible avoid impacting on the environment, and where this is not possible to minimise and mitigate impacts to environmental values and only as a last resort offset residual impacts.	
Matters of National Environmental Significance				
46	LTGA	<p>The relevant Matters of National Environmental Significance (MNES) which apply to this Proposal are 'nationally threatened species and ecological communities.' Specifically, two threatened species listed under the EPBC Act that have been recorded in and around the development envelope:</p> <ul style="list-style-type: none"> • Sandplain Duck Orchid (<i>Paracaleana dixonii</i>) • Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) 	Noted – relevant MNES are identified within Section 12 of the ERD.	ERD – Section 12

3. Subsequent EPA Information Requests

Table 3-1 Response to comments from EPA Services (received 29 August 2022)

EPA comments to AGIO RTS	AGIO Feedback	Reference
<p><u>Significant Residual Impacts</u></p> <p>According to the ERD (Table 6-12) the local populations of two species, <i>Lasiopetalum ogilvieanum</i> (P1) and <i>Banksia scabrella</i> (P4) will be reduced by more than 14%. It is likely that the EPA will require impacts to these species be counterbalanced by offsets. A separate calculator would be required to quantify offset requirements for these values. For <i>L. ogilvieanum</i> there are already proposed actions and targets in the West Erregulla Rehabilitation Management Plan (V3, December 2021) that could be compared to calculator results and adjusted accordingly.</p>	<p>Calculators for all 4 proposed offset species are attached and revised as Appendix L of the ERD.</p> <p>The revised Rehabilitation and Offset Management Plan (ROMP, formerly referred to as the Rehabilitation Management Plan) includes management actions for all offset species.</p>	<p>Appendix L: WA Environmental Offset Calculators</p> <p>Appendix E: ROMP (v8)</p>
<p><u>Land acquisition</u></p> <ul style="list-style-type: none"> • Very limited information on the proposed land acquisition site and the biodiversity values present at the offset site has been provided. A vegetation survey or Carnaby's cockatoo habitat assessment of the proposed land acquisition site has not been provided. The ERD (Rev 2, April 2022, p 138-139) indicates that vegetation surveys of the proposed land acquisition property confirm the presence of <i>Paracaleana dixonii</i> and foraging plants for Carnaby's cockatoo, however, no reference is provided. The EPA will require evidence to be satisfied that the offset is relevant and proportional (Principle 3) to the impact. • On-ground management coupled with land acquisition for offset packages is preferable to ensure that there is a tangible improvement and additionality to environmental values in an offset area. Please provide a discussion about what reasonable on-ground actions are proposed to ensure that values in offset areas can be protected and/or improved through the acquisition (e.g. actions such as fencing, feral control, weeding, etc). This information along with other information on the biodiversity values of the proposed land acquisition site can be presented in a draft offset strategy. 	<ul style="list-style-type: none"> • Three surveys have been completed on the offset site including Woodman, 2013; Mattiske 2021 (Appendix C of the ROMP) and as part of the wider Natta 3d Seismic area completed by Strategen JBS&G (2021). These surveys outline the suitable vegetation communities corresponding to those required of the species being impacted by the proposal. • Carnaby's Cockatoo habitat, as outlined in Woodman 2013 and Strategen JBS&G 2021, is indicated as Vegetation Type 3 and Vegetation Type 4 (Banksia and Hakea foraging species present) (Attachment D of the ROMP). The extent of these two habitats is well represented across the land acquisition site and AGIO confirms that all species area requirements as outlined in the offset calculators will be met as outlined below. • Lot 10106 is proposed as the land acquisition site and includes 564 ha of native vegetation in close proximity to the proposal. AGIO will have access to 153 ha of suitable habitat and vegetation communities including a minimum of 65 ha of suitable Carnaby's Cockatoo habitat. • The ROMP outlines the on-ground management actions to be completed on the offset location to help provide additional benefit 	<p>Appendix E: ROMP (v8)</p>

EPA comments to AGIO RTS	AGIO Feedback	Reference
<ul style="list-style-type: none"> The proponent has indicated the intention to transfer the land acquisition site to conservation estate. A land manager will need to be identified (likely the Department of Biodiversity Conservation and Attractions); it is insufficient to identify the 'Crown' as the land manager. Evidence of support from the land manager will be needed to provide the EPA confidence in the offset being long term and enduring (Principle 6). If intending to transfer the land to conservation estate, then it is recommended that contact with Department of Mines Industry Regulation and Safety (DMIRS) and that evidence of their support is provided. DMIRS will have a view on the use of a reservation for conservation over potential future mineral resource extraction. Evidence of support from DMIRS would provide the EPA confidence in the offset being long term and enduring (Principle 6). 	<p>and aims to improve the habitat score of the area as part of the conservation of the offset.</p> <ul style="list-style-type: none"> The Land Manager of the offset location will be Strike Energy, management actions and monitoring will be a partnership with AGIO. This is a commercial agreement as part of managing the wider 564 ha of the Lot 10106 land acquisition site. With Strike utilising 273.14 ha as part of a separate offset proposal. Strike proposes to utilise the western portion of the block with AGIO's 153 ha being on the eastern side of Lot 10106. 	
<p><u>Rehabilitation</u></p> <ul style="list-style-type: none"> The proponent is claiming a rehabilitation credit as part of their offsets strategy. The West Erregulla Rehabilitation Management Plan (V3, December 2021) includes management targets in relation to Carnaby's cockatoo foraging habitat. However, there are currently no management targets in relation to <i>Paracaleana dixonii</i>. To claim rehabilitation credit, the values impacted must be considered in the rehabilitation plan. As part of mitigation for the project the rehabilitation plan should include greater consideration of all impacted priority flora species, similar to the management targets proposed for <i>Lasiopetalum ogilvieanum</i> (P1). 	<ul style="list-style-type: none"> The ROMP has been updated accordingly. 	Appendix E: ROMP (v8)
<p><u>Calculator values</u></p> <ul style="list-style-type: none"> A quality score of four was assigned to habitat of <i>Paracaleana dixonii</i> being cleared. The rationale provided in the ERD (Table 11-4) attributes this score to the impacts of a bushfire. The proponent should consider the advice contained in Table 1 of the Draft Procedure for environmental offsets metric inputs (DWER May 2022), currently out for public consultation. Vegetation that has 	<ul style="list-style-type: none"> This guideline was developed post submission of documents as well as being a draft. However, this has been considered as part of the update to calculators for the revised offset approach for the project as noted above. Monitoring for <i>P.dixonii</i> has been extended to include year 7 and year 10. The score (of 5 years) in the calculator was reviewed with the following outcome – whilst rehabilitation will not provide 	Table 11-7 Appendix E: ROMP (v8)

EPA comments to AGIO RTS	AGIO Feedback	Reference
<p>been impacted by fire may still have a high-quality score if other attributes are present.</p> <ul style="list-style-type: none"> • The time to ecological benefit of five years for rehabilitating Carnaby's cockatoo and <i>Paracaleana dixonii</i> habitat may be too short (see table 11-4 of the ERD). It is likely to take longer for plants to mature and produce sufficient seeds/nectar to counterbalance the loss of habitat/foraging habitat. • The proponent has estimated one year for purchase and transfer offset land to conservation estate. Whilst this may be possible for the purchase of the land, assuming current landowners are supportive, the transfer of the land to conservation estate will likely take longer. Discussions and negotiations with relevant agencies should begin early in the process and be adequately documented. 	<p>immediate foraging habitat, suitable foraging material is likely to be present within a five-year time frame within rehabilitated areas.</p> <ul style="list-style-type: none"> • Noted, also the ROMP now outlines that the offset will be a conservation covenant land acquisition process. This progress has already been agreed in principle with the land holder and is underway. 	
<p>It is noted that the proponent has committed to undertaking pre-clearance surveys to identify any additional occurrences of the threatened flora, <i>Paracaleana dixonii</i> (Sandplain duck orchid; ranked vulnerable) within the disturbance footprint. It is considered important that pre-clearance surveys meet the requirements of DWER's flora survey guidelines and are undertaken in the appropriate season to enable the identification of <i>P. dixonii</i>.</p> <p>It is also recognised that the proponent has committed to implementing exclusion zones as a means of minimising direct impacts on conservation significant flora species, where possible. Given pre-clearance surveys may identify occurrences of <i>P. dixonii</i> within the disturbance footprint, it is recommended that any individuals are subject to proposed exclusion zones as a means of avoiding impacts on threatened flora.</p>	<p>A pre-clearance walkover took place in December 2022 (ELA 2023) to coincide with the flowering of <i>P. dixonii</i>. This survey identified a single individual of <i>Paracaleana dixonii</i> in the direct vicinity of the previously recorded (Mattiske 2021) plant. An exclusion zone (10m x 10m) shall be established around this area to prevent any disturbance.</p>	<p>Table 6-12 Appendix N: Targeted <i>P. Dixonii</i> survey (ELA 2023)</p>
<p>The ERD does not adequately describe the impacts to all significant flora relative to their regional context. Section 3.1 of the Response to Submissions (RTS) document provides updated information suitable for assessing local impact. Regional impact is not addressed outside of "records" (Table 3-1, RTS document) and does not provide suitable analysis for assessment of regional impacts.</p>	<p>The wider Development Envelope contains ten conservation significant flora species. Implementation of the Proposal will result in clearing of individuals from all ten Priority flora species in the Development Envelope. The loss of individuals and populations in the Disturbance Footprint is shown in Table 6-12.</p> <p>An analysis of this loss in the local context has included numbers of Priority Species recorded within the broader local area inclusive of the Development Envelope, the area described in Woodman Environmental</p>	<p>Table 6-12 Appendix E: ROMP (v8)</p>

EPA comments to AGIO RTS	AGIO Feedback	Reference
	<p>Consulting (2013) as well as publicly available reports or reports obtained by the Proponent for projects detailed in Table 6-13. The 2022 survey work did not identify any previously unrecorded species.</p> <p>The number of <i>Lasiopetalum ogilvieanum</i> (P1) individuals in the Development Envelope will be reduced by greater than 50%, however the number of populations will only be reduced by 33.3%. The species is also known from 21 records across a range of 85 km, north and south of Dongara. Given the loss of <i>Lasiopetalum ogilvieanum</i> (P1) is greater than 50% within the Development Envelope, specific rehabilitation criteria have been set for this species to ensure it continues to persist in the local area. This genus is known to be able to be propagated from seed (Wildflower Society of Western Australia, 2007). The species is also known from the broader local area with 245 individuals from 16 populations mapped within the Woodman (2013) survey. Therefore, the proposal will result in a reduction of 23.67% of known individuals of this species within the broader local area.</p> <p>The number of <i>Micromyrtus rogeri</i> (P1) individuals in the Development Envelope will be reduced by 13.7%. <i>Micromyrtus rogeri</i> (P1) is known to occur over a range of approximately 175 km in Western Australia from Arrowsmith East in the north to 21 km south of Moora in the south (DBCA 2007-2020). The species is known from 17 records that represent approximately 10 populations, none of which occur within DBCA managed tenure (Woodman, 2020). Given the retention of 810 individuals within the Development Envelope, and a further 21,064 mapped within the local area (Woodman, 2013) that are not proposed to be impacted, the removal of 129 individuals is not considered significant.</p> <p><i>Hemiandra</i> sp. <i>Enneaba</i> (P3) was recorded within the Disturbance Footprint (6 individuals) by Mattiske (2021). However, the species is known to occur over a range of approximately 67 km in Western Australia (where it is endemic), from 24 km south-east of Dongara in the north to 26 km east of Leeman in the south (DBCA 2007-2020). This taxon is known from 22 locations records that represent</p>	

EPA comments to AGIO RTS	AGIO Feedback	Reference
	<p>approximately 114 populations, two of which occur within DBCA-managed tenure (Yardanogo Nature Reserve and South Eneabba Nature Reserve) (DBCA 2007-2020). A total of 163 individuals are recorded within the broader local area (Woodman, 2013; Strategen, 2012). Given the distribution of this species, particularly its presence in DBCA managed reserves and the number of individuals identified within the broader local area, the species is considered likely to persist within the regional area following the implementation of the Proposal.</p> <p><i>Banksia fraseri</i> var. <i>crebra</i> (P3) was also recorded within the Disturbance Footprint by Mattiske (2021). Both the Woodman (2012) survey and the ELA (2021) survey identified the presence of <i>Banksia fraseri</i> var <i>fraseri</i> within the broader area and the Development Envelope, but not <i>Banksia fraseri</i> var. <i>crebra</i>. As <i>Banksia fraseri</i> var <i>fraseri</i> is not of conservation significance individuals were not mapped or counted, and collections in the case of ELA (2021) were not confirmed with the herbarium. It was noted within Woodman (2012) that collection of <i>Banksia fraseri</i> var. ? <i>fraseri</i> was undertaken, but that insufficient material was collected to enable the herbarium to identify the collection. One <i>Banksia fraseri</i> var. ? <i>crebra</i> was recorded from the broader local area in 2008 by Woodman (2009), but again the collection could not be confirmed due to insufficient material. The difference between the two species being that <i>Banksia fraseri</i> var.<i>fraseri</i> is 50-150 cm tall and the lobes of the leaves are openly spaced. Whereas <i>Banksia fraseri</i> var. <i>crebra</i> is less than 50 cm tall and the lobes are closely crowded (George, A. 2005).</p> <p>Appendix H of the West Erregulla Field Development Program identifies 500 individuals of <i>Banksia fraseri</i> var. <i>crebra</i> recorded from 24 populations within the regional area. These individuals were identified within the Flora and Vegetation Survey of Natta 3D Seismic Survey Area (Strategen JBS&G, 2021). This survey area includes the western extent of the disturbance footprint for this Proposal. The Seismic Survey Area covered an area of approximately 15,854 ha. In consideration of these results the Proposal will impact on 8.6% of the <i>Banksia fraseri</i> var. <i>crebra</i> individuals mapped within the broader local area. It is identified within Strategen JBS&G (2021) that <i>Banksia fraseri</i> var. <i>crebra</i> is widespread across the survey area.</p>	

EPA comments to AGIO RTS	AGIO Feedback	Reference
	<p>The geographic distribution of both species overlaps and so it is likely that both species are located within the Development Envelope and the broader area (West Australian Herbarium, 1998-). <i>Banksia fraseri</i> var. <i>crebra</i> is known from 15 collections across a range of 183 km from 21 km east of Dongara, through to 21 km southwest of Cataby (DBCA 2007-2020). Given the broad distribution of this species outside of the Development Envelope it is likely to continue to persist in the broader local area following the implementation of the proposal.</p> <p>Ten <i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> (P4) individuals were recorded in the Development Envelope and all are within the indicative Disturbance Footprint. However, this species is known from 73 DBCA records across a wider range of 230 km south of Geraldton to south of Dongara (DBCA 2007-2020). Therefore, this loss of ten P4 individuals is not considered significant. In addition, a total of 1,367 <i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> (P4) were mapped across the broader local area (Woodman 2013) with a broader impact of 0.7% on individuals.</p> <p>The number of <i>Banksia scabrella</i> (P4) populations in the Development Envelope will be reduced by 50%. With a reduction of known individuals in the broader local area of 14.63%, this is considered a significant impact and will be offset accordingly. <i>Banksia scabrella</i> is mapped as occurring within the proposed offset site and is further addressed in the ROMP (Appendix E).</p> <p><i>Mesomelaena stygia</i> subsp. <i>Deflexa</i> (P3) was identified as having an abundance of over 42,350 (Woodman 2013, DBCA and WAH 2020) individuals in the local broader area and 29 known populations over a 70km range of which only two populations would be impacted by the Proposal and an impact of 4.1% on individuals. Given the broad distribution and high number of individuals the species is highly likely to continue to persist in the broader local area following the implementation of the proposal.</p>	

EPA comments to AGIO RTS	AGIO Feedback	Reference
	<p><i>Guichenotia alba</i> (P3) has an identified 1.35% impact on individuals (9) and is known from 38 records across a 170 km range ranging south from Dongara. Given the broad distribution of this species outside of the Development Envelope it is likely to continue to persist in the broader local area following the implementation of the proposal.</p> <p><i>Stylidium drummondianum</i> (P3) has an impact of 0.1% on individuals with only 12 individuals being impacted from a known abundance in the local broader area of 18,673. This is from a range of 175 km and 538 known populations (Woodman 2013, DBCA 2007-2020, DBCA and WAH 2020). It is noted that these impacts are based on known records yet understanding that these impacts are conservative, and the full broader local area has not been fully surveyed and may include additional vegetation communities and species that have yet to be recognised.</p> <p><i>Stawellia dimorphantha</i> is known from 67 DBCA records across a range of 90 km north and south of Dongara (DBCA and WAH 2020), including within the Beekeepers Nature Reserve and the Yardanogo Nature Reserve. Given the regionally broad range of occurrence of this species, and its occurrence within two nature reserves, it is not considered that the Proposal would significantly contribute to the cumulative impact to this species. Listing Advice to DCCEEW from the Threatened Species Scientific Committee (dated 26 August 2010) indicated a large number of individuals with DEC 2009 outlining that surveys in 2004 and 2006 increased the number of known populations and individuals with 15 known to occur in reserves. This DEC report also indicated individual numbers exceeding 51,000 and therefore unlikely the number of individuals is limited. At these numbers the impacts is 0.2% direct impact on the species.</p> <p>The majority of all other Priority species in the Development Envelope will be retained and are well represented in the broader local area and therefore, no significant impacts are expected (Table 6-12).</p>	

EPA comments to AGIO RTS	AGIO Feedback	Reference
<p>Pre-clearance surveys are scheduled in optimal timing for <i>P. dixonii</i> (Nov-Dec). The proposed timing, as stated in previous DWER comments, may not be suitable for all other targeted species. Where a conservation significant species is not readily identifiable outside its flowering period, or is only conspicuous on an annual basis, additional pre-clearance surveys (i.e. surveys undertaken prior to proposed clearing) should occur at an appropriate timing.</p>	<p>A pre-clearance survey has been undertaken during the appropriate seasonality for 2022 (ELA 2023; Appendix N)</p> <p>AGIO notes that these surveys are part of the commitments made in the ERD and should not form part of the assessment of the project as multiple surveys have already been completed on the project site and broader local regional area.</p>	<p>Appendix N: Targeted <i>P. Dixonii</i> survey (ELA 2023)</p>

Table 3-2 Response to draft comments from EPA Services (received 24 February 2023)

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
Significant Flora			
1	Clarify wording when describing the difference between local and regional context, particularly when discussing impacts in section 6.5 of the ERD. Provide references for sources of local and regional information. For example, Table 6-7 includes other previous records of species in the regional area but there is no information regarding the source of these records.	Local is defined as the development envelope and broader local area is outlined as the vicinity area (generally within 20km) of the project which provides similar vegetation, activities (including those proposed) and land use as to understand the wider cumulative impacts on the environment. Sources of information are from publicly available data for the projects, DBCA/DWER/DCCEE published information, Woodman 2013, DBCA and WAH 2020 and ELA 2021. This has been updated for Table 6-7.	Table 6-7 includes the addition of a footnote that outlines the publicly available nature of the source information.
2	Amend ERD Table 6-7 to include details on total number of populations and individuals of significant flora recorded in the local extent and describe these recorded locations, as well as including the numbers recorded within the development envelope and disturbance footprint.	Table 6-12 included all of this information, however as requested this has been reformatted to better demonstrate development envelope and those in the broader local region. Table 6-7 has been updated to outline the broader local populations and individuals and those within the development envelope. Table 6-12 includes similar information but also the disturbance footprint and cumulative loss % calculations for the development envelope (local) and the broader local area. Table 14-1 also outlines cumulative impacts to species from a wider scale of impacts from other proposals.	Table 6-12 Table 6-7 Table 14-1
3	Provide a clear summary table with information on the direct and indirect impacts to all significant flora in relation to the local and regional context for the disturbance footprint and development envelope. Include information on whether the flora is listed or not, the total number of populations recorded, total number of individuals recorded, impacts (as a percentage) compared to local extent of populations and individuals.	Tables 6-7 and 6-12 have been revised to include the Broader local area extent of the impact as well as Development Envelope and Disturbance Footprint impacts. The tables split the information provided to better demonstrate population and individual numbers.	Table 6-7 Table 6-12
4	Indirect impacts are discussed in section 6.5.2 of the ERD; however, there is no discussion of other significant flora that was identified outside the development envelope and the potential impact to them. Provide further information on the	Clearing of native vegetation for the construction of the Proposal has the potential to result in the fragmentation of vegetation and significant flora populations. Fragmentation occurs when the continuity of vegetation is disrupted and reduced into a smaller	Table 6-12 Table 6-15

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
	quantification of the risk of indirect impacts to significant flora, including to individuals or populations outside the development envelope at risk of indirect impact.	<p>number of patches. The spatial and temporal isolation of patches can lead to a decline in biodiversity due to a reduced ability for flora species recruitment, which can result in an altered community structure.</p> <p>Species identified within the Development Envelope have a negligible risk of being impacted through dust and vibration impacts during construction. The 100 m Development Envelope outlines the species that could be impacted from works in the Disturbance Footprint (30m wide pipeline) as well as those identified in the plant location. Operations (post construction) inside the plant area will be restricted to cleared areas and no long-term indirect impacts in this area are predicted.</p> <p>It is considered that the narrow and linear nature of the proposed pipeline is not sufficient to cause significant fragmentation of native vegetation or significant flora populations. The rehabilitation of the pipeline corridor, including re-instatement of groundcover species on top of the pipeline will mitigate the impact of fragmentation along the pipeline corridor. Rehabilitating the extent of the corridor, including areas with only ground cover species will minimise the risk of edge effects such as encroachment of weeds. In addition, native vegetation and significant flora populations contained within the Disturbance Footprint (including the proposed gas processing plant location) are well represented and will be retained within the wider Development Envelope.</p> <p>There is no survey data to support individual information outside of the direct development envelope; however broader local area information allows for quantification of this information as set out in Table 6-12 and Table 6-15.</p>	
5	<i>Stawellia dimorphantha</i> (P4) has a high proportion of impacts with a reduction of 12.66% of known individuals as a result of the proposal (ERD Table 6-12). Provide further information on how this has been quantified.	<p>Further information regarding this species is provided below and details of this species have been updated in Table 6-12.</p> <p><i>Stawellia dimorphantha</i> is known from 67 DBCA records across a range of 90 km north and south of Dongara (DBCA and WAH 2020), including within the Beekeepers Nature Reserve and the Yandanogo</p>	Table 6-12

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
		Nature Reserve. Given the regionally broad range of occurrence of this species, and its occurrence within two nature reserves, it is not considered that the Proposal would significantly contribute to the cumulative impact to this species. Listing Advice to DCCEEW from the Threatened Species Scientific Committee (dated 26 August 2010) indicated a large number of individuals, with DEC 2009 outlining that surveys in 2004 and 2006 increased the number of known populations and individuals with 15 known to occur in reserves. This DEC report also indicated individual numbers exceeding 51,000 and therefore unlikely the number of individuals is limited. At these numbers the impacts is 0.2% direct impact on the species.	
6	<p>AGIO previously stated that a <i>P. dixonii</i> survey was being undertaken in the appropriate seasonal timeframe (Nov/Dec) in 2022 to ensure any additional individuals are identified and able to be excluded from any disturbance. Additionally, a pre-clearance survey was to be undertaken in Spring 2022 for other priority species and habitat understanding. Please confirm whether these surveys were completed, and if so, provide the data or advise what will be done with this additional data. Provide any contingencies if additional significant flora species have been identified. Will these be accounted for as a direct or indirect loss?</p> <p>AGIO is reminded that all collected flora specimens are required to be vouchered with the WA Herbarium and Threatened Priority Flora Report Forms submitted, as per flora collecting licences. https://www.dpaw.wa.gov.au/images/documents/plants-animals/monitoring/forms/threatened-priority-flora-field-manual.pdf.</p>	<p>A targeted survey for <i>P. dixonii</i> was completed in December 2022 (Appendix N; ELA 2023) and identified a single individual of <i>Paracaleana dixonii</i> in the direct vicinity of the previously recorded (2021) plant. An exclusion zone (10m x 10m) shall be established around this area to prevent any disturbance. No other previously unrecorded significant flora species were identified.</p> <p>Contingencies for new species or new locations for conservation species as well as <i>P. dixonii</i> are added in Table 6-16.</p>	Table 6-16 Appendix N: Targeted <i>P. Dixonii</i> survey (ELA 2023)
Cumulative Impacts			
7	Ensure that cumulative impacts are aligned for the assessment of both AGIO and Strike Energy's proposals. There are at least 13 other known proposals in the region that should be considered in the cumulative impact assessment. Use the same	Table 6-13 has been updated. This data was already included but just combined the Strike data into one result. This has now been itemised.	Table 6-13 Table 6-14 Table 6-15

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
	list for cumulative assessment consistently throughout the proposal documentation.		Table 14-1
8	ERD Table 6-14 only includes two other proposals for the cumulative assessment of vegetation associations 48, 378 and 379. As per above, please include all other proposals in the table.	Additional proposals added in, however split of vegetation associations was not readily available and total impact on Lesueur sandplain subregion was utilised where necessary.	Table 6-14
9	ERD Table 6-15 should include all significant flora recorded by AGIO as part of the cumulative impact assessment with all other proposals included in the region. There are discrepancies between numbers provided by Strike Energy and AGIO; please ensure these are checked and updated accordingly.	Table 6-15 has been updated to include all other priority species recorded by AGIO. Discrepancies in numbers reviewed and revised.	Table 6-15
10	There are inconsistencies regarding the numbers between ERD Tables 6-15 and 14-1. Please review and amend accordingly.	Both tables updated and inconsistencies reconciled.	Table 6-15 Table 14-1
Offsets			
11	Additional detail is required in the ERD to give confidence that actions will be undertaken to avoid or minimise impact to significant flora and fauna identified during pre-clearance surveys.	Contingency planning for previously unrecorded species or new records for <i>P.dixonii</i> have been included in Table 6-16.	ERD Table 6-16
12	Address concerns previously identified regarding impacts to significant flora at a regional scale. Quantification of SRIs is still unclear due to inconsistencies regarding numbers of impacted significant flora. Provide a summary table (as discussed above) and ensure any changes are reflected in the RISM table when considering offsets.	Tables 6-7, 6-12 and 6-17 have been updated to include broader local area impacts and quantification of SRIs.	Table 6-7 Table 6-12 Table 6-17 (RISM Table)
13	Time over which loss is averted/duration of offset implementation should match the time over which management is proposed in the offset strategy. Detailed management actions have been discussed for 10 years; however, 20 years is used in the metric. Please revise and ensure consistency in using metric values in the calculators and the proposal documentation.	Table 11-7 has been updated to recognise weed and pest control actions, habitat / ecological health and soil monitoring from Year 10-20 as well as monitoring requirements to be further consulted with EPA to determine between Year 10-20	Table 11-7

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
14	<p>To claim rehabilitation credit the impacted environmental values must be specifically considered in the rehabilitation plan. Changes have been made to the Rehabilitation and Offset Management Plan in response to previous advice; however, the description of monitoring rehabilitation is very vague. There is no specific mention of monitoring impacted values (i.e. Priority species) or the requirement to collect seed from significant flora species prior to clearing. The ROMP does not include any detail on the monitoring activities that will be undertaken to determine the achievement of the management target of re-establishing a minimum number of populations of <i>Lasiopetalum ogilvieanum</i> (P1) and <i>Banksia scabrella</i> (P4) in the disturbance footprint within 48 months of rehabilitation commencing.</p> <p>If rehabilitation credit is to be sought, more detail on rehabilitation methodology is required to increase confidence that appropriate actions will be undertaken to ensure re-establishment and recruitment of conservation significant flora species (not just 'native vegetation'). For example, how is topsoil being stored? Is seed being collected from conservation significant flora prior to clearing? How is seed being stored?</p> <p>Rehabilitation zones and monitoring sites for significant flora habitat should be identified in Figure 3-1 of the ROMP. Update wording of section 3.5.3 to address the addition of significant flora habitat to the rehabilitation zones.</p>	<p>The description of monitoring in the ROMP (Section 3.5.1) has been updated to ensure the claim of rehabilitation credit is justified and demonstrated.</p> <p>Section 4.2.1 updated to outline why this offset site was chosen in line with EPA Guidelines.</p> <p>Priority species values are outlined in the ROMP Table 3-4 and monitoring is described in Figure 3-1 for site locations and Section 3.5.4. This was updated to include additional detail on the methodology including reference to EPA Technical Guidance (Flora and Vegetation Surveys).</p> <p>Updates include Post Year 10 monitoring for rehab locations to match offset work.</p> <p>Seed storage is addressed in 3.5.2 including dedicated facility and cool dry conditions. Seed collection is also addressed and been added in. Topsoil stockpiling and management added into 3.5.1 and Table 3-4.</p> <p>Figure 3-1 was not updated as additional layering of species made the maps hard to read and understand.</p> <p>All priority species are identified under Table 6-7 of the ERD and Table 3-3 of the ROMP to exist in two key vegetation associations which include <i>P. dixonii</i> habitat (namely EtAhHh or AcEbHh). This is well covered by the existing rehabilitation monitoring site locations and provides a representation for all priority species monitoring capability. Section 3.5.4 (was 3.5.3) was updated to reflect these vegetation association types.</p> <p>Minor admin update in Table 3-3 of the ROMP was corrected as well (typo on veg association name).</p>	<p>ROMP Section 3.5.1</p> <p>ROMP Section 4.2.1</p> <p>ROMP Table 3-4</p> <p>ROMP Figure 3-1</p> <p>ROMP 3-3</p>
15	<p>Further justification is needed that the offset site can counterbalance the significant impacts to Priority flora species. For example, the Mattiske Offset Site Survey 2021 reports potentially collecting <i>B. scabrella</i> but identification needed to be confirmed. Has this been confirmed? The same Mattiske survey did not record <i>L. ogilvieanum</i>, therefore it is unlikely that the</p>	<p><i>B. scabrella</i> is confirmed at the offset location (Mattiske 2021 and JBSG&G Strategen 2021).</p> <p><i>L. ogilvieanum</i> was not confirmed at the offset location however the vegetation association that supports the species are well represented in the offset site. This may mean additional monitoring of the site may identify the species. It does allow potential for</p>	<p>ERD Table 11-3</p> <p>Appendix L</p> <p>ROMP Section 4.2.1</p>

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
	proposed offset site is suitable for offsetting impacts to this value. Potential habitat is not suitable as an offset where the habitat is in excellent or pristine condition. An additional offset may be required for <i>L. ogilvieanum</i> (and for <i>B. scabrella</i> if identification of specimen taken from the offset site cannot be confirmed).	recruitment, seeding and propagation attempts of the species in this area as it provides a quality habitat vegetation site. There is 135 ha in the offset location of potential supporting habitat for the species. There is also avoidance of 42% of individuals in the Development Envelope which enables both capability for seed collection, recruitment and propagation to occur as per ROMP management actions. Additional information has been included in Appendix L (EPA offset calculators) to further justify the counterbalancing of impacts to <i>Banksia scabrella</i> and <i>Lasiopetalum ogilvieanum</i> .	
16	While exclusion zones for <i>P. dixonii</i> are mentioned in section 6.5.1.2 of the ERD, they are not discussed further in the mitigation measures in section 6.7 of the ERD and no detail is provided regarding the size of these proposed exclusion zones. As per previous advice, these should be considered given the linear nature of the pipeline and proximity of significant flora individuals to the disturbance footprint. Exclusion zones need to be clearly identified in the proposal documentation. If these are not implemented as part of the mitigation measures for the proposal, then the indirect impacts to significant flora must be included in the significant residual impacts and may increase the quantum of offsets required.	As included in the revised Table 6-12 footnote, the recorded <i>P. dixonii</i> plant will be protected from direct impact through establishment of an exclusion zone (proposed to be 10m x 10m) on advice from ELA that this will protect any potential individuals in that close vicinity.	Table 6-12
17	Please ensure any discrepancies between the ERD and ROMP are amended, particularly within section 11 of the ERD. For example, section 11.9 of the ERD states "The offset will be managed by the Crown. Any reporting for the impact area or against development conditions will be undertaken by the Proponent". Please confirm whether the offset site is proposed to be managed by the Crown or the proponent?	The ROMP has been amended to be consistent with the proposed offset package. The offset site will be managed by the Proponent in partnership with Strike Energy. Any reporting for the impact area or against development conditions will be undertaken by the Proponent.	ROMP
18	Provide spatial data for the proposed offset site.	Included with this response.	Spatial data
General			

Item	EPA Comment on previous Response from proponent	AGIO's Response	Reference
19	Document control - ensure the dates for each ERD revision are correct.	Assuming this is in relation to the ROMP and RtS. Dates have been checked within the document control table of each.	ROMP
20	Invitation to make a submission - please include the dates that the ERD was made available for public review in this section.	The ERD and additional information was made available for public review from the 16 th May 2022 through to 30 th May 2022.	N/A
21	Provide a standalone proposal content document with the amended ERD as per the EPA guidance Instructions on how to identify the content of a proposal (for a Proposal Content Document) EPA Western Australia .	Included with this response.	Proposal Content Document

4. Updated ERD Tables

The following tables have been updated since the ERD (version 2) was publicly reviewed:

- Table 6-7: Conservation significant flora recorded in the Development Envelope
- Table 6-12: Impacts to Threatened and Priority flora
- Table 6-13: Cumulative native vegetation clearing from foreseeable future projects in proximity to the Proposal
- Table 6-14: Proposed clearing of key Pre-European vegetation units within the Lesueur Sandplains subregion (GoWA 2018)
- Table 6-15: Cumulative impacts to conservation significant flora in the region.
- Table 6-16: Application of mitigation hierarchy for flora and vegetation
- Table 6-17: Assessment of residual impact significance against the Residual Significance Model (GoWA, 2014).
- Table 11-3: Review of how impacts to environmental values will be counterbalanced through rehabilitation and securing of an offset site
- Table 11-6: Assessment against the six principles for the use of environmental offsets
- Table 11-7: 10-year Performance Targets for the land acquisition site
- Table 14-1: Summary of cumulative impact assessment for relevant factors

Table 6-7: Conservation significant flora recorded in the Development Envelope

<i>Species (Conservation status)</i>	Broader Local Extent¹		Location Description	Habitat	Vegetation type	Development Envelope			
	Populations (ELA 2022)	Individuals (ELA 2022)				Populations recorded	% impact within Development Envelope compared to Regional Extent on populations	Individuals recorded	% impact within Development Envelope compared to Regional Extent on individuals
<i>Paracaleana dixonii</i> Vulnerable	40	471	20 records across a range of 180 km, from south of Dongara in the north to Moore River National Park in the south	Sand over laterite, heath to Banksia woodland (on eastern margin of Geraldton Sandplain and (northern) Swan Coastal Plain)	AcEbHh	1 (1)	0 ²	1	0 ²
<i>Micromyrtus rogeri</i> Priority 1	13	21,064	17 records across a range of 175 km, from Dongara to Dandaragan	Yellow-brown sandy soils, gravel, laterite, breakaways	AcAhGp EtAhHh	2 (939)	15.38	939	4.46
<i>Lasiopetalum ogilvieanum</i> Priority 1	16	245	21 records across a range of 85 km, north and south of Dongara	White/grey or yellow sand, stony loam on undulating plains, lateritic rises	AcDdMI AcEbHh EtAhHh	6 (100)	37.5	100	40.8
<i>Guichenotia alba</i> Priority 3	3	669	38 records across a range of 170 km from Dongara south	Sandy and gravelly soils on low-lying flats	AcDdMI AcEbHh EtBaHh	3	100	607	90.7

¹ Includes publicly available information from projects (as outlined in Section 6.13 of the ERD) as well as species information publicly available.

² As this species will be avoided/excluded from impact disturbance

<i>Species (Conservation status)</i>	Broader Local Extent¹		Location Description	Habitat	Vegetation type	Development Envelope			
	Populations (ELA 2022)	Individuals (ELA 2022)				Populations recorded	% impact within Development Envelope compared to Regional Extent on populations	Individuals recorded	% impact within Development Envelope compared to Regional Extent on individuals
<i>Mesomelaena stygia</i> subsp. <i>deflexa</i> Priority 3	27	42,350	29 records across a range of 70 km from Dongara south	White, grey, or lateritic sand, clay, gravel	AcEbHh EtAhHh	2	7.4	4,648	10.97
<i>Stylidium drummondianum</i> Priority 3	30	18,673	40 records across a range of 175 km from Geraldton to Dongara	Sand or clayey sand over laterite on upper hillslopes, breakaways in low heath, mallee shrubland	AcAhGp AcEbHh EtAhHh	2	6.66	54	0.29
<i>Hemiandra</i> sp. <i>Enneaba</i> Priority 3	114	163	22 records from 67 km in Western Australia, from Dongara through to Leeman.	Grey or yellow sand, clayey sand. Sandplains.	AcEbHh EtAhHh	1	0.9	6	3.68
<i>Banksia fraseri</i> var. <i>creba</i> Priority 3	24	500	16 records range of 183 km from Dongara, through to Cataby	Sandy loam or sandy clay over laterites, in kwongan.	AcEbHh AcAhGp AcDdMI EtAhHh	5	20.83	43	8.6
<i>Banksia scabrella</i> Priority 4	43	34,260	53 records across a range of 110 km from Geraldton to Dongara	White, grey, or yellow sand, sometimes with lateritic gravel, on sandplains and lateritic ridges	AcAhGp AcDdMI AcEbHh BpDdHh EtAhHh	2	4.76	10,776	31.45

<i>Species (Conservation status)</i>	Broader Local Extent¹		Location Description	Habitat	Vegetation type	Development Envelope			
	Populations (ELA 2022)	Individuals (ELA 2022)				Populations recorded	% impact within Development Envelope compared to Regional Extent on populations	Individuals recorded	% impact within Development Envelope compared to Regional Extent on individuals
<i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i> Priority 4	24	1,367	73 records across a range of 230 km south of Geraldton to south of Dongara	White or grey sand over laterite on hillslopes, ridges, and sandplains	AcEbHh	1	4.16	10	0.73
<i>Stawellia dimorphantha</i> Priority 4	259	51,000	67 records across a range of 90 km north and south of Dongara including over 15 populations in reserves	White, grey, and yellow sand	AcDdMI AcEbHh EtBaHh	1	0.386	298	0.58

Table 6-12: Impacts to Threatened and Priority flora

Species	Broader Local Area		No. of populations in the Development Envelope (213 ha)	No. of individuals in the Development Envelope (213 ha)	No. of populations in the Disturbance Footprint (90 ha)	No. of individuals in the Disturbance Footprint (90 ha)	Percentage (%) loss of populations known within Development Envelope ⁺	Percentage (%) loss of individuals known within Development Envelope ⁺	% reduction of known populations in broader local area as a result of proposal clearing [*]	% reduction of known individuals in broader local area as a result of proposal clearing [*]
	Populations	Individuals								
<i>Paracaleana dixonii</i> (T)	40	473	1	1	1	1 [#]	0	0	0	0
<i>Micromyrtus rogeri</i> (P1)	13	21,998	2	939	2	129	50 ^{\$}	13.7	0	0.59
<i>Lasiopetalum ogilvieanum</i> (P1)	16	245	6	100	2	58	33.3	58	3.77	23.67
<i>Banksia fraseri</i> var <i>crebra</i> (P3)	24	500	5	43	5	43	100	100	20.83	8.6
<i>Guichenotia alba</i> (P3)	3	669	3	607	2	9	66.6	1.5	0	1.35
<i>Hemiandra</i> sp. <i>Eneabba</i> (P3)	114	634	1	6	1	6	100	100	0.9	3.68
<i>Mesomelaena stygia</i> subsp. <i>Deflexa</i> (P3)	27	43,202	2	4,648	2	1,737	50 ^{\$}	37.4	0	4.1
<i>Stylidium drummondianum</i> (P3)	30	19,190	2	54	2	12	50 ^{\$}	22.2	0	0.1
<i>Banksia scabrella</i> (P4)	43	35,415	2	10,776	2	5,015	50 ^{\$}	46.5	0.05	14.63
<i>Eucalyptus macrocarpa</i> subsp. <i>Elachantha</i> (P4)	24	1,367	1	10	1	10	100	100	0.79	0.71

Species	Broader Local Area		No. of populations in the Development Envelope (213 ha)	No. of individuals in the Development Envelope (213 ha)	No. of populations in the Disturbance Footprint (90 ha)	No. of individuals in the Disturbance Footprint (90 ha)	Percentage (%) loss of populations known within Development Envelope ⁺	Percentage (%) loss of individuals known within Development Envelope ⁺	% reduction of known populations in broader local area as a result of proposal clearing [*]	% reduction of known individuals in broader local area as a result of proposal clearing [*]
	Populations	Individuals								
<i>Stawellia dimorphantha</i> (P4)	259	51,000	1	298	1	116	100	38.9	0	0.2

⁺ population is considered lost where greater than 50% of the population is located within the disturbance footprint.

[#] will be protected from direct impact through establishment of an exclusion zone (proposed to be 10m x 10m).

[^] Species found during survey by Mattiske (2021). Targeted surveys were focused within the Disturbance Footprint.

^{*} broader local area is inclusive of the Development Envelope, the area described in Woodman Environmental Consulting (2013) as well as publicly available reports or reports obtained by the Proponent for projects detailed above.

^{\$} where the full population is not lost (individuals remaining) but all populations are impacted this was assigned 50% loss of populations.

Table 6-13: Cumulative native vegetation clearing from foreseeable future projects in proximity to the Proposal

Project	Proposed extent of native vegetation disturbance (ha)
Proposal	90
Dongara Titanium Minerals Project	1,315
Northern Goldfields Interconnect Pipeline	1,934
AWE - Waitsia Gas Project Stage 2	17
Raven 2D Seismic Acquisition Survey	40
RCMA Cervantes-01 Conventional Well Drilling Proposal	5.3
Strike Energy – including: <ul style="list-style-type: none"> • West Erregulla 2 • West Erregulla 4 • West Erregulla 5 • Field Development • Seismic Survey • Natta 3D Seismic • Ocean Hill 3D seismic 	295.16
Iluka – Eneabba Mineral Sands	350
TOTAL	4,046.46

Table 6-14: Proposed clearing of key Pre-European vegetation units within the Lesueur Sandplains subregion (GoWA 2018)

Vegetation association	Pre-European extent (ha)	Remaining extent (ha)	Remaining extent (%)	Proposal impacts (ha) (% of current extent)	Total cumulative clearing extent (ha)	Cumulative impact -% impact if all proposals proceed (%)	Cumulative impact - remaining ha if all proposals proceed (ha)	Cumulative impact (%) of clearing on original remaining extent
49	33,139.33	13,618.88	41.10%	3.7 (0.03%)	36.27	0.27%	13,582.61	40.1%
378	90,922.87	60,668.26	66.72%	9.7 (0.02%)	1,320.8	2.2%	59,347.46	65.3%
379	370,029.76	111,632.48	30.17%	76.6 (0.07%)	296.95	0.3%	111,335.53	30.1%

Table 6-15: Cumulative impacts to conservation significant flora in the region (# of individuals)

Species	West Erregulla 2, 4 and 5	Strike Field Development Program	Ocean Hill and Natta Seismic	Dongara Titanium Minerals	Northern Goldfields Interconnect Pipeline	Waitsia Gas Project Stage 2	Raven 2D Seismic Acquisition Survey	Cervantes-01	Eneabba Mineral Sands	Total number impacted before proposal	Known extent in region*	Cumulative impact (%) on known extent* before Proposal	Proposal clearing extent	Total cumulative impact	Total cumulative impact (%) on known extent*	% impact resulting from Proposal
<i>Paracaleana dixonii</i> (T)	0	4	-	-	-	-	-	-	-	4	473	0.85	1	5	1.06	0.21
<i>Micromyrtus rogeri</i> (P1)	70	458	-	-	-	-	-	-	-	528	21,998	2.40	129	657	2.99	0.59
<i>Hemiandra sp. Eneabba</i> (P3)	-	14	20	249	-	-	-	-	-	283	634	44.64	6	289	45.58	0.95
<i>Mesomelaena stygia subsp. Deflexa</i> (P3)	289	2,402	3,463	-	-	-	-	-	-	6,154	43,202	14.24	1,737	7,891	18.27	4.02
<i>Stylidium drummondianum</i> (P3)	135	2,881	-	-	-	-	-	-	-	3,016	19,190	15.72	12	3,028	15.78	0.06
<i>Banksia scabrella</i> (P4)	29	3,429	4,237	27	-	-	-	-	-	7,722	35,415	21.80	5,015	12,737	35.96	14.16
<i>Stawellia dimorphantha</i> (P4)	-	-	-	477	-	-	-	-	-	477	51,000	0.94	116	593	1.16	0.23
<i>Lasiopetalum ogilvieanum</i> (P1)	-	-	-	-	-	-	-	-	-	-	245	0	58	58	23.67	23.67
<i>Banksia fraserii var crebra</i> (P3)	-	-	-	-	-	-	-	-	-	-	500	0	43	43	8.60	8.60
<i>Guichenotia alba</i> (P3)	-	-	-	-	-	-	-	-	-	-	669	0	9	9	1.35	1.35
<i>Eucalyptus macrocarpa subsp Elachantha</i> (P4)	-	-	-	-	-	-	-	-	-	-	1,367	0	10	10	0.73	0.73

* Known extent in the region is equivalent to the total extent in the broader local area as described in Woodman Environmental Consulting (2013) plus publicly available data for other projects as listed in Table 6-13.

Table 6-16: Application of mitigation hierarchy for flora and vegetation

Potential impact	Avoidance	Minimisation	Rehabilitation
Loss of flora and vegetation	<p>A pre-clearance site walkover with a qualified ecologist will be undertaken to avoid conservation significant flora or fauna where practicable completed at a suitable time period to enable identification.</p> <p>If a new threatened species is identified in the site walkover, these will be flagged for avoidance (establishment of an exclusion zone as per <i>Paracaleana dixonii</i>).</p>	<p>The footprint for the gas processing plant has been minimised as far as practicable to reduce the extent of clearing required.</p> <p>Vegetation clearing shall be kept to the minimum amount necessary to allow access or approved works and stockpiled separately.</p> <p>If a new priority species is identified in the site walkover, this will be assessed against potential cumulative impact and assessed for any direct loss. Mitigation shall include exclusion/avoidance (if feasible) and if not minimisation of clearing levels post assessment. Depending on level of assessed impact, offsetting may be reviewed as potential to mitigate impacts.</p>	<p>Approximately 24 m of the 30 m wide pipeline corridor will be rehabilitated.</p> <p>In total 41.5 ha of the Disturbance Footprint is proposed to be rehabilitated following completion of construction activities.</p>
Fragmentation of native vegetation	Existing tracks and other infrastructure (e.g. fence lines) will be utilised to the maximum extent practicable.	Vegetation clearing to be minimised with progressive reinstatement as soon as possible in the construction program to minimise time impacts. This includes re-spreading of cleared vegetation.	<p>The pipeline alignment will be rehabilitated. The entire width will be rehabilitated; however, a 6 m corridor will be managed so tree and woody shrub species do not establish on top of the pipeline.</p> <p>The re-establishment of groundcover species would mitigate the potential impacts of fragmentation, by enabling listed and priority flora species to establish. Reinstatement would also mitigate against edge effects, such as the spread and establishment of weeds in cleared areas.</p>
Introduction and/or spread of weeds	One weed species is currently present within the Development Envelope.	The Proponent commits to undertake weed control and hygiene management in accordance with the CEMP.	The pipeline alignment will be rehabilitated. Encouraging re-establishment of native vegetation will minimise weed encroachment of disturbed areas.

Potential impact	Avoidance	Minimisation	Rehabilitation
Smothering of vegetation by dust	Dust suppression measures will be utilised as required in accordance with the CEMP. Vehicle and equipment access will be restricted to designated roads/tracks and cleared areas.	Topsoil stockpiles will not exceed to 2 m in height and traffic speed limits reduced on unsealed roads and the right of way. Stockpiles on the side of the right of way act as a barrier to traffic dust. Dust suppression will occur through application of water.	Rehabilitation will be undertaken to facilitate soil stabilisation and to minimise the risk of ongoing dust take-off.
Accidental bushfires	Vehicle and equipment access will be restricted to designated roads/tracks and cleared areas. DFES alerts regarding fire ban days will be monitored during high-risk activities.	All machinery and vehicles undertaking clearing activities will have fire extinguishers. The construction works will be undertaken in accordance with the CEMP.	Not applicable.

Table 6-17: Assessment of residual impact significance against the Residual Significance Model (GoWA, 2014)

Residual significant impacts that will or may require an offset	Likelihood of significant residual impact that may require an offset.
<p>Impact to areas necessary to maintain ecological processes and functions for species declared as rare or threatened flora under the <i>Wildlife Conservation Act 1950</i> (WC Act) and the EPBC Act. Impact likely to result in a species being listed as threatened under the EPBC Act or the WC Act.</p>	<p>Given the <i>Paracaleana dixonii</i> is listed as Vulnerable under the BC Act, the loss of 79.7 ha of habitat for this species is considered a significant residual impact. An offset has been proposed to account for this loss of habitat.</p> <p>No direct significant residual impact to any other priority flora was identified. There are ten other listed priority flora that will be impacted by the Development. Populations of these species would be retained both within the Development Envelope outside of the Disturbance Footprint and in the broader region. The proposal would not result in any species being listed as threatened under the EPBC Act or the BC Act that has replaced the WC Act. The proposal will not have a significant residual impact on any of these priority flora species.</p> <p>On review of broader local impacts, two additional species have been considered as part of the proposed offsets. <i>Lasiopetalum ogilvieanum</i> (P1) and <i>Banksia scabrella</i> (P4). These two species have an impact of greater than 14% of local individuals being disturbed by the proposal and have been included in the offset calculations.</p> <p>Additionally, as the offset species account for a large proportion of the vegetation associations being clearing (i.e. 82.7 ha of the 90 ha proposed for <i>Banksia scabrella</i>) the offset site provides a wide range of benefits</p> <p>Table 6-7 and Table 6-12 provide a summary quantification of impacts at the Disturbance Footprint and Development Envelope locations and compare this to populations and individuals known in the broader local region. This includes the likelihood of persistence from population locations within nearby nature reserves and number of known individuals.</p>
<p>Impact to areas necessary to maintain ecological communities declared as environmentally sensitive areas under the EP Act or listed and the EPBC Act. Impact likely to result in an ecological community being listed as threatened under the EPBC Act or declared as environmentally sensitive areas under the EP Act.</p>	<p>Not relevant. No threatened ecological communities or significant vegetation communities have been recorded in the Development Envelope. The proposal will not have a significant residual impact on any threatened or significant ecological community.</p>
<p>Impacts where the existing vegetation is highly cleared <30% of its pre-clearing extent or where impact causes a high degree of fragmentation.</p>	<p>Not relevant. Of the three vegetation associations mapped within the Development Envelope the proportion of pre-European extent remaining is greater than 30%. The pipeline corridor will be revegetated so would not cause a high degree of fragmentation.</p>

Residual significant impacts that will or may require an offset	Likelihood of significant residual impact that may require an offset.
Impact to areas under statute or managed for the purpose of conservation or impacts to ecological linkages between conservation areas.	Not relevant. The Development Envelope will not impact on any conservation reserves or impact on any ecological linkages.
Impacts to areas of high biological value or habitat supporting listed migratory species. Impacts to communities or species that are representative of high biological diversity, have higher diversity than other examples of an ecological community in a bioregion.	Not relevant. The vegetation communities and habitats identified within the proposal area are widespread both within the Development Envelope outside of the Disturbance Footprint and in the broader regional area.
Impacts to or removal of buffers necessary to maintain conservation significant wetlands or clearing of native vegetation that is watercourse of wetland dependent.	Not relevant. There are no conservation significant wetlands present within or adjacent to the Development Envelope. Vegetation mapped within the Development Envelope is not watercourse of wetland dependent.

Table 11-3: Review of how impacts to environmental values will be counterbalanced through rehabilitation and securing of an offset site

Existing environment/ Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely offset success	Time Lag	Offset Quantification
Clearing of up to 90 ha of native vegetation inclusive of 82.3 ha of habitat for <i>Banksia scabrella</i>, 73.8 ha of habitat for <i>Lasiopetalum ogilvieanum</i>, 79.7 ha of habitat for <i>Paracaleana dixonii</i>	Design measures have been incorporated into the route alignment selection to avoid clearing areas with a high density of priority flora. The Disturbance Footprint is the minimum width necessary to enable construction to take place in a safe manner. The following mitigation measures will be implemented to minimise impacts to threatened flora habitat: - physical delineation of approved clearance area - targeted weed management - implementation of <i>Phytophthora</i> management measures - implementation of dust suppression measures. Areas of clearance not required for future operational use will be rehabilitated.	A minimum of 30 ha will be rehabilitated through the spreading of stripped topsoil. Reseeding or revegetation (using appropriate species) may be undertaken to restore vegetation cover in areas that do not meet the rehabilitation criteria	<u>Can the environmental values be rehabilitated/Evidence?</u> Yes. Clearing was undertaken in similar habitat for previous exploration and associated clearing of access tracks at West Erregulla. These areas were successfully rehabilitated using similar rehabilitation techniques. <u>Operator experience in undertaking rehabilitation?</u> The Proponent has a proven track record of rehabilitation success in arid environments, including for the original DBNGP constructed in 1981 in WA. The Proponent AGIG also completed successful rehabilitation of the Fortescue River Gas Pipeline. Successful close out of completion criteria was achieved within three years. Rehabilitation programs have also been successful on the Wheatstone – Ashburton West Pipeline (87 km), the Onslow Lateral Pipeline (24 km) and is underway on the Tanami Natural Gas Pipeline (NT). <u>What is the type of vegetation being rehabilitated?</u> Low open woodland of Pricklybark (<i>Eucalyptus tottiana</i>) and mixed shrublands on grey, brown sands <u>Time lag?</u> Up to two years for some species following re-instatement depending on rainfall events. <u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u> The rehabilitation programs mentioned above have utilised similar rehabilitation processes to that proposed for this Project and have proven successful.	<u>Extent</u> 82.7 ha <u>Quality</u> High <u>Conservation Significance</u> Endangered - <i>Paracaleana dixonii</i> (as highest conservation status) <u>Land Tenure</u> The proposed land tenure for the Proposal will comprise of the following: - Access Right granted under the Dampier to Bunbury Pipeline Act 1997 (WA) - Easement granted under the Petroleum Pipelines Act 1969 (WA) - Crown lease granted under Land Administration Act 1997 (WA). <u>Time Scale</u> Permanent loss of 49.7 ha and clearing and rehabilitation of 30 ha of potential habitat According to the agreed significance framework, residual impact is significant because of the reduction in habitat for a conservation dependant species.	Purchase of freehold land supporting habitat for <i>Paracaleana dixonii</i> and transfer to a conservation covenant and provision of management costs.	Low - an appropriate site has been identified that supports high quality habitat for <i>Paracaleana dixonii</i> .	<u>Can the values be defined and measured?</u> Yes - extent of habitat can be measured. <u>Operator experience/Evidence?</u> The land will be managed by the Proponent in partnership with Strike Energy and the landholder. Where required experience contractors may be used to assist with management actions. <u>What is the type of vegetation being revegetated?</u> Site supports mainly intact vegetation to be protected. <u>Is there evidence the environmental values can be re-created (evidence of demonstrated success)?</u> Site supports mainly intact vegetation with evidence of presence of <i>Paracaleana dixonii</i> in close proximity.	Up to two years has been allowed for in calculations to enable the transfer of land tenure to a conservation covenant.	Acquisition of 153 ha of high-quality habitat for <i>Banksia scabrella</i> , <i>Lasiopetalum ogilvieanum</i> and <i>Paracaleana dixonii</i> are proposed to be protected through a conservation covenant.

Existing environment/ Impact	Mitigation			Significant Residual Impact	Offset Calculation Methodology				
	Avoid and minimise	Rehabilitation Type	Likely Rehab Success		Type	Risk	Likely offset success	Time Lag	Offset Quantification
Clearing of 37.7 ha of low-quality foraging habitat for the Carnaby's Cockatoo	<p>The Disturbance Footprint is the minimum width necessary to enable construction to take place in a safe manner.</p> <p>The following mitigation measures will be implemented to minimise impacts to threatened fauna habitat:</p> <ul style="list-style-type: none"> - physical delineation of approved clearance area - pre-clearance surveys prior to clearing of habitat - vehicle movement limited to established access tracks - ensure appropriate management of food waste and fencing of evaporation pond to prevent attraction of pest predators. <p>Areas of clearance not required for future operational use will be rehabilitated.</p>	<p>A minimum of 12 ha will be rehabilitated through the spreading of stripped topsoil. Reseeding or revegetation (using appropriate species) may be undertaken to restore vegetation cover in areas that do not meet the rehabilitation criteria. Rehabilitation criteria include an appropriate cover of foraging species for the Carnaby's Cockatoo.</p>	<p><u>Can the environmental values be rehabilitated/Evidence?</u></p> <p>Yes. Clearing was undertaken in similar habitat for previous exploration and associated clearing of access tracks at West Erregulla. These areas were successfully rehabilitated using similar rehabilitation techniques.</p> <p><u>Operator experience in undertaking rehabilitation?</u></p> <p>The Proponent has a proven track record of rehabilitation success in arid environments, including for the original DBNGP constructed in 1981 in WA. The Proponent AGIG also completed successful rehabilitation of the Fortescue River Gas Pipeline. Successful close out of completion criteria was achieved within three years. Rehabilitation programs have also been successful on the Wheatstone – Ashburton West Pipeline (87 km), the Onslow Lateral Pipeline (24 km) and is underway on the Tanami Natural Gas Pipeline (NT).</p> <p><u>What is the type of vegetation being rehabilitated?</u></p> <p>Banksia spp. and occasional <i>Eucalyptus todtiana</i> mid open woodland over shrubs and sedgeland on sandy plains</p> <p><u>Time lag?</u></p> <p>Up to two years for some species following re-instatement depending on rainfall events</p> <p>Up to five years for flowering of foraging species.</p> <p><u>Credibility of the rehabilitation proposed (evidence of demonstrated success)</u></p> <p>The rehabilitation programs mentioned above have utilised similar rehabilitation processes to that proposed for this Project and have proven successful.</p>	<p><u>Extent</u></p> <p>37.7 ha</p> <p><u>Quality</u></p> <p>Low quality foraging habitat</p> <p><u>Conservation Significance</u></p> <p>Endangered</p> <p><u>Land Tenure</u></p> <p>The proposed land tenure for the Proposal will comprise of the following:</p> <ul style="list-style-type: none"> - Access Right granted under the Dampier to Bunbury Pipeline Act 1997 (WA) - Easement granted under the Petroleum Pipelines Act 1969 (WA) - Crown lease granted under Land Administration Act 1997 (WA). <p><u>Time Scale</u></p> <p>Permanent loss of 25.7 ha and rehabilitation of 12 ha of potential habitat</p> <p>According to the agreed significance framework, residual impact is considered to be significant because of the reduction in foraging habitat for a conservation dependant species.</p>	<p>Purchase of freehold land supporting habitat for Carnaby's Cockatoo and transfer to a conservation covenant and provision of management costs.</p>	<p>Low - an appropriate site has been identified that support similar habitat to the Development Envelope for the Carnaby's Cockatoo.</p>	<p><u>Can the values be defined and measured?</u></p> <p>Yes - extent of habitat can be measured.</p> <p><u>Operator experience/Evidence?</u></p> <p>The land will be managed by the Proponent in partnership with Strike Energy and the landholder. Where required experience contractors may be used to assist with management actions.</p> <p><u>What is the type of vegetation being revegetated?</u></p> <p>Site supports mainly intact low quality foraging habitat to be protected.</p> <p><u>Is there evidence the environmental values can be re-created (evidence of demonstrated success)?</u></p> <p>Site supports low quality foraging habitat for the Carnaby's Cockatoo.</p>	<p>Up to two years has been allowed for in calculations to enable transfer of tenure to a conservation covenant.</p>	<p>Acquisition of 65 ha of comparable low quality foraging habitat for Carnaby's Cockatoo are proposed to be protected through a conservation covenant.</p> <p><i>Note that this 65 ha exists within the proposed 153 ha for flora offsets.</i></p>

Table 11-6: Assessment against the six principles for the use of environmental offsets

Offset Principles	Assessment of Proposed Offsets
1. Environmental offsets will only be considered after avoidance and mitigation options have been pursued.	<p>As detailed at Section 6.7 and Section 7.7 of the ERD, the mitigation hierarchy has been applied to the Project to first seek to avoid and minimise the impact to ecological values. This has included selecting the route alignment to reduce the impact to identified threatened species and ensuring the Disturbance Footprint is the minimum width required for construction. A number of additional mitigation measures will be implemented through the CEMP to further minimise the impact to ecological values.</p> <p>However, even with the implementation of avoidance and mitigation measures it has been assessed that there is a significant residual impact to the Carnaby's Cockatoo and <i>Paracaleana dixonii</i>. Offsets also include <i>Banksia scabrella</i> and <i>Lasiopetalum ogilvieanum</i> which is well represented in terms of vegetation and habitat in the offset site (135 ha plus) of suitable supporting habitat.</p>
2. Environmental Offsets are not appropriate for all projects	<p>It is acknowledged that offsets are not appropriate for all projects. Offsets are considered appropriate for this project as a result of the residual impact to the Carnaby's Cockatoo and <i>Paracaleana dixonii</i> and <i>Banksia scabrella</i> and <i>Lasiopetalum ogilvieanum</i>.</p>
3. Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted.	<p>The proposed rehabilitation offset and acquisition site offset will be efficiently managed in a transparent manner by the Proponent in accordance with the Rehabilitation and Offset Management Plan.</p> <p>The offsets proposed are considered appropriate and are consistent with the WA Environmental Offsets Policy, providing greater than 100% of the impact offset as identified through the offset calculators.</p> <p>The offset package proposed is considered proportionate to the size and scale of the residual impacts to Carnaby's Cockatoo, <i>Paracaleana dixonii</i>, <i>Banksia scabrella</i> and <i>Lasiopetalum ogilvieanum</i> from the Project.</p> <p>The offset site provides a known location of three out of the four key species as well as supporting a high volume of vegetation associations for all conservation species disturbed by the proposal.</p> <p>The size is proportionate to the requirements outlined (as per calculators) as well being unfeasible to deliver a separate offset for <i>Lasiopetalum ogilvieanum</i>. Management actions, including presence of <i>Lasiopetalum ogilvieanum</i> in the offset location</p> <p>The location being directly adjacent and as part of same vegetation system allows for ongoing natural processes to improve the site in regards to <i>Lasiopetalum ogilvieanum</i>.</p>
4. Environmental offsets will be based on sound environmental information and knowledge.	<p>The land-based offset has been sourced with consideration as to which parcels available for purchase that support appropriate habitat can most efficiently be added to and managed via a conservation covenant.</p>

Offset Principles	Assessment of Proposed Offsets
	<p>The offset site is within a habitat corridor that connects through to the Development Envelope and more broadly to the Yordanogo Nature Reserve.</p> <p>The Offset site has been assessed by Mattiske Consulting, who have a sound knowledge of ecological assessment.</p>
<p>5. Environmental offsets will be applied within a framework of adaptive management.</p>	<p>The land-based offset will be managed by Strike Energy in a commercial partnership with AGIO to ensure management actions and monitoring is completed as outlined in the ROMP.</p> <p>The ROMP incorporates requirements for adaptive management where set targets are not met in a timely manner.</p>
<p>6. Environmental offsets will be focussed on longer term strategic outcomes.</p>	<p>The land-based offset has been sourced with consideration as to which parcels available for purchase, that support appropriate habitat, can most efficiently be added to and managed within a conservation covenant to achieve long term strategic objectives, including species and habitat conservation.</p>

Table 11-7: 10-year Performance Targets for the land acquisition site

Management Action	Responsibility	Timing	Performance Target	Timeframe to be achieved
Security Agreement	AGIO and Strike Energy	Year 1	Offset secured via transfer of land to a conservation covenant.	Within 12 months of the commencement of ground disturbing activities
Habitat Condition monitoring	Consultant engaged by AGIO	Years 1, 4, 7 and 10	Report to the Crown and AGIG	Within 3 months of the year required, of the anniversary of the land transfer to a conservation covenant
Waste removal	Contractor engaged by Strike Energy and AGIO	Year 1	Waste removed	Within 3 months following transfer of land to a conservation covenant
Fencing	Landowner, as engaged by Strike Energy and/or AGIO	Responsive	Fencing upgraded promptly in response to stock accessing the Offset Site	Promptly if/as required
Weed Control	Landowner, as engaged by Strike Energy and/or AGIO	Annual to Year 20	Control of herbaceous weeds	First year; on-going (to year 20)
Pest Control	Landowner, as engaged by Strike Energy and/or AGIO	Annual to Year 20	Control of feral animals	On-going (to year 20)
Targeted survey for <i>Paracaleana dixonii</i>	Consultant engaged by AGIO	Years 1, 4, 7 & 10	Individuals identified within offset site	Years 1, 4, 7 & 10
Monitoring and Reporting	AGIO and Strike Energy	Annual Reporting and Monitoring report at Years 1, 4, 7 & 10 Post Year 10 in consultation with the EPA	Annual reports provided with survey reports included at years outlined above.	Up to Year 10 or as specified by the approval. Ongoing past Year 10 in agreement with the EPA and the success of the offset to date up to minimum of Year 20.

Table 14-1: Summary of cumulative impact assessment for relevant factors

Factor	Reasonably foreseeable future activities	Summary of outcome of cumulative impact assessment
Flora and vegetation	<ul style="list-style-type: none"> • Dongara Titanium Minerals Project • Northern Goldfields Interconnect Pipeline • Waitsia Gas Project Stage 2 • Raven 2D Seismic Acquisition Survey • Cervantes 01 Conventional Well Drilling Proposal • West Erregulla 2, 4 and 5 Exploration Well plus additional Strike projects – Field Development, Seismic Survey, Ocean Hill and Natta. 	<p>Cumulatively with the listed reasonably foreseeable future activities the Proposal will result in the loss of 3,983.32 ha of vegetation within the Lesueur Sandplain subregion.</p> <p>The Proposal would not contribute cumulatively to the loss of any threatened or priority ecological communities as none were recorded within the Development Envelope</p> <p>The Proposal would contribute cumulatively to the loss of seven priority flora species. The impact to these species based on the known extent in the region is as follows, with the percentage contributed by the Proposal in brackets is as follows:</p> <ul style="list-style-type: none"> • <i>Paracaleana dixonii</i> - 0.42% (0%) • <i>Lasiopetalum ogilvieanum</i> - 23.7% (23.67%) • <i>Micromyrtus rogeri</i> - 6.67% (0.59%) • <i>Hemiandra sp. Eneabba</i> - 41.48³% (3.68%) • <i>Mesomelaena stygia subsp. Deflexa</i> - 17.12% (4.1%) • <i>Stylidium drummondianum</i> - 17.14% (0.1%) • <i>Banksia scabrella</i> - 40.39% (14.63%) • <i>Stawellia dimorphantha</i> - 1.16% (0.2%) <p>Based on the above there is potential for a significant residual impact to <i>Banksia scabrella</i> (P4) as well as <i>Lasiopetalum ogilvieanum</i> (P1). There is potential for <i>Hemiandra sp. Eneabba</i> residual impacts, but these are minimally impacted by this proposal and are known from populations within nearby nature reserves and as such is likely to persist in the broader local area.</p>
Terrestrial Fauna	<ul style="list-style-type: none"> • Dongara Titanium Minerals Project • Northern Goldfield Interconnect Pipeline • Waitsia Gas Project Stage 2 • Raven 2D Seismic Acquisition Survey • Cervantes 01 Conventional Well Drilling Proposal • Eneabba Mineral Sands • West Erregulla 2, 4 and 5 Exploration Well plus additional Strike projects – Field 	<p>Broad vegetation associations have been used as a surrogate for fauna habitat. As identified in the row above the Proposal will result in a combined cumulative impact to broad vegetation associations of between 0.03-2.31%. It is not considered this loss of habitat will have a significant residual impact on any threatened fauna, other than the Carnaby's Cockatoo. Offsets have been proposed to account for the loss of low-quality foraging habitat for the Carnaby's Cockatoo within the Development Envelope.</p>

³ While *Hemiandra*, *Mesomelaena*, and *Stylidium*, *sp.* are above 10% these are all P3 or P4 species.

Factor	Reasonably foreseeable future activities	Summary of outcome of cumulative impact assessment
	Development, Seismic Survey, Ocean Hill and Natta	
Inland Waters	All projects utilising groundwater from the Yarragadee Aquifer.	Abstraction from the Yarragadee Aquifer is managed by DWER under the <i>Rights in Water and Irrigation Act 1914</i> with consideration of sustainable yields. This regulatory framework is considered to adequately manage any potential impacts associated with cumulative groundwater abstraction in the region. Water for the Proposal will be obtained from the Strike licenced bore or from commercial standpipes within the Shire of Irwin and the Shire of Mingenew with abstraction limits strictly adhered to. Where abstraction limits are adhered to, it is not expected that there will be a significant cumulative impact associated with Inland Waters.
Greenhouse Gases	All facilities required to report under NGER Act in Australia	The Proposal adds to Western Australia's contribution of GHG emissions from the resources sector. The peak Scope 1 emissions for the Proposal would represent approximately 0.03% of the national Scope 1 emissions. AGIG is committed to reaching Australia's target of net zero emissions by 2050.

5. References

- AGIG, 2022a. *West Erregulla Processing Plant and Pipeline Construction Environmental Management Plan* (E-PLN-034). Australian Gas Infrastructure Group, Western Australia.
- AGIG, 2022b. *West Erregulla Processing Plant and Pipeline Environmental Review Document* (E-PLN-037). Australian Gas Infrastructure Group, Western Australia.
- AGIG, 2022c. *West Erregulla Processing Plant and Pipeline Greenhouse Gas Management Plan* (E-PLN-035). Australian Gas Infrastructure Group, Western Australia.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2012. *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Commonwealth of Australia.
- Eco Logical Australia (ELA) 2021. *West Erregulla Pipeline Flora and Fauna survey*. Prepared for Australian Gas Infrastructure Group.
- Environmental Protection Authority (EPA) 2016a. *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment*. Perth, Western Australia. Published December 2016.
- Environmental Protection Authority (EPA) 2016b. *Technical Guidance: Sampling Methods for Short Range Endemic Invertebrate Fauna*. EPA, Western Australia. December 2016.
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- Mattiske Consulting Pty Ltd 2021. *West Erregulla Threatened and Priority Flora Survey*.
- Mattiske Consulting Pty Ltd 2021. *West Erregulla Offset Site Survey Memo*
- MDW Environmental Services 2015. *Groundwater Investigation Warrego Energy*.
- Strategen JBS&G, 2021. *Flora and Vegetation Survey of Natta 3D Seismic Survey Area*. Prepared for Strike West Ltd, April 2021.
- Strategen JBS&G, 2022. *West Erregulla Field Development Program Environmental Review Document*. Prepared for Strike Energy. April 2022.

6. Updated ERD Mapping

The following figures have been updated since the ERD (version 2) was publicly reviewed:

- Figure 6-1: Flora and vegetation survey effort within the Development Envelope
- Figure 6-3: Conservation significant flora recorded in the Development Envelope (3 pages)
- Figure 6-4: Additional Threatened and Priority Flora identified during the Mattiske (2021) targeted flora survey and combined records (delineated by conservation status)

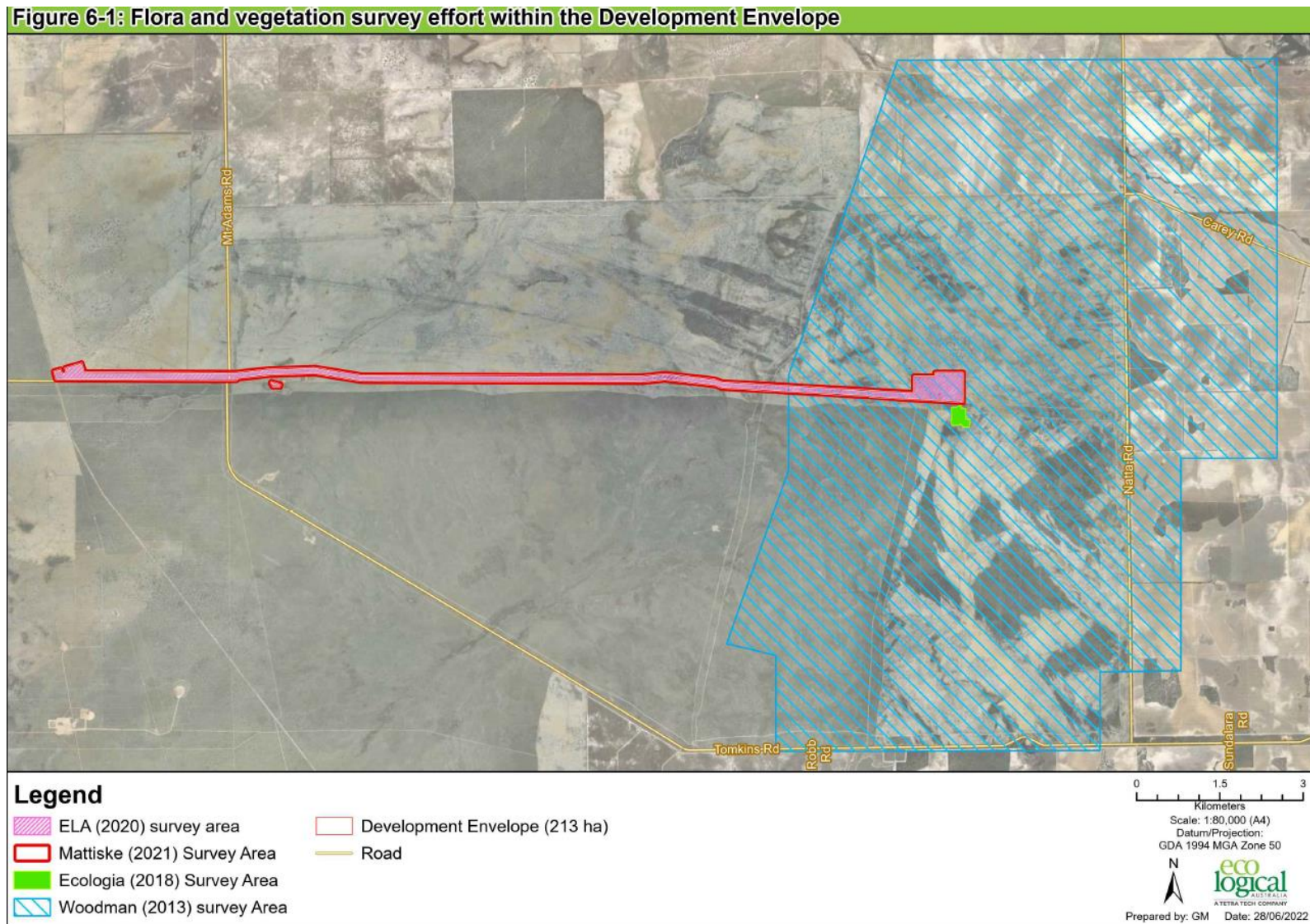


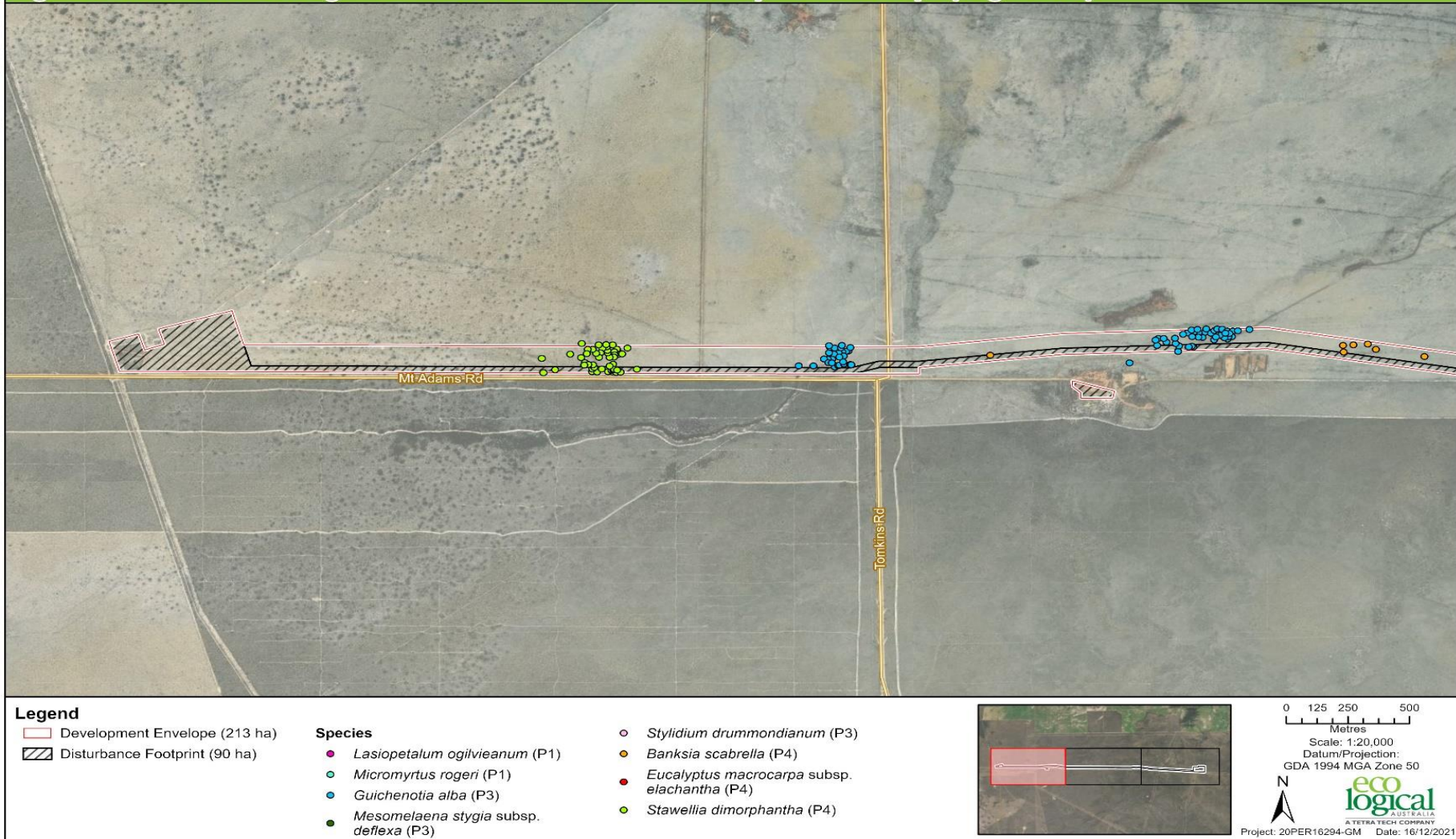
Figure 6-3: Conservation significant flora recorded in the Development Envelope (Page 1 of 3)

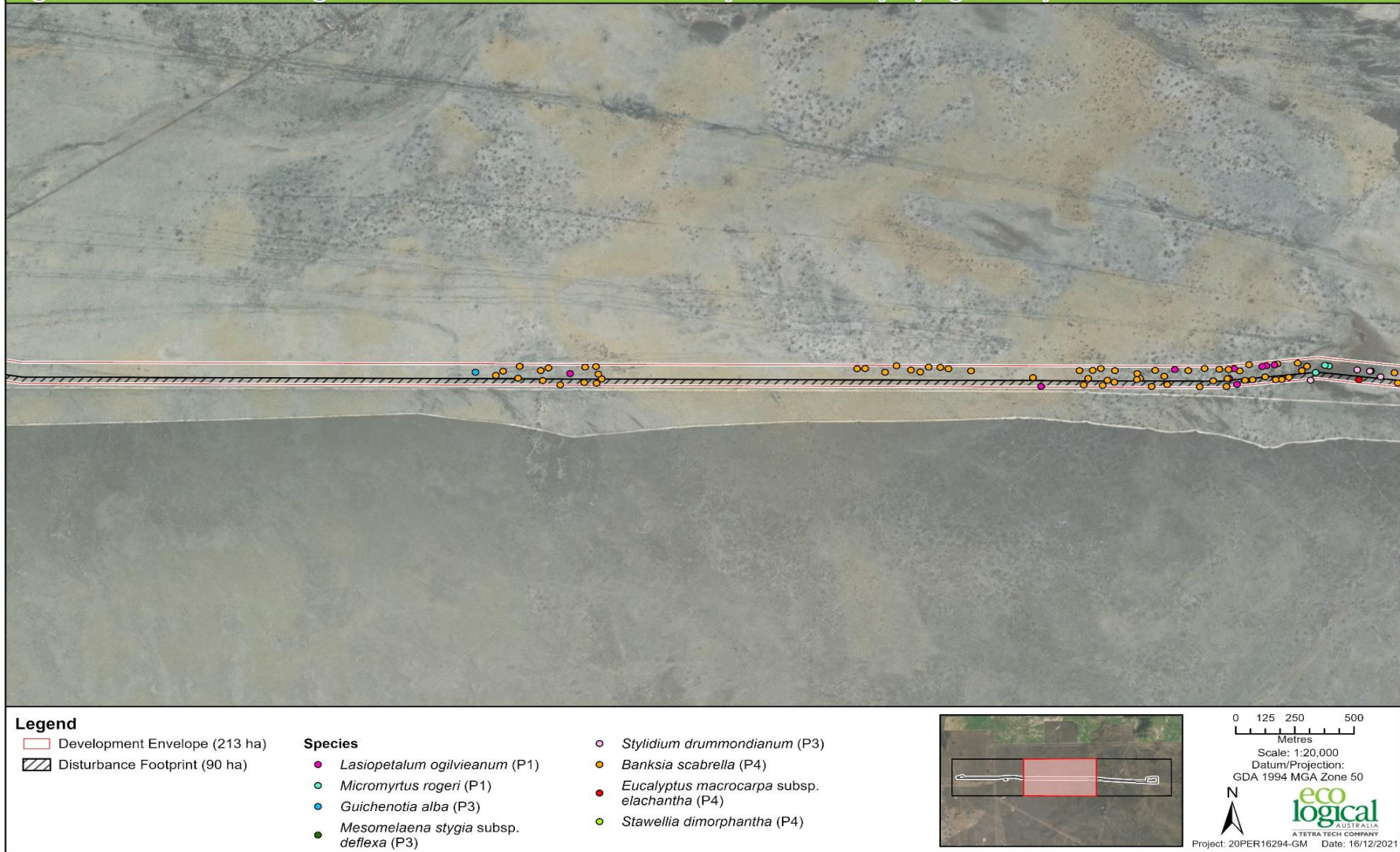
Figure 6-3: Conservation significant flora recorded in the Development Envelope (Page 2 of 3)

Figure 6-3: Conservation significant flora recorded in the Development Envelope (Page 3 of 3)

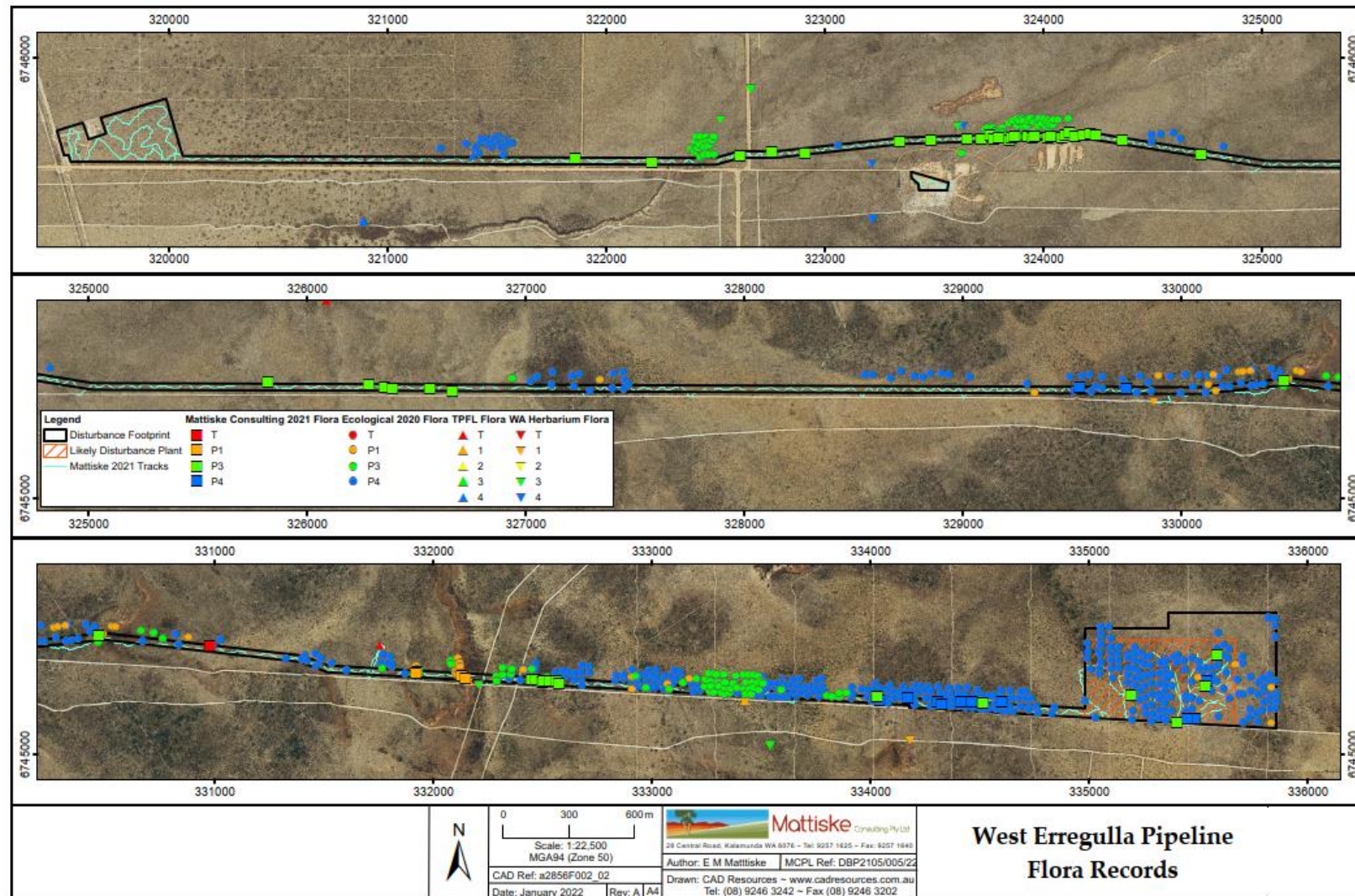


Figure 6-4: Additional Threatened and Priority Flora identified during the Matiske (2021) targeted flora survey and combined records (delineated by conservation status).

7. Updated ERD Appendices

The following appendices have been updated since the ERD (version 2) was publicly reviewed:

- Appendix E – Rehabilitation and Offset Management Plan (Rev 8, May 2023) (previously referred to as Rehabilitation Management Plan)
- Appendix I – Greenhouse Gas Management Plan (Rev 2.1, November 2022)
- Appendix L – WA Environmental Offset Calculators
- Appendix N – West Erregulla Pipeline: *Paracaleana dixonii* Targeted Flora Survey (ELA 2023)