

Belisama Gas Project – Referral Supporting Document

Revision 0

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Document Control

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Executive Summary

This Referral Supporting Document has been prepared to provide supporting information for the assessment of the Belisama Gas Project. The document describes and assesses the significance of the existing environmental values in the Development Envelope and the environmental impacts that have the potential to occur from implementation of the Proposal.

Hancock Energy (PBN) Pty Ltd (Hancock Energy; The Proponent) is the sole Proponent for this Proposal.

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In preparing this document, the Proponent has considered the following guidance:

- Instructions on how to prepare an Environmental Review Document (EPA 2025)
- Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual (EPA 2024b).

The Belisama Gas Project is located in the Mid West region of Western Australia, approximately, 25 km southwest of Mingenew. It involves the construction and operation of a Central Processing Facility (CPF) located at 1906 Yandanooka West Road, Milo (Lot 441 on Plan 2981). Gas produced from nearby gas projects (outside the scope of this Proposal) will be combined and transported, via a central flowline, for treatment at the CPF. Once treated, the gas will be directed into an export pipeline connected to the Dampier Bunbury Natural Gas Pipeline (DBNGP). The condensate byproduct will be stored on-site prior to being transported off-site by road for export.

The key components of the Proposal include:

- A buried central flowline
- A CPF, including on-site infrastructure to support the operations phase including an administration building with a central control room, offices and emergency response facilities, power generation equipment, warehousing, workshops, and switch room infrastructure and nearby accommodation buildings
- A gas export pipeline connecting the CPF to the DBNGP.

The Belisama CPF is sited with the potential to integrate gas from the West Erregulla Field Development Program and/or undiscovered gas resources in the region in the future.

The key outcomes of the environmental impact assessment are summarised in the table below.

Summary of potential impacts, proposed mitigation and expected environmental outcomes

Flora and Vegetation	
Potential significant environmental impacts	<ul style="list-style-type: none"> • Loss and fragmentation of remnant vegetation • Loss of conservation significant flora • Degradation of vegetation due to the introduction and/or spread of weeds • Degradation of native flora from increased dust deposition • Increased bushfire ignition
Mitigation hierarchy	<p>Avoidance</p> <ul style="list-style-type: none"> • The Development Envelope includes two Clearing Exclusion Zones (CEZ) covering: – <ul style="list-style-type: none"> – 9.5 ha of Very Good condition native vegetation – 1.5 ha of Good condition native vegetation – 13 <i>Poranthera asybosca</i> (P1) – 378 <i>Poranthera moorokatta</i> (P2) – 73 <i>Banksia fraseri</i> var. <i>crebra</i> (P3) – 17 <i>Stylidium torticarpum</i> (P3) – 1 <i>Tricoryne soullierae</i> (P3) – 39 <i>Banksia scabrella</i> (P4) – 8 <i>Schoenus griffinianus</i> (P4) • The <i>Land Access (including Ground Disturbance) Procedure</i> and the associated Ground Disturbance Permit (GDP) will be used for all land clearing activities to avoid any clearing outside of the approved Development Envelope or within these CEZs • The flowline and export pipeline will be constructed using HDD in three locations to avoid clearing of Sand Plain Creek riparian vegetation and remnant roadside vegetation • The final Development Envelope has been designed to avoid all known records of <i>Thelymitra stellata</i> (EN) and potential habitat for <i>Paracaleana dixonii</i> (EN) • The Disturbance Footprint has been designed to avoid high density areas of Priority flora as far as practicable • The final Disturbance Footprint has been designed to avoid large areas of native vegetation as far as practicable <p>Minimise</p> <ul style="list-style-type: none"> • The Development Envelope has been minimised as far as practicable to reduce the extent of clearing required • Clear demarcation of proposed native vegetation clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage • All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management • The following weed management controls will be implemented to manage the spread of weeds within the Development Envelope and surrounding environment and will be captured in a Biosecurity Management Plan relevant to clearing and construction activities: <ul style="list-style-type: none"> – Establish weed hygiene check points

Flora and Vegetation

- Recording and reporting of opportunistic sightings of WoNs or Declared Weed species within the Development Envelope
- Implementation of appropriate weed controls to manage the occurrence of WoNS or Declared Weed species recorded within the Development Envelope
- Additional measures may be included under private land access agreements
- Excessive dust will be minimised through:
 - Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading)
 - Minimising time between clearing and grading or trenching and backfill/reinstatement
 - Sealing of primary roads within the CPF site
 - Using water or stabilisers via water trucks and sprayers to dampen down soil as required
 - Maintaining a low-speed environment on unsealed roads and right of way within the CPF site
 - Limiting topsoil stockpile heights to less than 2 m
 - Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles (where applicable)
- The following fire management controls will be implemented to manage the risk of bushfire ignition within the Development Envelope and surrounding environment:
 - Develop and ensure works are in accordance with a Bushfire Management Plan
 - Include designated smoking areas and appropriate waste disposal for cigarette butts in the design of facilities
 - Ensure fire extinguishers are available on all mobile equipment and at all work locations
 - Fit water trucks with high pressure monitors and pumps for fire management where required
 - Maintain adequate on-site firefighting water supply
 - Store flammable and combustible materials appropriately and segregate them from ignition sources, in accordance with AS1940:2017
 - Develop and submit a hot work permit procedure to the Project Director/Site Supervisor and ensure it is approved prior to commencing on site. The permit will include the following requirements:
 - Risk assessment to be completed before commencement of any hot work
 - Exemptions sought from Bushfires Act 1954 for hot work on total fire ban days
 - Daily weather check for fire ban status prior to conducting hot works.
 - Equip fire control equipment in fire-risk areas including but not limited to hazardous material storage areas, hot works areas and service trucks
 - Ensure adequate numbers of personnel trained with basic fire awareness, fire response and use of fire suppression equipment to be on site at all times during the Proposal
 - Restrict open fires on site at any time
 - Liaise regularly with the local government authorities regarding fire danger status
 - Maintain hot machinery only in designated cleared areas whenever possible

Flora and Vegetation

	<ul style="list-style-type: none"> - Check vehicle undersides regularly (e.g., at daily pre-starts etc.) for any material stuck around the exhaust system, and any identified material removed
<p>Residual impacts, including significant residual impacts</p>	<ul style="list-style-type: none"> • Clearing of remnant native vegetation within the Development Envelope • Clearing of Priority flora species • Potential introduction or spread of weeds in patches of native vegetation • Potential for localised short-term increase in fugitive dust during construction • Potential increased occurrence of accidental bushfires
<p>Expected environmental outcomes</p>	<p>No significant residual impacts to flora and vegetation associated with the Proposal are anticipated due to the following:</p> <ul style="list-style-type: none"> • The Proposal has been designed to be avoid areas of remnant vegetation and to be constructed primarily within cleared areas or tracks or occurs along the periphery of patches of native vegetation and is thus unlikely to cause significant fragmentation to the remnant vegetation surrounding the Development Envelope • Two CEZs have been located to avoid 11.0 ha of Good or better condition native vegetation, including the following: <ul style="list-style-type: none"> - 9.5 ha of Very Good condition native vegetation - 1.5 ha of Good condition native vegetation - 13 <i>Poranthera asybosca</i> individuals - 378 <i>Poranthera moorokatta</i> individuals - 73 <i>Banksia fraseri</i> var. <i>crebra</i> individuals - 17 <i>Stylidium torticarpum</i> individuals - 1 <i>Tricoryne soullierae</i> individuals - 39 <i>Banksia scabrella</i> individuals - 8 <i>Schoenus griffinianus</i> individuals • Outside of the CEZs, 22.4 ha of vegetation occurs within the Development Envelope, of which approximately 93.0% (20.8) has been mapped as being in a Degraded to Completely Degraded condition. Only 5.7 ha of the indicative Disturbance Footprint is considered to represent remnant native vegetation types, of which 2.4 ha (42.1%) is in Good or better condition • The following Priority flora species occur within the Development Envelope outside of the CEZs, and have potential to be impacted by clearing: <ul style="list-style-type: none"> - <i>Banksia fraseri</i> var. <i>crebra</i> (P3): 16 individuals (2.9% of records within the Survey Area) - <i>Stylidium drummondianum</i> (P3): 1 individual (0.6% of records within the Survey Area) - <i>Stylidium torticarpum</i> (P3): up to 36 individuals (9.0% of records within the Survey Area) - <i>Thryptomene nitida</i> (P3): 2,353 individuals (81% of records within the Survey Area and 36.4% of the local population) - <i>Banksia scabrella</i> (P4): 1 individual (0.3% of records within the Survey Area) • Of these, only <i>Stylidium torticarpum</i> (20 individuals) and <i>Thryptomene nitida</i> (71 individuals) intersect the indicative Disturbance Footprint

Flora and Vegetation

- Given the occurrence of 36.4% of the known local population of *Thryptomene nitida* within the Development Envelope (outside of CEZs), the Proposal will be implemented to ensure that clearing does not impact more than 10% (291 individuals) of individuals recorded within the Survey Area. Actual impacts are expected to be lower, given the location of most individuals within creek lines that are unlikely to be disturbed. Based on the indicative Disturbance Footprint, direct impacts are only anticipated to 71 individuals of this species (2% of the individuals recorded in the Survey Area)
- The regional vegetation associations which intersect with the Development Envelope will undergo a maximum direct reduction of less than 0.1% and a maximum cumulative reduction of 0.1% as a result of the Proposal
- The indirect impacts likely to occur during the construction of the Proposal, namely the introduction/spread of weed species, the generation of fugitive dust and accidental bushfires, will be minimised through the implementation of the mitigation measures outlined within the Proposal’s CEMP (**Appendix D1**)
- Cumulative impacts to total remnant vegetation extent are 1.2% at the greatest extent, for the Eridoon 378 vegetation association. Cumulative clearing in other vegetation associations amount to less than 0.5% of the total remnant vegetation extent and is not dissimilar to clearing of fauna habitat under the alternative currently approved Lockyer Conventional Gas Project CPF location and export pipeline
- There are no known cumulative impacts on conservation significant flora from future activities

Terrestrial Fauna

Potential significant environmental impacts

- Loss of fauna habitat due to clearing
- Injury, mortality, or displacement of conservation significant fauna
- Disturbance to native fauna from light, noise and/or vibration
- Increased competition or predation by feral fauna
- Increased risk of bushfire ignition

Mitigation hierarchy

Avoidance

- Within the Development Envelope, two CEZs will be implemented, resulting in the avoidance of:
 - 11.6 ha of Banksia Woodland habitat
 - 2.8 ha of Low to mid grassland/shrubland
 - 1.6 ha of Sheoak and *Acacia* shrubland
 - 1.2 ha of Shrubland on lateritic breakaway habitat
 - <0.1 ha of Remnant woodland/shrubland over paddock.
- The Disturbance Footprint has been designed to avoid riparian zones and large trees as far as practical
- The flowline and export pipeline will be constructed using HDD in three locations to avoid clearing of Sand Plain Creek riparian vegetation and remnant roadside vegetation

Terrestrial Fauna

- Hancock Energy's *Land Access (including Ground Disturbance) Procedure* and the associated GDP will be used for all land clearing activities to avoid any clearing outside of the approved Development Envelope
- The export pipeline and central flowline will be buried, preventing the formation of a barrier to fauna movements
- Location of the CPF away from high value fauna habitats

Minimise

- The Development Envelope has been minimised as far as practicable to reduce the extent of clearing required
- Clear demarcation of proposed native vegetation clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage
- All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management
- Clearing will occur in the direction of adjacent retained vegetation (if present) to allow fauna to move to retained areas
- An experienced fauna handler will be on site during vegetation clearing activities
- Maintaining a low-speed environment on unsealed roads and right of way within the Development Envelope
- Restrict vehicle movement to existing/authorised access tracks
- Trenches will be progressively closed as the export pipeline and central flowline is laid to minimise the length of trench open at any one time
- Trenches will include appropriate design to enable fauna egress
- Fauna exit ramps will be installed every 500 m of trench at a minimum
- Fauna shelters will be installed between exit ramps if open trench lengths exceed 500 m
- Pipes will be inspected by prior to welding and observed fauna removed
- Pipes will be capped to prevent night-time access by native fauna. Caps will remain on pipe until ready for use.
- All open trenches will be inspected within half an hour prior to backfilling and any entrapped fauna cleared by a fauna handler before backfilling can be completed
- Trench inspections will be undertaken daily during construction less than three hours after sunrise to identify any trapped fauna species. Open trenches will be inspected within half an hour prior to construction or backfilling to detect any trapped fauna species
- If conservation significant species are observed, they will be given the opportunity to move from the work area. If the conservation significant species will not move away from the work area, clearing and construction activities will either be delayed or they will be relocated by a trained fauna handler, in consultation with the Department of Biodiversity, Conservation and Attractions (DBCA) as required
- Entrapped fauna will be cleared by a fauna handler before trench backfilling can be completed
- Any fauna capture, handling and relocation will be conducted in accordance with DBCA Parks and Wildlife Service Standard Operating Procedures, by a trained fauna handler

Terrestrial Fauna

- Substituting permanent flood lights for “resort style” lights at the accommodation camp
- Floodlighting at the CPF will be limited to support essential operations and maintenance tasks and where required to meet safety standards
- Where possible, light emissions will be managed via the strategic placement of infrastructure and minimisation of light spill, while meeting safety standards
- Night works will not normally occur, limiting the amount of task level light required and potential noise or vibration impacts
- Keeping the Proposal area clean and tidy by depositing litter and waste into appropriate litter or recycling bins at nominated waste collection areas
- Storing food wastes in sealed bins. All personnel will undergo site inductions including waste management requirements
- No unfenced open water areas
- All construction activities will be carried out in accordance with the requirements of regulatory and local fire authorities, including daily checks on fire danger ratings
- Ensuring first response equipment is available and maintained in safe working order
- The implementation of the Permit to Work System, including the requirements for Hot Work Certificates to be utilised to manage activities including vehicle movement in hazardous areas
- Flammable and combustible materials to be located away from ignition sources
- Hot works guards – during grinding and welding, guards are to be in place during such activities to contain sparks or embers within a safe area
- Electrical equipment will be tested and tagged as per the *Work Health and Safety (General) Regulations 2022*. Ensuring the electrical equipment is maintained will reduce the risk of causing a fire from this equipment

Residual impacts, including significant residual impacts

- Clearing of fauna habitat within the Development Envelope
- Potential injury, mortality, or displacement of conservation significant fauna
- Potential disturbance of native fauna due to the presence of excessive noise, light and/or vibrations
- Potential for increased competition or predation of feral fauna
- Potential increased occurrence of accidental bushfires

Expected environmental outcomes

- No significant residual impacts to terrestrial fauna associated with the Proposal are anticipated due to the following:
- Avoidance of high value fauna habitat through placement of the Development Envelope, placement of two CEZs, and a commitment to HDD in sensitive locations
 - No clearing will be undertaken within CEZs, which cover areas of higher value habitat for fauna within the Development Envelope, including:
 - A narrow strip of Banksia woodlands and Sheoak and Acacia shrubland along both sides of Yandanooka West Road that may provide a fauna movement corridor, some suitable foraging habitat for Carnaby’s Cockatoo, and potential habitat for the Black-striped Snake and the Southern Whiteface (Sheoak and Acacia habitat only)

Terrestrial Fauna

- The only high potential short-range endemic (SRE) fauna habitat within the Development Envelope, shrubland on lateritic breakaway. Hancock Energy has altered the central flowline route to follow an established access track, in order to avoid this patch of high potential SRE habitat
- Clearing of up to 7.1 ha of fauna habitat outside of cleared agricultural land, including 3.7 ha of drainage line habitats, 1.1 ha of intact native vegetation, and a further 2.3 ha of degraded remnant trees over paddock or planted trees. Outside of the CEZs, fauna habitats within the Development Envelope are generally degraded and occur as fragmented patches or at the periphery of larger remnants. All fauna habitat types extend beyond the boundaries of the Development Envelope, with no niche habitats being present
- The potential for fauna habitat fragmentation is minimised as the export pipeline and central flowline will generally follow cleared areas or tracks, or is located at the periphery of remnants. In addition, HDD in three locations will avoid impacts to roadside vegetation corridors and riparian corridors
- Direct impacts to Carnaby’s Cockatoo are unlikely to represent a significant residual impact given that only small areas of relatively low quality habitat (up to 0.2 ha of low-to-moderate quality foraging habitat and 2.2 ha of very low quality foraging habitat) will be cleared, there is no suitable roosting or breeding habitat within the Development Envelope, and the species is considered an irregular visitor
- Direct impacts to other conservation significant species, including SREs are unlikely to be significant given that the habitats to be cleared are degraded and highly fragmented and the small amount of suitable habitat proposed for clearing
- Indirect impacts are expected to be localised and in the case of construction impacts temporary, and are therefore unlikely to significantly affect fauna
- The central flowline and export pipeline will be buried, avoiding creation of a permanent barrier to fauna movement
- Total cumulative impacts are conservatively expected to affect less than 3% of the total remnant vegetation fauna habitat remaining within both the Mount Adams and Mount Horner land systems. Relative to the approved Locker Conventional Gas Project CPF location and export pipeline, the Proposal results in an overall reduction in clearing of fauna habitat within the Mt Horner Land System by approximately 4.6 ha and a reduction in overall clearing of fauna habitats by 3.3 ha
- When considered in the context of avoided impacts to species habitat within the redundant portion of the approved Locker Conventional Gas Project (CPF and export pipeline), this Proposal results in an overall reduction (albeit small) in cumulative impacts to Carnaby’s Cockatoo and Southern Whiteface habitat within the region

Inland Waters

Potential significant environmental impacts

- Drawdown from groundwater abstraction impacting surrounding groundwater users and/or potential groundwater dependent ecosystems (GDEs)
- Alteration of surface water flows
- Increased sediment load and reduction of quality of surface water in Sand Plain Creek
- Adverse changes to the quality of surface water in Sand Plain Creek and other unnamed tributaries or groundwater in the Development Envelope due to leaks and

Inland Waters

spills of fuel and other hazardous chemicals used during construction and operational activities

- Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope due to leaks or spills of hydrocarbon condensate, effluent or greywater from above ground infrastructure
- Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope through inappropriate design or management of evaporation ponds
- Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope through the leaking or unplanned discharge of hydrostatic testing water

Mitigation hierarchy

Avoidance

- HDD of the central flowline under Sand Plain Creek crossing point
- Location of the CPF more than 400 m from waterways
- Evaporation ponds located away from natural flow paths
- Hydrostatic testing water will be discharged to the evaporation ponds rather than directly into the environment

Minimise

- Groundwater abstraction will be undertaken in accordance with conditions set out in an existing 5C licence, with no additional allocation required
- Abstraction bores will be applied for under a 26D licence and metered and routinely monitored, with abstraction volumes to be reported to the Department of Water and Environmental Regulation (DWER) as per the 5C licence conditions
- Local monitoring bores to be routinely monitored for groundwater levels and reported against site specific trigger levels
- Design stockpiled material, earthworks, and excavations to reduce alterations to natural stormwater runoff as set out in the Stormwater Management Plan (**Appendix D2**)
- Hydrostatic testing water will be discharged to the evaporation ponds rather than directly into the environment
- Incorporate erosion and sediment controls during construction activities, including but not limited to:
 - Use of crushed rock less than 26.5 mm, considered as a gravel surface, as a suitable material for minimising sediment runoff, as well as an erosion control measure to stabilise soil
 - Use of non-woven geotextiles to be placed over the CPF gravel surface as a filter to reduce sediment runoff
 - During earthworks, conduct routine inspections of stormwater pathways for sediment load
- Standard Operating Procedures will be implemented for handling and use of hazardous materials. Risks associated with the storage and handling of chemicals and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. An Emergency Response Plan (ERP) and an Oil Spill Contingency Plan (OSCP) will be prepared,

Inland Waters

approved by the Department of Mines, Petroleum and Exploration (DMPE) and implemented. Key provisions will include:

- All tanks storing hydrocarbon liquids or chemicals will be appropriately bunded to prevent any spills being discharged to the environment
- Bunds will be regularly inspected to determine integrity and maintenance of capacity
- Storage containers will be labelled with the technical product name as per the relevant Safety Data Sheet SDS
- Storage containers will be closed when not in use
- Spill response equipment will be readily available at the site of hazardous material storage or use, including absorbent material
- All spills are to be recorded and immediately cleaned up in accordance with the OSCP
- Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas)
- Any contaminated material will be removed and disposed offsite to a licensed facility using an appropriately licensed contractor
- Within the CPF plant area separate drain systems will segregate potentially contaminated drains from clean stormwater run-off
- Waste Management measures will include:
 - Specific waste segregation systems utilised on-site
 - Waste stations to be located and designed to limit the potential for surface water and groundwater contamination
 - Covered waste receptacles utilised on-site
 - Waste hydrocarbon products will be stored in areas where spill containment is in use (i.e. bunded areas) prior to off-site disposal
 - Off-site disposal of waste will be undertaken via appropriately licensed contractors
 - All personnel will undergo site inductions related to waste management requirements
- Routine visual inspections will be conducted of above-ground pipelines for leaks
- Buried pipeline pressures will be monitored for signs of dropping pressure caused by potential leaks in the system and an internal inspection program (pipeline pigging) will be executed throughout the life of the facilities to meet the requirements of AS2885
- Routine monitoring and sampling of surface water and groundwater in the Development Envelope will be conducted to allow detection of any contamination (including microorganisms in the vicinity of the camp) arising from the Proposal
- Collection of runoff water within the CPF in accordance with the Stormwater Management Plan (**Appendix D2**)
- Two evaporation ponds will be installed to accommodate process water inflow from the CPF, accounting for normal rainfall and evaporation data appropriate for the site location. The ponds will be designed with a freeboard of 0.5 m to avoid spill of produced water during periods of high winds. The design volume of the ponds accounts for a 1 in 100-year rainfall event over a 24-hour period

Inland Waters	
	<ul style="list-style-type: none"> • Ponds will be installed with appropriate dual liners with an intermembrane leak detection system • Inspection of liner prior to commissioning of ponds • Produced water will be treated to target less than 20 mg/L free hydrocarbons • Groundwater monitoring bores will be installed proximal to the evaporation ponds and the stormwater basin to allow early detection of contamination • At least one evaporation pond will be available for use prior to hydrotesting of the pipelines
Residual impacts, including significant residual impacts	<ul style="list-style-type: none"> • Minor changes to surface flow pathways • Low risk of relatively small-scale accidental spills • Low risk of localised leakage or overspilling from evaporation ponds • Low risk of localised leakage or unplanned discharge of hydrostatic testing water
Expected environmental outcomes	<p>No significant residual impacts to inland waters associated with the Proposal are anticipated due to the following:</p> <ul style="list-style-type: none"> • Existence of other regulatory processes to assess and regulate environmental risks including a 26D licence application and a 5C licence amendment for groundwater use under the RiWI Act, Environment Plan and OSCP required under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012, and a Well Management Plan under the Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2015 • Characteristics of the Proposal design including location of the CPF away from major waterways and limited interaction of flowlines/pipelines with waterways including installation of flowlines beneath Sand Plain Creek using HDD • The low likelihood and relatively small scale and nature of potential impacts from an accidental loss or spill during construction and operational activities for the Proposal due to the proposed design, management and spill procedures • Development and implementation of a CEMP, including measures to reduce erosion risk • Proposed development and implementation of both infrastructure and environmental monitoring, including assessment of surface water and groundwater against baseline conditions

Air Quality	
Potential significant environmental impacts	<ul style="list-style-type: none"> • Reduction in air quality • Increased dust emissions
Mitigation hierarchy	<p>Avoidance</p> <ul style="list-style-type: none"> • Inclusion of a continuous pilot flame within the CPF flare system to ensure the flare flame is always lit, avoiding cold venting

Air Quality

	<ul style="list-style-type: none"> • Use of a high temperature, high efficiency thermal oxidiser within the CPF to ensure all volatile organic compounds are fully combusted prior to discharge. <p>Minimise</p> <ul style="list-style-type: none"> • Incorporation of absorption technologies designed to reduce air emissions: <ul style="list-style-type: none"> – Mercury absorption beds are included in the gas stream near the inlet to the CPF. These remove all mercury from the gas used for power generation, thermal oxidation or flared, avoiding mercury emission in combusted gas discharges. – Hydrogen sulfide absorption beds in the gas treatment system. This will remove H₂S from the gas stream and reduce SO₂ emissions from the thermal oxidiser, heating medium system, gas generators and flare. • Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading) • Minimising time between clearing and grading or trenching and backfill/reinstatement • Application of water or stabilisers via water trucks and sprayers to dampen down soil as required • Limiting topsoil stockpile height to less than 2 m in height • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles • Adherence to speed limits on public roads and implementation of speed limits on private access tracks and within the CPF site
<p>Residual impacts, including significant residual impacts</p>	<ul style="list-style-type: none"> • Localised increase in ground level concentrations (GLCs) of some air pollutant compounds, below accepted air quality criteria • Localised increase in fugitive dust, primarily during construction.
<p>Expected environmental outcomes</p>	<p>The air quality impact assessment concludes that there will be no significant impacts from the Proposal associated with a reduction in air quality or increased dust emissions due to the following:</p> <ul style="list-style-type: none"> • Predicted concentrations for all pollutants are expected to be below the relevant ambient air quality guideline criteria at all locations, including sensitive receptor locations • Increased dust emissions during construction will be short-term, highly localised and can be effectively managed • Standard dust suppression measures proposed to be implemented will be managed through a Part V EP Act Environmental Licence • Air quality throughout the life of the Proposal will be monitored and reported through Part V EP Act Environmental Licence conditions.

Greenhouse Gases

<p>Potential significant environmental impacts</p>	<ul style="list-style-type: none"> • Greenhouse gas emissions (Scope 1 and Scope 3)
<p>Mitigation hierarchy</p>	<p>Avoidance</p>

Residual impacts, including significant residual impacts	<ul style="list-style-type: none"> Scope 2 emissions will be avoided through the use of on-site electricity generation <p>Minimise</p> <ul style="list-style-type: none"> Selection of a reciprocating gas engine for on-site electricity generation resulting in a ~23% reduction in carbon emissions compared to selection of a gas turbine Incorporation of a gas-gas exchanger utilising heat from the inlet well stream gas to pre-heat the mercury guard bed inlet stream, reducing the heating demand Selection of a non-selective amine solution that targets CO₂ removal alongside a standalone H₂S guard bed, resulting in a 50% emissions reduction when compared with an amine solution designed for combined CO₂/H₂S removal Incorporation of a recycle compressor to reduce carbon emissions from flaring by up to 98%; the design returns low pressure vapours from the condensate stabilisation system for reprocessing in the gas plant Recycle of off specification export gas for reprocessing in lieu of flaring
	<ul style="list-style-type: none"> Greenhouse gas emissions (Scope 1 and Scope 3)
Expected environmental outcomes	<p>The combined Scope 1 and 2 GHG emissions from the Project are estimated to total 11,625 tCO₂-e from land clearing and construction activities, and 85,917 tCO₂-e per year for the operational phase in the higher emissions case, representing a targeted future scenario of Lockyer and West Erregulla gas blend (Case 2).</p> <ul style="list-style-type: none"> This is below the EPA assessment threshold of 100,000 tCO₂-e per year (EPA 2024a) and impacts associated with GHG emissions from the Proposal are therefore not considered to be significant

Terrestrial Environmental Quality	
Potential significant environmental impacts	<ul style="list-style-type: none"> Acid sulfate soils (ASS) disturbance leading to soil acidification Soil contamination as a result of the storage and handling of chemicals and hazardous materials during construction and operation of the proposal Increased erosion Soil contamination through inappropriate design or management of evaporation ponds
Mitigation hierarchy	<p>Avoidance</p> <ul style="list-style-type: none"> Proposal located in an area of low ASS risk HDD of the central flowline under Sand Plain Creek crossing point Evaporation ponds located away from natural flow paths <p>Minimise</p> <ul style="list-style-type: none"> Standard operating procedures will be implemented for handling and use of hazardous materials. Risks associated with the storage and handling of chemicals and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. An ERP and an OSCP will be prepared, approved by DMPE and implemented. Key provision will include: <ul style="list-style-type: none"> All chemicals used will be stored within a designated, bunded chemical storage area

Terrestrial Environmental Quality

- Hydrocarbon or chemical storage tanks will be bunded and constructed in accordance with Australian Standard AS1940:2004 the storage and handling of flammable and combustible liquids
- Bunds will be inspected regularly to determine integrity and maintenance of capacity
- Storage containers will be closed when not in use
- Storage containers will be labelled with the technical product name as per the relevant SDS
- Spill response equipment will be readily available at the site of hazardous material storage or use. All spills are to be recorded and immediately cleaned up in accordance with the OSCP
- Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas (except when undertaking minor clearing activities) and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas)
- Any contaminated material will be removed and disposed offsite to a licensed facility using an appropriately licensed contractor
- All personnel will be inducted on the appropriate storage and disposal of hydrocarbons and hazardous substances, use of spill kits and potential impacts associated with contamination
- Within the CPF plant area, separate drains systems will segregate potentially contaminated drains from clean stormwater run-off, as specified in the Stormwater Management Plan (**Appendix D2**).
- Waste Management measures will include:
 - Specific waste segregation systems utilised on-site
 - Covered waste receptacles utilised on-site
 - Waste hydrocarbon products will be stored in areas where spill containment is in use (i.e. bunded areas) prior to off-site disposal
 - Off-site disposal of controlled waste will be undertaken via appropriately licensed contractors
 - All personnel will undergo site inductions related to waste management requirements
- Management practices will be followed to minimise impacts associated with wind erosion during construction including:
 - Trenches will be progressively closed as the pipeline is laid to avoid stockpiling of surface materials for extended periods.
 - Within the CPF site, provision will be taken during construction to stop airborne silt and sand during windy periods by water suppression, until the sandy soils in the work area can be stabilised either by capping or seeding with ground cover. Any seeding activity will be compatible with the surrounding land use
- An appropriate liner will be selected compatible with the expected produced water chemical composition and design life to prevent vertical migration of water into the subsurface. The ponds will be installed with dual membranes with an intermembrane leak detection system installed
- Evaporation ponds will be designed to accommodate process water inflow from the CPF, accounting for normal rainfall and evaporation data appropriate for the site

Terrestrial Environmental Quality	
Residual impacts, including significant residual impacts	<p>location. The ponds will be designed with a freeboard of 0.5 m to avoid spill of produced water over the side during periods of high winds. The design volume of the ponds accounts for a 1 in 100-year rainfall event over a 24-hour period</p> <ul style="list-style-type: none"> • Inspection of liner prior to commissioning of ponds • Produced water will be treated to target less than 20 mg/L free hydrocarbons • Groundwater monitoring bores will be installed proximal to the evaporation ponds and the stormwater basin to allow early detection of contamination.
Expected environmental outcomes	<ul style="list-style-type: none"> • Low risk of relatively small-scale accidental spills • Short term, localised risk of wind erosion during construction • Low risk of localised leakage from ponds <p>No significant residual impacts to terrestrial environmental quality associated with the Proposal are anticipated due to the following:</p> <ul style="list-style-type: none"> • The Development Envelope is not within a known ASS risk area and soils within the CPF site were found to have low ASS risk • Design, management and spill procedures will minimise the likelihood and extent of spills during construction and operational activities for the Proposal • The relatively small scale and nature of potential impacts from an accidental loss or spill • Although the area is prone to wind erosion risks, management practices will be in place to reduce erosion risk associated with construction of the Proposal

Social Surroundings	
Potential significant environmental impacts	<ul style="list-style-type: none"> • Potential damage to Aboriginal cultural heritage (ACH) as a result of construction activities • CPF infrastructure may be visible from sensitive receptors and roads, impacting visual amenity • Dust, noise and light generated during construction and operations impacting local amenity
Mitigation hierarchy	<p>Avoidance</p> <ul style="list-style-type: none"> • Waterways have been avoided wherever practicable through the configuration of the central flowline • Heritage monitors will be present during initial ground disturbance activities, or as otherwise agreed with YSRC • CPF has been located to ensure that infrastructure is largely obscured from view by intervening vegetation and topography. While visible from several sensitive receptors, CPF is not an overwhelming feature of the view and blends with the landscape • CPF is located away from roads and sensitive receptors <p>Minimise</p> <ul style="list-style-type: none"> • Heritage survey has confirmed no impacts to registered ACH, but confirmed locations that will require appropriate management:

Social Surroundings

	<ul style="list-style-type: none"> – Sand Plain Creek and an unnamed tributary as culturally sensitive waterways • A Cultural Heritage Management Plan will be co-developed by the Proponent and YSRC and shall address the following: <ul style="list-style-type: none"> – Management of culturally significant waterways, including HDD – Procedure for potential discovery of subsurface ACH during construction activities – Traditional Owner heritage monitors at all initial ground disturbing works during construction, or as otherwise agreed with YSRC – Further survey effort, if required • Operational noise will comply with levels in the Environmental Protection (Noise) Regulations 1997 • Management measures to minimise impacts associated with increased light levels include (but are not limited to): <ul style="list-style-type: none"> – Substituting permanent flood lights for “resort style” lights at the accommodation camp – Lighting design around CPF facilities will consider warm light colours and minimise light spill in line with Dark Sky and Astrotourism principles (DPLH 2022) – Floodlights at the CPF will be limited to support essential operations and maintenance, and where required to meet safety standards – Night works will not normally occur, limiting the amount of light required for construction • Management measures to minimise impacts associated with increased dust levels include (but are not limited to): <ul style="list-style-type: none"> – Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading) – Application of water or stabilisers via water trucks and sprayers to dampen down soil as required – Limiting topsoil stockpile height to less than 2 m in height – Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles – Adherence to speed limits on public roads and implementation of speed limits on private access tracks and within the CPF site
<p>Residual impacts, including significant residual impacts</p>	<ul style="list-style-type: none"> • Potential impact to culturally sensitive waterways or artefacts • Various CPF infrastructure will be visible from several sensitive receptors • Potential for fugitive dust, noise, and light generated during the construction of the Proposal that could temporarily impact local amenity
<p>Expected environmental outcomes</p>	<p>No significant residual impacts to social surroundings are expected as a result of the Proposal due to the following:</p> <ul style="list-style-type: none"> • The minor nature of changes to the physical and biological environment after avoidance and mitigation • Consultation with Yamatji Southern Regional Corporation (YSRC) is on-going and will include co-design of a Cultural Heritage Management Plan to ensure that culturally sensitive waterways, any potential ACH, and potential undiscovered sub-surface ACH materials are appropriately handled to avoid significant impacts to cultural heritage

Social Surroundings

- Predicted noise emissions are within the guidance levels outlined in Environmental Protection (Noise) Regulations 1997
- The rural location and deliberate placement of the CPF limit the potential sensitive receptors for impacts to amenity
- Impacts to visual amenity will be minor and are not permanent (20-year lifespan of the Proposal)
- Impacts from dust (construction) and light (construction and operation) will be effectively mitigated through the proposed management measures

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Appendices

Appendix A : Legislative Context

Appendix B : Other Environmental Matters and Factors

Appendix D : Environmental Management Plans

Appendix E : YSRC Letter of Support (YSRC 2026)

List of Acronyms

Acronym	Description
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACH	Aboriginal Cultural Heritage
ACHIS	Aboriginal Cultural Heritage Inquiry System
AGIG	Australian Gas Infrastructure Group
AGRU	Acid Gas Removal Unit
AH Act	<i>Aboriginal Heritage Act 1972 (WA)</i>
ALARP	As low as reasonably practicable
ASS	Acid sulfate soils
BAM Act	<i>Biodiversity and Agriculture Management Act 2007 (WA)</i>
BC Act	<i>Biodiversity Conservation Act 2016 (WA)</i>
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals
BTEX	Benzene, ethylbenzene, toluene and xylene
BYAC	Bundi Yamatji Aboriginal Corporation
CAMBA	China-Australia Migratory Bird Agreement
CD	Conservation Dependent
CEMP	Construction Environmental Management Plan
CER	Clean Energy Regulator
CEZ	Clearing Exclusion Zone
CH ₂ O	Formaldehyde
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CPF	Central Processing Facility
CR	Critically Endangered
DBCA	Department of Biodiversity, Conservation and Attractions
DBH	Diameter at breast height
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DCCEEW	Department of Climate Change, Energy, the Environment and Water

Acronym	Description
DEED	Department of Energy and Economic Diversification
DGS Act	<i>Dangerous Goods Safety Act 2004 (WA)</i>
DLGIRS	Department of Local Government, Industry Regulation and Safety
DMPE	Department of Mines, Petroleum and Exploration
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EIA	Environmental impact assessment
EMP	Environmental management plan
EN	Endangered
EP	Exploration Permit
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
ERP	Emergency Response Plan
EW	Extinct in the Wild
EX	Extinct
GDE	Groundwater dependent ecosystem
GDP	Ground Disturbance Permit
GDV	Groundwater dependent vegetation
GEA	Gas engine alternators
GHG	Greenhouse gas
GLC	Ground level concentrations
H ₂ S	Hydrogen sulfide
The Proponent	The Proponent (PBN) Pty Ltd
HDD	Horizontal directional drilling
HFC	Hydro fluorocarbons
HSE	Health, Safety and Environmental
HSEMS	Health, Safety and Environmental Management System

Acronym	Description
IAAC	Irwin Arrowsmith Advisory Council
IBRA	Interim Biogeographic Regionalisation for Australia
ILUA	Indigenous Land Use Agreement
JAMBA	Japan-Australia Migratory Bird Agreement
MEG	Mono-ethylene glycol
Mig	Migratory
MNES	Matters of National Environmental Significance
MRU	Mercury Removal Unit
MWDC	Mid-West Development Commission
NEPM	National Environmental Protection Measure
NF ₃	Nitrogen trifluoride
NGER	National Greenhouse Energy Reporting
NO _x	Oxides of nitrogen
NO ₂	Nitrogen dioxide
NVCP	Native Vegetation Clearing Permit
NVIS	National Vegetation Information System
OS	Other species otherwise in need of special protection
OSCP	Oil Spill Contingency Plan
PD Act	<i>Planning and Development Act 2005 (WA)</i>
PEC	Priority Ecological Community
PFC	Perfluorocarbons
PGER Act	<i>Petroleum and Geothermal Energy Act 1967 (WA)</i>
PM _{2.5}	Fine particles
PP Act	<i>Petroleum Pipelines Act 1969 (WA)</i>
RiWi Act	<i>Rights in Water and Irrigation Act 1914 (WA)</i>
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SDAU	State Development Assessment Unit
SDS	Safety Data Sheet
SF ₆	Sulfur hexafluoride

Acronym	Description
SMP	Stakeholder Management Plan
SO ₂	Sulfur dioxide
SRE	Short-range endemic
TEC	Threatened Ecological Community
TOX	Thermal Oxidiser
ULP	Unleaded petrol
VIA	Visual Impact Assessment
VOC	Volatile organic compounds
VU	Vulnerable
WA	Western Australia
WAH	Western Australian Herbarium
WAPC	Western Australian Planning Commission
WWTP	Wastewater Treatment Plant
YSRC	Yamatji Southern Regional Corporation

List of Units and Definitions

Unit	Definition
%	Percent
µg/m ³	Micrograms per metre cubed
dB	Decibels
GL	Gigalitres
ha	Hectares
km	Kilometres
kPa	Kilopascals
L	Litres
L/hr	Litre per hour
L/day	Litres per day
m	Metres
m ³	Metres cubed

Unit	Definition
mg/L	Milligrams per litre
MMSCFD	Million standard cubic feet per day
mol%	Molar percentage
MW	Megawatts
PJ	Petajoules
Sm ³ /h	Standard metres cubed per hour
Sm ³ /day	Standard metres cubed per day
Sm ³ /year	Standard metres cubed per year
tCO ₂ -e	Tons of carbon dioxide equivalent
tCO ₂ -e/GJ	Tons of carbon dioxide equivalent per gigajoule
tCO ₂ -e/TJ	Tons of carbon dioxide equivalent per terajoule
tCO ₂ -e/year	Tons of carbon dioxide equivalent per year
tpa	Tons per annum
TJ/day	Terajoules per day

1. PROPOSAL

1.1. Proposal Description

In December 2024, Hancock Energy (the Proponent) acquired energy assets from Mineral Resources, including Exploration Permits (EP) 368 and 426 in the Perth Basin, which included the Lockyer gas discoveries and a proposal to construct a gas processing facility (which collectively were called the Lockyer Conventional Gas Project). Under the Belisama Gas Project (the Proposal), processing facilities that were previously to be part of the Lockyer Conventional Gas Project are no longer to be developed at the proposed location. Instead, the Proponent intends to construct and operate processing facilities approximately 20 km south of the original proposed location, to a parcel of land owned in freehold by the Proponent located at 1906 Yandanooka West Road, Milo, in the Mid-West region of Western Australia. It is approximately 25 km south-west of Mingenew (Lot 441 on Plan 2981; **Figure 1-1**). As a result, the proposal will reduce a number of potential environmental and community impacts associated with the Lockyer Conventional Gas Project proposal.

This Proposal will collect natural gas from the Lockyer Upstream Gathering System (the upstream portion of the referred Lockyer Conventional Gas Project; external to this Proposal) and direct it via a central flowline to a Central Processing Facility (CPF) – to be known as the Belisama CPF – where the gas will be treated. The product gas will be routed in a westerly direction from the Belisama CPF via an export pipeline to the Dampier Bunbury Natural Gas Pipeline (DBNGP) for supply to customers in the WA domestic gas market.

Additionally, the Belisama CPF will treat associated hydrocarbon condensate liquids, a by-product of the gas process, to allow its transport to a Western Australian near-port location for bulk storage and subsequent export. The Proposal includes a condensate stabilisation, storage, and offloading system to support road transport of liquid product, and additional on-site infrastructure to support the operations phase including an administration building with a central control room, offices and emergency response facilities, power generation equipment, warehousing, workshops, switch room infrastructure and accommodation buildings.

In 2023 the Proponent acquired Warrego Energy, securing a 50% stake in the West Erregulla gas field located in EP-469 in the Perth Basin. With the location of the Belisama CPF between the Lockyer gas field and the West Erregulla gas field, the Proposal could facilitate future processing of gas from the West Erregulla Field Development Program and/or additional undiscovered gas resources from the surrounding area. The Belisama CPF and associated infrastructure have been designed to accommodate future co-processing of alternative regional gas sources.

Whilst processing of West Erregulla gas through the Belisama CPF remains subject to commercial discussions with the joint venture partner, the corresponding potential future air and greenhouse gas emissions of this targeted future scenario are provided in this Proposal for transparency and to demonstrate the material benefits of co-processing. Co-processing a blend of gases from both the Lockyer and West Erregulla projects at a single centrally located CPF has the potential to reduce the combined greenhouse gas emissions from both projects.

The Proposal is designed to produce up to 210 TJ/day of sales quality gas. The Proposal is a conventional gas project and as such there will be no impacts from unconventional gas activities such as fracking.

The Proposal is contained within a 1,326.9 ha Development Envelope, with an indicative Disturbance Footprint of 291.5 ha (**Figure 1-2**). A general description of the Proposal is presented in **Table 1-1** and the key Proposal content elements are presented in **Table 1-2**, **Figure 1-3** and **Figure 1-4**.

Horizontal directional drilling (HDD) will be utilised for flowline and pipeline installation in a number of sensitive locations. This includes the intersection of the central flowline with Sand Plain Creek, and where the export pipeline crosses Yandanooka West Road and Mount Adams Road.

Within the Development Envelope, the Proponent has identified two areas of higher environmental value and will implement a Clearing Exclusion Zone (CEZ) over native vegetation in these areas.

Table 1-1: General Proposal Content Description

Keyword	Definition
Proposal Title	Belisama Gas Project
Proponent Name	Hancock Energy (PBN) Pty Ltd
Short Description	<p>The Belisama Gas Project is located in the Mid-West region of Western Australia, approximately, 25 km south-west of Mingenew. It involves the construction and operation of a Central Processing Facility (CPF) located at 1906 Yandanooka West Road, Milo (Lot 441 on Plan 2981). Gas produced from nearby gas projects (outside the scope of this Proposal) will be combined and transported, via a central flowline, for treatment at the CPF. Once treated, the gas will be directed into an export pipeline connected to the Dampier Bunbury Natural Gas Pipeline (DBNGP). The stabilised condensate byproduct will be stored on-site prior to being transported off site for export.</p> <p>The key components of the Proposal include:</p> <ul style="list-style-type: none"> • A buried central flowline • A CPF, including on-site infrastructure to support the operations phase including an administration building with a central control room, offices and emergency response facilities, power generation equipment, condensate storage, warehousing, workshops, switch room infrastructure and accommodation buildings • A gas export pipeline connecting the CPF to the DBNGP

Table 1-2: Proposal Content Elements

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Physical elements		
Central flowline	Figure 1-2	

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Export pipeline	Figure 1-3 Figure 1-4	291.5 ha of disturbance, including 5.7 ha of remnant native vegetation clearing within a 1,326.9 ha Development Envelope.
Central Processing Facility and supporting infrastructure: <ul style="list-style-type: none"> • Gas Liquid separation equipment • Gas processing train • Condensate stabilisation, storage and truck-loading facilities • Produced water treatment facilities • Oily water treatment facilities • Power station and power distribution • Buildings (warehouse, workshop, administration offices, central control room) • Process control and communications infrastructure • Diesel fuel and chemical storage • Flare and safety systems including firewater • Bore water treatment and supply systems including potable water • Evaporation ponds and stormwater sediment pond • Sewage treatment plants • Temporary construction utilities and laydown areas • Temporary and permanent accommodation camps 		Two areas within the Development Envelope totalling 21.8 ha have been designated as Clearing Exclusion Zones (CEZs) and will be avoided. Horizontal directional drilling (HDD) will be utilised at intersection of the central flowline with Sand Plain Creek, and where the export pipeline crosses Yandanooka West Road and Mount Adams Road.
Construction elements		
Construction water supply	NA	Up to 0.3 GL per annum from groundwater bores for a maximum of three years
Temporary Construction camp	Figure 1-4	Maximum 400-person capacity
Operational elements		
Natural gas production		Up to 210 TJ/day sales gas
Condensate production	NA	Up to 288 m ³ per day up to a max of 377 m ³ per day
Operation water supply		Maximum of 0.03 GL per annum from groundwater bores for the life of the Proposal

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Operations accommodation camp	Figure 1-4	28-person capacity, with the potential to expand to accommodate up to 40 persons in the future via the addition of accommodation modules.
Operational power demands		Maximum output of 15 MW
Proposal elements with greenhouse gas emissions		
Construction elements		
Scope 1	11,625 tCO ₂ -e	
Scope 2	N/A	
Scope 3	N/A	
Operation elements		
Scope 1	72,938 tCO ₂ -e/year under a base case scenario (processing of Lockyer gas only at 210 TJ/day sales gas). Up to a maximum of 85,917 tCO ₂ -e/year under a high emissions scenario (targeted future scenario co-processing a blend of gases at 210 TJ/day sales gas).	
Scope 2	N/A	
Scope 3	4,356,015 tCO ₂ -e/year under a base case scenario (processing Lockyer gas only at 210 TJ/day sales gas). 4,275,616 tCO ₂ -e/year when co-processing a blend of gases at 210 TJ/day sales gas (targeted future scenario).	
Rehabilitation		
<p>The Proposal utilises existing cleared areas (i.e., agricultural land and road reserves devoid of native vegetation) wherever possible, and HDD to traverse three locations (Sand Plain Creek, Yandanooka West Road and Mt Adams Road) to avoid impacts to native vegetation, potential heritage values and local traffic. Only small areas of native vegetation in areas necessary for on-going operational use will be cleared. Rehabilitation of native vegetation prior to decommissioning is therefore not relevant to this Proposal.</p>		
Commissioning		
<p>Environmental commissioning will be implemented in stages under an Environment Plan, approved by the Department of Mines, Petroleum and Exploration (DMPE), and an Environmental Commissioning Plan that will be developed as a requirement of the Works Approval process (Part V of the EP Act).</p>		
Decommissioning		
<p>In general, all structures, pipelines and equipment will be removed, except where the removal may have a higher impact than leaving in-situ (i.e., pipelines under roads). The Proponent will rehabilitate disturbed areas to re-establish native vegetation, restore the existing land use (i.e., agriculture) that existed prior to the implementation of the Proposal, or establish the agreed post-decommissioning land use.</p>		

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Other elements which affect the extent of effects on the environment		
Proposal time	Maximum project life	30 years
	Construction phase	Approximately 36 months
	Operations phase	Approximately 25 years
	Decommissioning phase	Approximately 24 months

1.1.1. Production Facilities Description

1.1.1.1. Central Flowline

The central flowline connects the central hub collection facility (external to the Proposal) to the CPF. Gas and condensate will be recovered from the Lockyer Upstream Gathering System, with the potential to incorporate gas from additional wells or discoveries in the area at a later date. The central flowline will be designed to comply with Australian Standard – The Standard for High Pressure Pipeline Systems (AS2885), which governs the design, installation and operation, including monitoring and maintenance, of high-pressure hydrocarbon containing pipelines in Australia.

The central flowline will be buried in all locations outside of the CPF site and a mid-line tie-in location, as mandated by AS2885. The mid-line tie-in location will facilitate the future connection of additional wells or discoveries in the area to use the Belisama infrastructure and will be secured, with access controlled consistent with the requirements mandated in AS2885 and relevant approvals under the *Petroleum and Geothermal Energy Act 1967* (PGER Act) and *Petroleum Pipelines Act 1969* (PP Act). The central flowline burial depth is expected to be deeper than the minimum mandated by AS2885 to ensure the flowline is not impacted by agricultural practices or by the loss of cover due to the erosion of the topsoil. HDD will be used to cross under Sand Plain Creek. The central flowline has been routed to preference the use of already cleared land, and routes are consistent with landholders’ preferences.

The construction of the central flowline will involve open trenching, laying of flowline, the backfilling of the excavation trenches and construction of access tracks. Details of the process are presented below, with an indicative cross section provided in **Figure 1-5**:

- Progressive corridor clearance will occur ahead of construction if required. The clearance corridor will be of such a size to allow for construction equipment access, pipe layout areas, trench excavation and separate topsoil/subsoil windrow stockpiles, and will not exceed 30 m except where multiple flowlines are installed in parallel, e.g., on approach to the central hub, where the clearance corridor may be wider, up to 40 m
- Trench excavation will occur within the clearance corridor where all excavated spoil will be stockpiled alongside the trench. Stockpiles will be separated into a stockpile for topsoil and a stockpile for sub-surface soil

- The central flowline will be externally coated carbon steel lined pipe, constructed and installed in accordance with AS2885
- Bedding (where applicable) and padding of trenches will be undertaken with clean sand (either via screening of trench spoil or sand from a locally sourced and approved existing borrow pit)
- On completion of padding over the installed central flowline, the trench will be backfilled with the remainder of the excavated spoil and compacted
- Hydrostatic testing of the flowline will be undertaken to ensure compliance with design requirements and in accordance with AS2885. Hydrostatic testing will occur over a limited duration
- Disturbed areas that are not required for operations will be restored to their pre-existing land use (for example, agricultural land).

Hydrostatic testing water will be chemically treated to ensure the internal surface of the central flowline is not damaged. Where possible, water will be re-used for sequential testing to minimise the overall volume of testing water. Hydrostatic test water will be displaced to the CPF evaporation pond.

1.1.1.2. Central Processing Facility

The CPF will comprise all the processing operations for the treatment of raw gas to the specification required for transport via the DBNGP, treatment of the associated hydrocarbon liquids (condensate) to the specification required to allow transport off-site via trucks and treatment of the produced water to support disposal via evaporation. The elements of the CPF are described below.

Hydrocarbon Processing Systems

The Hydrocarbon Processing Systems will include:

- Slug catcher to provide initial separation of liquids and gas arriving at the CPF from the central flowline.
- Inlet cooling and inlet separation to ensure gas treatment temperatures are consistent and support the efficient operation of the gas conditioning system. Air coolers and integrated (cross) heat exchangers are specified to optimise the thermal efficiency of the gas processing system, reducing the heating demand, and removing the requirement for water cooling
- Mercury Removal Unit (MRU) to remove any trace mercury from the gas stream to avoid the potential for contamination of gas plant equipment or mercury release to the atmosphere. The MRU media permanently absorbs mercury
- Inlet compression (in future) to support reservoir management and extend production efficiency over the full life of the field. The future inlet compressors will be configured with electric motor drives powered from the centralised power generation to improve the overall facility energy efficiency
- Hydrogen sulfide (H₂S) removal system to remove H₂S to meet the DBNGP specification limit. An absorbent bed system is specified which permanently binds H₂S, avoiding the production of sulfur dioxide (SO₂) during the thermal oxidation of acid gases removed in the Acid Gas Removal Unit (AGRU) or during the combustion of gas for power generation or heating
- Amine based Acid Gas Removal Unit (AGRU) to remove CO₂ to meet the DBNGP specification limit. The AGRU system may be fully or partially bypassed during normal operations depending on the CO₂ content of the wellstream gas, which is expected to be very close to the DBNGP specification based on reservoir

sampling of wells already drilled and tested. An amine regeneration system (closed loop) is installed as part of the AGRU.

- Hydrocarbon and water dewpointing system to reduce water and heavier hydrocarbons to meet the DBNGP dewpoint specification limit. Joule-Thompson cooling and low temperature separation will be used to achieve the required dewpoint, and mono-ethylene glycol (MEG) is used for hydrate control. The MEG is regenerated for reuse in a closed loop system.
- Export compression and metering of treated gas to allow transport through the gas export pipeline and export into the DBNGP. The export compressors will be configured with electric motor drives powered from the centralised power generation to improve the overall facility energy efficiency.
- Condensate stabilisation system to treat liquid hydrocarbons to the vapour pressure specification required for road transport within Western Australia. A recycle compressor will be included in the facilities to capture gas from the condensate stabilisation system for recycling to the inlet separator for re-treatment, avoiding flaring.
- Condensate storage tanks and road transport tanker loading facilities. Each area will be fully bunded with drainage designed to meet the requirements of the Australian Standard for The Storage and Handling of Flammable and Combustible Liquids (AS1940). The condensate storage system will include an off-specification tank to allow re-processing of condensate through the stabiliser if required.
- Produced water treatment system to remove hydrocarbons from the water originating from the reservoir prior to routing it to the evaporation pond for disposal. Produced water is separated as part of the gas inlet and conditioning systems. Entrained liquid hydrocarbons are recovered back to the condensate system, whilst the treated water is routed to the evaporation ponds. The ponds are designed to accommodate all expected produced water, as well as brine from the potable water system, oily water from the drains system and direct precipitation from rainfall.
- Emergency flare system to safely dispose of pressurised gas during a CPF process emergency event.

A gas train recycle has been included in the design. This will reduce flaring during start up or processing upsets by allowing off-specification gas to be recycled back to the inlet of the CPF for re-treatment.

A connection between the Belisama gas export pipeline and the fuel gas system is provided. This will allow power generation to continue to be run on fuel gas during short duration shutdowns, minimising the use of the diesel generator and hence diesel consumption.

Supporting Utility Systems

The supporting utility systems will include:

- Power generation and distribution system including main power generation and a diesel emergency generator. The main power generation will be via gas engines and will include a Battery Energy Storage System to provide reserve to support the gas generators
- Fuel gas system using treated gas for power generation, process heating and the thermal oxidiser
- Instrument air system to support operation of the control and safety system valves and pneumatic pumps
- Nitrogen system to support safe operations and maintenance
- Hot oil closed loop heating system to provide process heating

- Thermal oxidiser to support high temperature incineration of the waste stream from the AGRU amine regeneration
- Closed drains system
- Fire water system (using untreated water) for firefighting (if required)
- Service water system using bore water for general site use
- Water treatment system treating bore water to potable water and distilled water specification for life support and use within the gas processing system
- Diesel storage and distribution system. Diesel users are limited and include the fire water pumps and emergency generator as well as site vehicles
- Oily water treatment system to treat potentially contaminated drains water prior to discharge to the evaporation ponds.

Site Infrastructure

Additional site infrastructure will include:

- Site fencing and gates
- Water bore, bore pump, and untreated water distribution piping
- Telecommunications infrastructure
- Construction laydown areas to support facilities construction
- Workshops, sheds, secure storage, and laydown areas to support construction and operations
- Drainage and stormwater management for CPF and camp areas, segregated from process area drains
- Produced Water Evaporation Ponds
- Groundwater quality monitoring bores
- Condensate (liquid hydrocarbon) truck loading area
- Operations support buildings including Central Control Room and emergency response equipment room
- Temporary construction camp inclusive of all supporting utilities
- Operations village with utilities supplied from the CPF
- Sewage systems for the camp and village accommodation and CPF office areas
- Sedimentation pond for stormwater runoff.

CPF Site Design and Construction

The CPF facilities will be installed on graded pads using a combination of concrete pads and piled foundations. The CPF will use a modular fabrication strategy to maximise construction works in the controlled environment of specialist fabrication workshops and minimise the work required on site. The design will simplify the site installation work and required interconnection between modules as much as possible.

The CPF civil design and drainage system will support the segregation of process drains from clean stormwater runoff. All equipment that has the potential for liquid spills will be bunded and collected liquids will be drained to a common collection point for routing to an oily water separator or recovered to waste containers for reprocessing at the CPF or disposal, consistent with the type of liquid and the waste management plan. Self-

contained bunding will be provided for hazardous liquids including methanol, general chemicals and condensate storage.

1.1.1.3. Gas Export Pipeline

The installation of the gas export pipeline will involve the construction of approximately 18 km of underground pipeline with connecting mechanisms at either end to tie into the CPF and the DBNGP. HDD will be utilised where the export pipeline crosses Yandanooka West Road and Mount Adams Road to avoid impacts to road infrastructure and adjacent roadside vegetation.

Sales gas will be exported to the DBNGP via the Australian Gas Infrastructure Group (AGIG) owned and controlled custody transfer station located at the connection to the DBNGP. The methodology used for the construction will be consistent with that outlined for the central flowline in **Section 1.1.1.1**.

1.1.2. Operations Description

The primary objective of the Belisama operations is to maximise economically recoverable reserves and value whilst operating in a safe, efficient, and environmentally responsible manner.

The Belisama facilities will be designed according to the principle of “permanent site personnel levels with minimal operator requirement”. This requires consideration of the level of process automation, remote actuation of valves, remote start/stop of equipment, remote access to data, and other instrumentation/control system features that will allow the personnel levels to be minimised. The design features that support efficient operations and a high level of technical integrity across the facilities simultaneously contribute to ensuring environmental performance targets are met, as equipment is well maintained and operated as designed.

The CPF will be permanently manned, whilst the Lockyer Upstream Gathering System (not part of this Proposal) will be remotely operated from the CPF with operations and maintenance tasks performed by personnel normally based at the CPF.

1.1.2.1. Waste Management

The waste management philosophy aligns with the following general guiding principles:

- Impact to the environment and natural area in and around the facility will be minimised
- Equipment will be designed to contain process fluids within primary containment (vessels, piping, tanks) or direct fluids to secondary containment where required as part of normal maintenance and inspection activities
- Spillage to grade of fluids removed from equipment as part of normal maintenance and inspection activities will be avoided. Bunds and drip trays will be used to ensure liquids are contained and recovered
- All waste will be recycled/reprocessed when possible or disposed of off-site to an approved and appropriate disposal facility using experienced waste management contractors/services, consistent with local and state regulations.

Chemical and Hazardous Materials Storage

Hazardous materials will be handled and stored in accordance with the requirements on the associated Safety Data Sheet (SDS). Designated areas will be assigned for hazardous material storage and materials will be stored in appropriate containers that are clearly labelled to identify their contents.

H₂S Removal Unit Spent Catalyst

The H₂S Removal unit will consist of adsorbent beds. The catalyst will gradually be consumed as it chemically reacts with H₂S in the gas passing through the bed. H₂S reacts chemically with the media to form a stable and safe by-product.

Replacement of the spent catalyst will occur during planned maintenance shutdowns. The spent media is non-pyrophoric and non-hazardous. Removal of spent media from the beds and off-site disposal will be carried out using an experienced contractor familiar with the specific media type and applicable regulations.

Mercury Removal Unity Spent Catalyst

The MRU will consist of adsorbent beds. The catalyst will gradually be consumed as it chemically reacts with mercury in the gas or condensate passing through the bed. The media provides irreversible removal of mercury from hydrocarbon gases and liquid. Changeout of the spent catalyst will occur during planned maintenance shutdowns.

The spent media is considered hazardous waste. There are currently two Australian processors who can extract the mercury from the spent material and recover other catalyst metals. The spent media will be shipped to a smelting plant in airtight metal containers. Mercury will be separated before the other metals are extracted and recycled into industrial applications.

Removal of spent media and off-site transportation to the mercury waste processor will be carried out using an experienced contractor familiar with the specific media type and applicable regulations.

Used Amine and MEG Solvents

Used amine and MEG solvents that are periodically replaced due to degradation and contamination will be (separately) collected in a dedicated drain tank and will be trucked out and disposed of at an approved off-site facility.

Non-Process Waste

Waste stations will be established around the CPF and will include areas with enough appropriate bins to facilitate segregation (e.g. green waste, general rubbish, recycling, controlled waste etc.). Waste stations will be located and designed to limit the potential for surface water and groundwater contamination.

1.1.3. Decommissioning

The Proposal facilities will be decommissioned and removed at the completion of production activities. Reinstatement and rehabilitation of the sites to the agreed post-decommissioning land use will be completed as part of the decommissioning activities.

The decommissioning of the Proposal, at a minimum, will be consistent with the regulatory requirements in place at the time of production cessation. Where regulations are not prescriptive, a risk assessment will be undertaken to determine the lowest risk approach, considering health, safety and environmental outcomes using the 'so far is as reasonably practicable' principles.

Decommissioning and rehabilitation of the facilities will include:

- **Central Flowline and Export Pipeline** – In general, buried flowlines/pipelines will be removed and the trench sites backfilled and stabilised. Where it may not be appropriate to remove all property, equipment and infrastructure as doing so may not be feasible or may result in greater harm to the surrounding environment, grouting or other techniques to support leaving in-situ will be considered and subject to relevant approvals under the PGER Act and PP Act.
- **Facilities** – The Proposal will be designed using modular fabrication and construction techniques as far as practicable to assist in future decommissioning and removal of the gas plant facilities from the site. As part of this process, all gas plant facilities and supporting infrastructure will be removed from the CPF site. Piles (if used for foundations) will be removed to a depth that will ensure that future use of the land is not impacted. The scope of rehabilitation will be determined based on regulatory and landholder requirements but is expected to include removal of all introduced materials, ripping of compacted areas, replacement of topsoil and stabilisation methods.

All decommissioning, will be carried out consistent with the following methodology:

- Planning and assessment, including engagement with landholders and other stakeholders
- Securing of required regulatory approvals
- Shutdown of facilities and permanent isolation from hazard sources
- Hazardous material removal, equipment cleaning, purging, and flushing, and disposal
- Equipment and infrastructure dismantling, removal from site and disposal
- Environmental clean-up, site reinstatement and rehabilitation
- Ongoing monitoring as required
- Documentation and reporting.

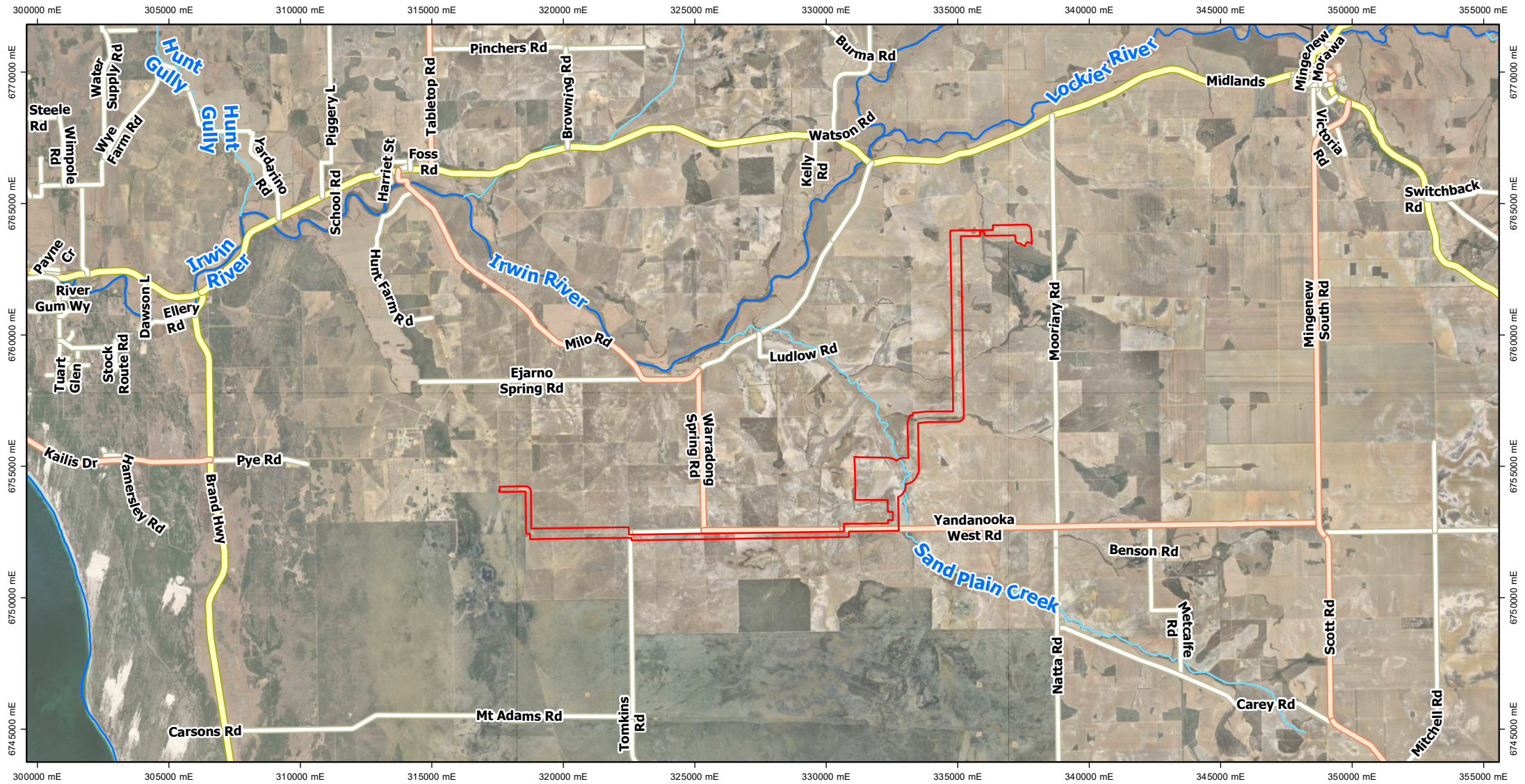
The facilities decommissioning and rehabilitation process will be planned and executed to ensure risks to personnel health and safety, environmental protection, and compliance with applicable regulations are managed.

1.1.4. Clearing Exclusion Zones (CEZ)

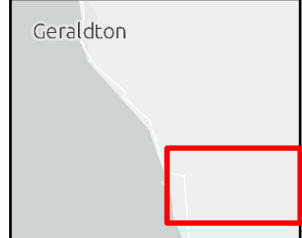
Within the Development Envelope, the Proponent has identified two areas of higher environmental value and will implement a CEZ over native vegetation in these areas:

- CEZ 1 is located 1.6 km to the south of the CPF and covers roadside vegetation along both sides (north and south) of Yandanooka West Road. It covers a total of 20.6 ha, of which 15.0 ha is native vegetation and has been placed specifically to avoid impacting continuity of the intact vegetated roadside corridor, as well as an area of high-density Priority flora records.

-
- CEZ 2 is located 6.1 km north of the CPF, covering a total of 1.2 ha remnant of Shrubland on lateritic breakaway fauna habitat type approximately midway along the central flowline. It was placed for the purpose of avoiding high habitat value for short-range invertebrate fauna. CEZ 2 also covers a number of Priority flora species records. The central flowline route will be deviated to follow an existing access track in this location.



AREA OF DETAIL:



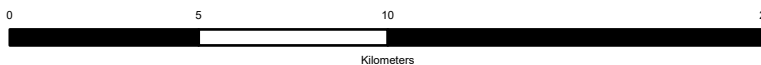
PREPARED BY:
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LEGEND:

- Development Envelope
- Major Watercourse
- Minor Watercourse
- Primary Distributor
- Local Distributor
- Regional Distributor
- Access Road
- Roads

Scale: 1:200,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 1-1: Regional Context of the Proposal

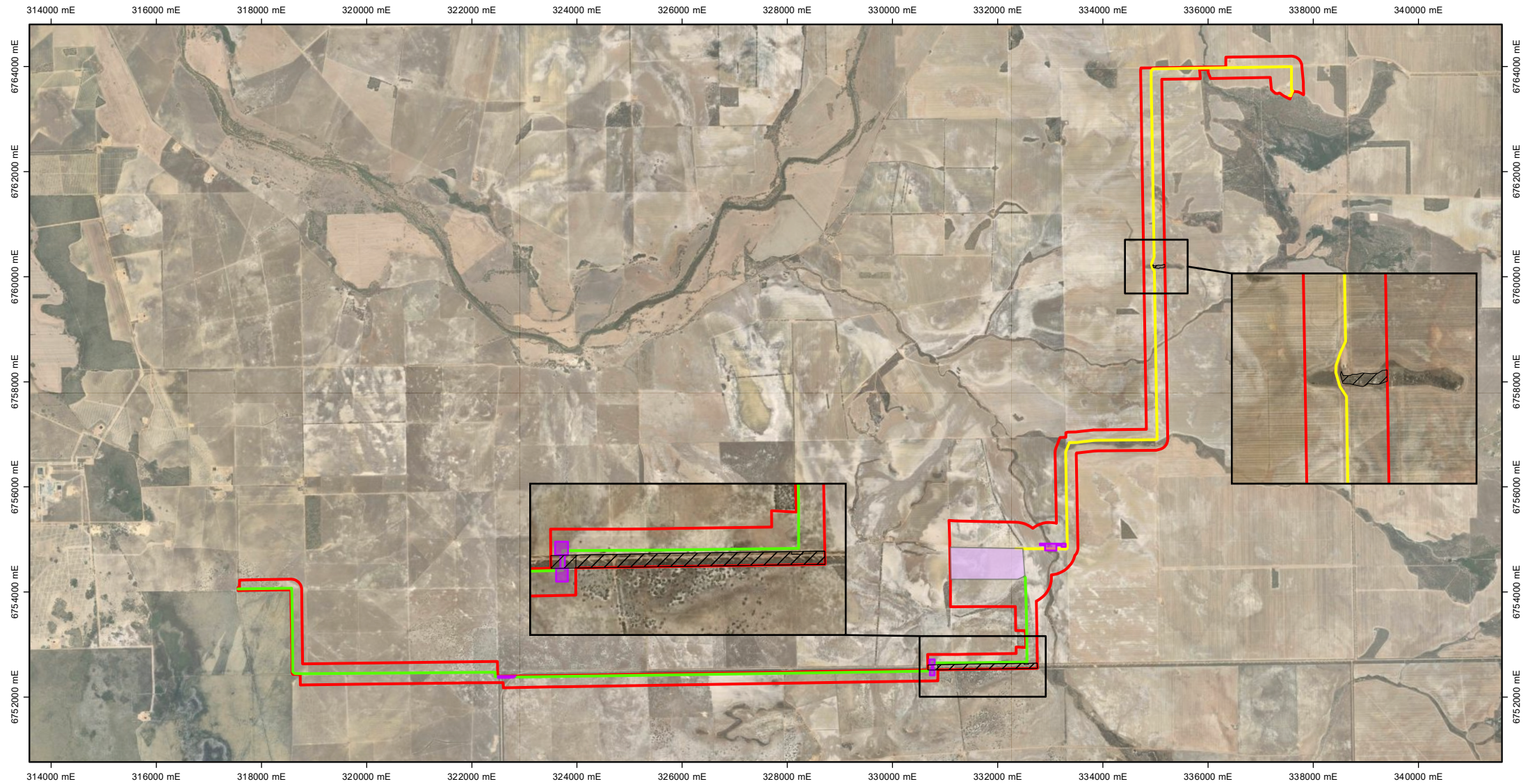
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DATE: 15/04/2026

DATA SOURCE:
 Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026



AREA OF DETAIL:



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LEGEND:

- Development Envelope
- Clearing Exclusion Zones

Indicative Layout

- Central Processing Facility and Supporting Infrastructure
- Horizontal Directional Drilling Locations
- Export Pipeline
- Central Flowline

Scale: 1:100,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 1-3: Proposal Elements

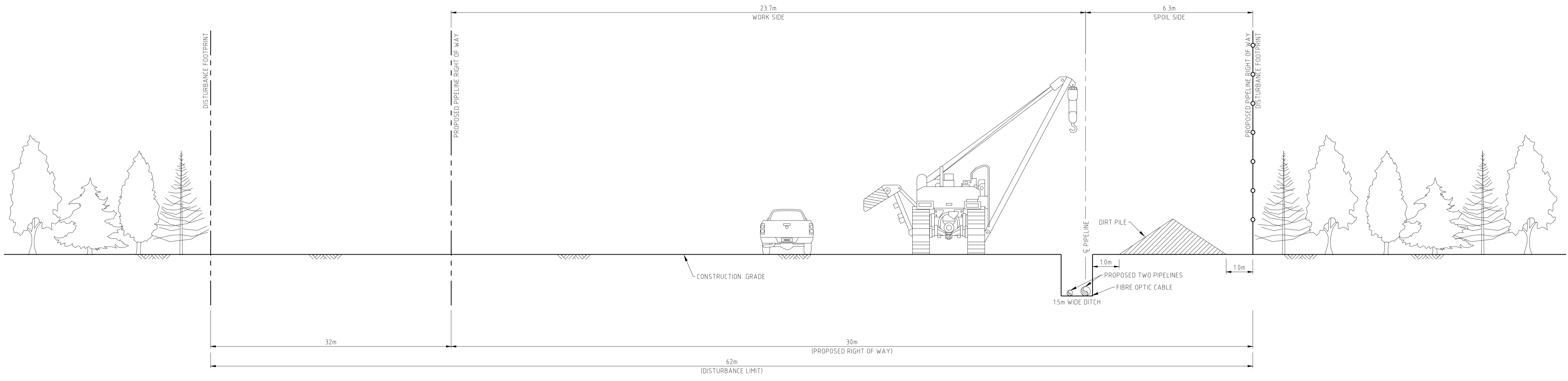
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DATE: 14/04/2026

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DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date



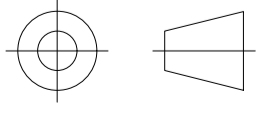
SECTION E
 NTS LAY-000004

NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
2. TYPICAL LAYOUT FOR RIGHT OF WAY IS SHOWN. THE CONTRACTOR SHALL PLAN THE LAYOUT BASED ON THE CONTRACTOR'S WORKING METHOD ONCE APPROVED BY MINRES. LOCATION OF PIPELINE SHALL NOT DIFFER FROM THAT IS SHOWN ON THIS DRAWING.
3. REFER TO LAND OWNER MAP FOR THE DIRECTION AND LOCATIONS OF CROSS SECTION.



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DO NOT SCALE PRINT		PROJECT BGP - BELISAMA GAS PROJECT		REV A	
		TITLE AREA 0000 - GENERAL			
RIGHT OF WAY CROSS SECTION FOR LAND OWNERS (SECTION E)					
SCALE AS SHOWN	DRG No BGP-0000-PP-DRG-000018	ENGINEER APPROVED A. QUIRK		PROJECT MANAGER B. THOMSON	
DRAWN A. MANN	CHECKED A. MANN				
DATE 25/02/2026					

REV	DESCRIPTION	DATE	DRN	CHK	APP
A	ISSUED FOR INFORMATION (EQUINOX PROJECT #923-00-03)	11/03/2026	AM	AQ	BT

LAND OWNER MAP-PIPELINE ROUTING LAYOUT (BF KELLY & SONS PTY LTD)

BGP-0000-PP-LAY-000004

1.2. Proposal Alternatives

A key rationale underpinning the Belisama Gas Project is the reduction in greenhouse gas emissions and environmental and social impact achieved by utilising a single central CPF and export pipeline to co-process and export gas from several fields to the DBNGP.

In addition, the Proposal is designed to avoid environmental impacts where possible or minimise impacts to As Low as Reasonably Practicable (ALARP) where unavoidable. Design decisions are discussed within the relevant sections and summarised below as they relate to:

- Integration of surrounding upstream gas projects
- Location and infrastructure layout
- Technology selection.

1.2.1. Integration of Surrounding Upstream Gas Projects

On 2 April 2024 Energy Resources Ltd referred the Lockyer Conventional Gas Project to the Environmental Protection Authority (EPA) under Part IV of the EP Act. The proposal comprised up to six natural gas production wellheads, an infield gathering system routing all gas to a CPF for processing, and transport of treated gas via pipeline to the DBNGP. The EPA found that the likely environmental effects of the proposal were not so significant as to warrant formal assessment. This was primarily due to the largely cleared agricultural landscape in which the proposal was located, various design decisions, adopted technologies, and the mitigation strategies proposed to be implemented. Although not considered significant by the EPA, a number of impacts remain in association with implementation of the Lockyer Conventional Gas Project, including potential impacts on a number of adjacent landholders in close proximity of the project.

The opportunity to locate the CPF approximately 20 km south of the original proposed location, to a parcel of land owned in freehold by the Proponent located at 1906 Yandanooka West Road, Milo, provides an opportunity to reduce potential social impacts due to the Belisama site's favourable topographical and landscape characteristics, and through reduction in the number of, and scale of impact to, sensitive receptors.

In addition, the location of the CPF under the Belisama Proposal between the Lockyer gas fields and the West Erregulla gas fields provides a future opportunity, pending commercial arrangements, to alleviate impacts associated with the West Erregulla Processing Plant and Pipeline proposal through co-processing a blend of gases from both projects at a single centrally located CPF.

On 4 June 2021, AGI Operations Pty Ltd referred the West Erregulla Processing Plant and Pipeline to the EPA for the processing of third-party upstream gas wells and transport via pipeline to the DBNGP. The Proposal was assessed on referral information with additional information, with approval issued 8 July 2024. In its approval, the EPA noted potentially significant impacts to the Flora and Vegetation and Terrestrial Fauna environmental factors, primarily due to clearing of up to 90 ha of native vegetation.

In its assessment, the EPA noted community concern regarding the proposal, as well as 'a need for infrastructure planning in the region to avoid increased environmental impacts from clearing from multiple

plants, fragmentation of habitat from multiple pipelines’ and ‘...decreased ability to take advantage of emissions efficiencies and reductions which are only available at scale’.

Under a targeted future scenario, the Belisama Proposal could circumvent construction of the West Erregulla Processing Plant and Pipeline, resulting in multiple environmental and social benefits and addressing EPA concerns listed above. Relative to the implementation of the Lockyer Conventional Gas Project and the West Erregulla Processing Plant and Pipeline, the potential future benefits of the Belisama Proposal include:

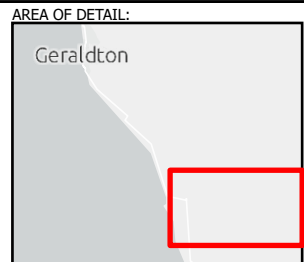
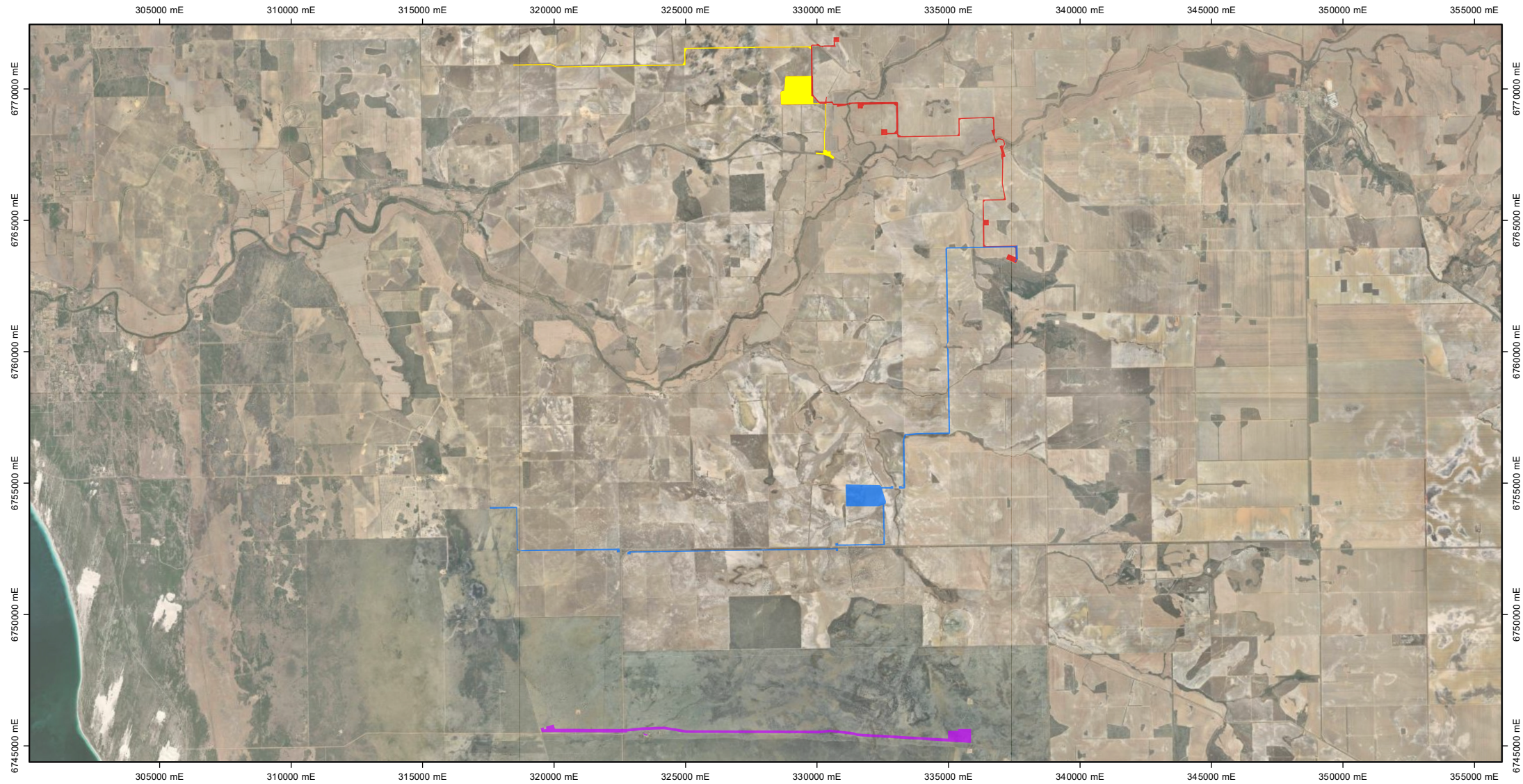
- Reduction in clearing of native vegetation by up to 92 ha
- Avoidance of impacts to threatened flora
- Reduction in Scope 1 greenhouse gas emissions by 98,232 tCO₂-e/year.

A comparison of the indicative disturbance footprint between the Proposal, and approved infrastructure at the Lockyer and West Erregulla gas projects is shown in **Figure 1-6** and the net positive environmental benefits that would occur under the targeted future co-processing scenario when compared to the Lockyer and West Erregulla gas projects is summarised in **Table 1-3**.

Section 8 of this document includes detailed information regarding greenhouse gas emissions benefits of the targeted future scenario involving co-processing of Lockyer and West Erregulla gas reserves. Pending commercial arrangements, the blending of gas from the West Erregulla Field Development Program with gas from the Lockyer Upstream Gathering System has potential to result in significantly lower overall emissions, owing to a difference in composition between the two gas resources.

Due to a low heating value, West Erregulla gas processed independently would require removal of excess CO₂ and subsequent release to the atmosphere, to meet the minimum heating value for sale into the DBNGP. In contrast, the composition of Lockyer gas delivers high energy per unit volume relative to other Perth Basin gas fields. Under a co-processing scenario (comprising 125 TJ/day and 85 TJ/day for Lockyer and West Erregulla gas respectively) the heating value of blended gas would be sufficient to meet the DBNGP minimum heating value at the pipeline maximum CO₂ level, reducing the requirement to remove excess CO₂. This blending effect is the primary reason that when a mix of Lockyer and West Erregulla gas is co-processed at the Belisama CPF, the Scope 1 greenhouse gas (GHG) emissions are below those of previously approved standalone West Erregulla processing facility at 87 TJ/day.

In addition to the blending effect, processing several fields at a single CPF provides synergies in utility systems, reducing the emissions per unit of gas processed when compared with two or more separate CPFs processing the fields separately; this is a second order impact compared to the benefits of blending.



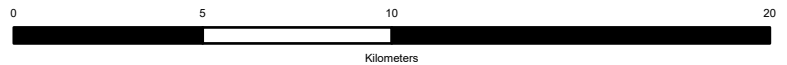
PREPARED BY:
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 West Perth, WA 6005
 Phone: +61 8 9429 8222



LEGEND:

- This Proposal
- Related Projects**
- Approved Lockyer CPF and Export Pipeline - will not be progressed
- West Erregulla Processing Plant and Pipeline
- Lockyer Upstream Gathering System - retained

Scale: 1:200,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals					
TITLE: Figure 1-6: Comparison of Indicative Disturbance Footprint between the Proposal, Lockyer Conventional Gas Project, and West Erregulla Processing Plant and Pipeline					
SUBTITLE:					
DATE: 15/04/2026					
DATA SOURCE: Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User					
DOCUMENT STATUS:					
0					
Revision	Description	SP Author	QC Reviewer	CR Approved	Date 21/01/2026

Table 1-3: Key Environmental and Social Impacts Associated with this Proposal Under Targeted Future Co-processing Scenario

Relevant EPA factor	Current Approved Projects (as referred)			Belisama Alternative		
	Lockyer Conventional Gas Project		West Erregulla Processing Plant and Pipeline	This Proposal	Overall Development	Net Benefit relative to stand alone West Erregulla and Lockyer projects
	CPF and Export Pipeline	Upstream Gathering System	CPF and Export Pipeline	Central Flowline, CPF, and Export Pipeline	This Proposal + Lockyer Upstream Gathering System (only)	
Flora and vegetation and Terrestrial fauna	~3.2 ha clearing	~3 ha clearing	90 ha clearing 153 ha offset requirement	<2 ha clearing	<5 ha clearing	~91.2 ha reduction in clearing, and no likely offset requirement
Scope 1 Greenhouse gas emissions	Plant capacity: 250 TJ/day 78,198 tCO ₂ -e/year	NA	Plant capacity: 87 TJ/day 105,951 tCO ₂ -e/year (Year 1 and 2)	Plant capacity: 210 TJ/day 85,917 tCO ₂ -e/year	Plant capacity: 210 TJ/day 85,917 tCO ₂ -e/year	~98,232 reduction in annual emissions and reduced emissions intensity
Air quality	1.8 km to sensitive receptors	NA	<5 km to sensitive receptors	>4 km to sensitive receptors	>4 km to sensitive receptors	Single CPF only Increased distance to sensitive receptors relative to Lockyer
Social Surroundings (amenity)	1.8 km to sensitive receptors		<5 km to sensitive receptors	>4 km to sensitive receptors	>4 km to sensitive receptors	Single CPF only Increased distance to sensitive receptors relative to Lockyer

Relevant EPA factor	Current Approved Projects (as referred)			Belisama Alternative		
	Lockyer Conventional Gas Project		West Erregulla Processing Plant and Pipeline	This Proposal	Overall Development	Net Benefit relative to stand alone West Erregulla and Lockyer projects
	CPF and Export Pipeline	Upstream Gathering System	CPF and Export Pipeline	Central Flowline, CPF, and Export Pipeline	This Proposal + Lockyer Upstream Gathering System (only)	
	~5 adjacent landholders Multiple local road users		Limited potential to impact adjacent landholders Limited local road users	Limited potential to impact adjacent landholders Limited local road users	Limited potential to impact adjacent landholders Limited local road users	

1.2.2. Location and Infrastructure Layout

1.2.2.1. CPF Location and Site Layout

Advantages of a centrally located CPF servicing both the Lockyer gas field and (under a future targeted scenario) West Erregulla gas field are discussed in **Section 1.2.1**.

At a local scale, the Belisama CPF location at 1906 Yandanooka West Road, Milo was selected based on site specific landholder, environmental and agricultural characteristics. This location was preferred for its ability to provide adequate separation from key environmental features including inland water ways, minimal impacts to native vegetation, adequate distance from sensitive noise and air quality receptors, and minimal visual impacts to the surrounding area. In addition, the selected site was not used or deemed suitable for cropping due to the poor quality of the sandy soil.

The CPF site and accommodation facilities are entirely located within previously cleared agricultural land owned by the Proponent, with no native vegetation at risk from clearing. The Development Envelope around the CPF site has been revised to align with an existing access track along the western edge, avoiding a patch of remnant vegetation. A number of key changes to the Development Envelope adopted for the purpose of avoiding impacts to environmental values are summarised in **Figure 1-7**.

The CPF gas processing facilities are located to utilise the flattest area within the site to minimise the extent of civil earthworks required to develop a pad suitable for the installation of the gas plant equipment (**Figure 1-4**). A minimum separation distance of 500 m from Sand Plain Creek has been considered when siting all CPF processing facilities. The Operations Village to the west of the CPF is located to maximise separation of the accommodation facilities from the CPF whilst remaining within the overall site boundary and providing separation from native vegetation areas to minimise risks associated with bushfires.

1.2.2.2. CPF Site Access Selection

The CPF site will be accessed via a new access point from Yandanooka West Road.

The site access point was selected considering safe visibility distances in both directions along Yandanooka West Road. The CPF access road is routed to avoid a small stand of existing vegetation north of Yandanooka West Road. An existing track to the west of the selected access point was considered, but as this was close to the top of a crest in the road, sight lines to the west along Yandanooka West Road were impaired.

The main access driveway to the Mount Adams (north) property was considered unsuitable due to the presence of established trees on both sides of the track, providing insufficient width for construction equipment and materials to be mobilised to the site.

1.2.2.3. Export Pipeline and Central Flowline Route Selection

The selected route for the central flowline and export pipeline considers the preferences of landholders, the requirement to avoid impacting native vegetation where possible, the requirement to minimise impacts to productive agricultural land, and maintaining adequate distance from sensitive receptors. The central flowline

and export pipeline follow existing farm boundaries, adjacent to existing roads, tracks and paddock fences as far as possible, rather than taking a more direct and hence shorter route.

The Development Envelope has undergone refinement several times over the design period to avoid impacts to environmental factors and reduce unnecessary footprint along the central flowline and export pipeline, in particular avoiding areas of remnant native vegetation. Areas that were included within early iterations of the Development Envelope that are now avoided due to environmental considerations include the following:

- Intact native vegetation at the western end of the export pipeline with high presence of conservation significant flora
- Areas of the Yandanooka West Road roadside vegetation corridor
- Intact remnant vegetation and potential groundwater dependent ecosystems (GDEs) at the northern end of the central flowline.

In addition to adjustments to the Development Envelope, two CEZs have been identified within the Development Envelope, where the Proponent is making a commitment to completely avoid clearing to avoid identified environmental values:

- CEZ 1 is located 1.6 km to the south of the CPF and covers a total of 20.6 ha of roadside vegetation along both sides (north and south) of Yandanooka West Road. It covers a total of 20.6 ha, of which 15.0 ha is native vegetation and has been placed specifically to avoid impacting continuity of the intact vegetated roadside corridor, as well as an area of high-density Priority flora records.
- CEZ 2 is located 6.1 km north of the CPF, covering a 1.2 ha remnant of Shrubland on lateritic breakaway fauna habitat type approximately midway along the central flowline. It was placed for the purpose of avoiding high habitat value for short-range invertebrate fauna. CEZ 2 also covers a number of Priority flora species records. The central flowline route will be deviated to follow an existing access track in this location.

Key changes to the Development Envelope adopted for the purpose of avoiding impacts to environmental values are summarised in **Figure 1-8**.

1.2.2.4. Flowline and Pipeline Construction Methodology

HDD will be utilised for flowline and pipeline installation in a number of sensitive locations. This includes the intersection of the central flowline with Sand Plain Creek, and where the export pipeline crosses Yandanooka West Road and Mount Adams Road.

The HDD construction provides superior environmental and cultural heritage outcomes compared to the alternative of trenching, burying and stabilising the flowline directly through the creek bed. The entry and exit points for the HDD will be in cleared farmland avoiding impacts to riparian and roadside vegetation, and pipes will be installed with a maximum depth of approximately 20 m below the ground surface.

1.2.3. Technology Selection

1.2.3.1. CO₂ Emissions Reduction Measures

A peer review of greenhouse gas emissions information for the project found that ‘the emission control technologies and design measures proposed for the Project align with both local and national industry best practices’ and that ‘these technologies demonstrate emissions minimisation through the mitigation hierarchy, prioritising avoidance and reduction in design’ (Evolvable 2025; **Appendix C8**).

Acid Gas Removal Technology Section

The AGRU is designed to remove acid gas components and achieve a sales gas composition of less than 4 mol% of CO₂ to meet the specification for export to the DBNGP. The Proposal utilises a non-selective amine solution for the removal of excess CO₂ paired with a standalone H₂S guard bed, rather than a conventional combined CO₂ /H₂S removal amine system.

Under a base case scenario (processing of Lockyer gas only) it was found that application of proprietary amine in a combined CO₂ /H₂S AGRU unit would result in over-extraction of CO₂ to ensure sufficient H₂S was removed to meet the DBNGP H₂S specification. By using non-selective amine and incorporating a standalone H₂S guard bed (i.e. the selected configuration), the CO₂ removed by the AGRU system is optimised to the level required to meet the pipeline CO₂ specification whilst still achieving full removal of H₂S.

This design configuration reduces overall CO₂ emissions by approximately 22,000 tpa of CO₂, assuming a conservative assumption of 0.5 mol% of CO₂ removed. It is expected that the selected configuration would provide a similar benefit (reducing the CO₂ removed by half, relative to a standard combined CO₂/H₂S AGRU) under the targeted future scenario of blended West Erregulla gas.

Furthermore, selection of a non-selective amine unit and stand-alone H₂S removal enables the AGRU to be used only when required, depending on the reservoir gas source, therefore providing further opportunity to minimise CO₂ emissions during operations, whilst adhering to the pipeline sales gas specification. Reduced CO₂ removal requirements also lower overall power requirements for pumps and air coolers.

Heat Integration

Heat integration is included in the plant design to reduce CO₂-e emissions by reducing the load on the heating medium and delivering a duty reduction, reducing the emissions from the Heating Medium package by 20%.

Recycle Compressor

A recycle compressor has been designed to return low pressure vapours from the condensate stabilisation system for reprocessing in the gas plant facility. The inclusion of recycle compression reduces flaring emissions by 98%, equivalent to a reduction of 100,000 tpa CO₂-e for a 210 TJ/day facility.

Power Generation

On-site power generation commonly uses either gas reciprocating engines or gas turbines, and either would be suitable for the Proposal. A comparison was conducted between suitably sized gas reciprocating engines and gas turbines to evaluate their total carbon dioxide equivalent (CO₂-e) emissions under the loads expected

for the Belisama facilities. Selecting gas engines results in an estimated 20% reduction of the baseline emissions associated with the CPF power generation, compared to a gas turbine, due to the inherently higher thermal efficiency of gas engines.

1.2.3.2. Air Quality Optimisation

A number of technologies and equipment considerations have been incorporated into the Proposal design for the specific purpose of minimising impacts to air quality.

Absorption Guard Beds

The inclusion of absorption technology for mercury and H₂S removal from the process gas stream removes the potential for these contaminants (which are harmful to human health and the environment) to be discharged to the atmosphere.

Mercury has not been detected in the well stream fluids sampled during the exploration and appraisal phase, but mercury guard beds are included as a protective preventative measure.

Permanent absorption of all H₂S substantially reduces the discharge of SO₂ to the environment via combusted fuel gas, vented exhaust gas from the thermal oxidiser or via the flare system.

Thermal Oxidation of Waste Gas

The inclusion of a Thermal Oxidiser unit for the AGRU waste stream ensures highly efficient destruction of the Benzene, Toluene, Ethylbenzene and Xylene (BTEX) volatile organic compound (VOC) components which are extracted during well stream gas conditioning in the AGRU system. The alternative AGRU waste gas disposal method of routing this stream to the flare system was not selected as this would result in higher levels of BTEX being discharged to the atmosphere as combustion is less efficient.

1.3. Local and Regional Context

The Proposal is located in the Mid-West region of Western Australia approximately 350 km north of Perth (**Figure 1-1**). The eastern portion of the Proposal (including the CPF, flowlines, and gathering hub) is located within the Shire of Mingenew, while the export pipeline is predominantly located within the Shire of Irwin. The Development Envelope is located within the Yamatji Nation Native Title Determination Area (where Native Title is extinguished) and is subject to the Yamatji Nation Indigenous Land Use Agreement (ILUA) between the State Government and the Yamatji Nation Native Title holders.

The land surrounding the Proposal is currently used for broadacre agriculture with a mixture of cropping and grazing. The Proposal intersects a number of privately owned agricultural properties, with those closest to the proposed CPF owned by the Proponent. Rural residential homesteads are sparsely distributed in the area surrounding the Proposal, with the closest being approximately four kilometres from the CPF and owned by the Proponent.

The nearest populated centres include Mingenew and Dongara, located approximately 25 km north-east and 35 km north-west from the Development Envelope respectively. The main economic industry within the Shire of Irwin is agricultural farming, with additional industries including coastal fisheries (primarily rock lobsters), mineral sands mining and oil and gas developments. Similarly, the primary industry of the Shire of Mingenew is agricultural farming. The Shire of Mingenew also has a space and satellite communication industry (established by NASA) and is a popular tourist destination during WA's wildflower season.

the Proponent estimates that the employment of 40 workers will be required at the Belisama CPF. This is estimated to support 95 full time equivalent jobs (including 40 direct jobs) in the Mid-West region, resulting in \$160 million in value-added contribution to gross regional product (Remplan 2026).

1.4. Legislative context

This Proposal is being referred under s. 38 of the EP Act as a proposal that could, if implemented, have a significant impact on the environment (**Appendix A1**). Consistency of the Proposal with the Principles of the EP Act is detailed in **Appendix A3**. Aspects of the Proposal have recently been referred to the EPA by the State Development Assessment Unit as part of a Development Approval process for the Belisama Gas Processing Plant. The relevant EPA reference number is APP-0033265.

In making its decision whether to assess a referred proposal, the EPA may take into account other statutory decision-making processes that can mitigate the potential impacts of the proposal on the environment.

In the case of the Belisama Gas Project, there are a number of key decision-making processes that have the ability to mitigate the potential impacts of the Proposal on the environment. These processes are detailed in **Appendix A2** and include:

- Native Vegetation Clearing Permits under Part V of the EP Act
- Works Approval and licence under Part V of the EP Act
- Environment Plan, Pipeline licence and Production licences under the PP Act and PGER Act
- *Aboriginal Heritage Act 1972* (AH Act)
- Groundwater licences under the *Rights in Water and Irrigation Act 1914* (RiWI Act)
- Sewage treatment and disposal approvals under the *Health (Miscellaneous Provisions) Act 1911*
- Development Approval under the *Planning and Development Act 2005*.

The relevance of these other regulatory decision-making processes to mitigation of specific risks associated with the Proposal is detailed throughout this document as it relates to each EPA factor.

2. STAKEHOLDER ENGAGEMENT

Hancock Energy initiated a stakeholder consultation program following the acquisition of EP 426 and EP 368 from Mineral Resources in December 2024. The objective of the stakeholder engagement process is managing and maintaining positive relationships with key stakeholders including the Shire of Mingenew, the Shire of Irwin, the Southern Yamatji people (Traditional Owners), impacted landholders, and relevant regulatory agencies. All these relationships are well progressed, and stakeholders have been provided with all publicly available project update information. Hancock Energy is currently in the process of negotiating key approvals and agreements with each relevant key project stakeholder.

Hancock Energy has established systems and procedures in place to consult, inform and communicate with stakeholders documented in a Stakeholder Management Plan (SMP) that fits within the broader Health, Safety and Environment Management System (HSEMS). The SMP ensures that all stakeholder engagement processes are planned and developed in line with the requirements of the PGER Act, the DMPE Guideline for the development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia (DMPE EP Guidelines) (DEMIRS 2024), Australian Energy Producers Guide to Land Access (APPEA 2015), Ministerial Council on Mineral and Petroleum Resources Principles for Engagement with Communities and Stakeholders (MCMPR 2005), AA1000 Accountability Stakeholder Engagement Standard 2015 (AccountAbility 2015), and industry best practice.

Hancock Energy’s SMP is designed to apply to all stakeholders and ensure a fluid continuous improvement approach from lessons learnt and adapt to the different operational activities being planned, implemented and closed out.

The key principles of Hancock Energy’s SMP align with the DMPE EP Guidelines (Regulation 17) and are summarised below in **Table 2-1**.

Table 2-1: Hancock Energy’s Key Principles of Stakeholder Engagement

Stakeholder Engagement Key Principle	
Communication	Consultation includes open and two-way communication which is honest and appropriate to the stakeholder and the activity being discussed. The clearly defined communication channels have demonstrated a positive consultation dialog with all stakeholders to date and enabled direct access by stakeholders to key nominated Hancock Energy representatives to enable two-way communication and effective and appropriate timeframes for consultation and understanding of the planned activities.
Transparency	Transparency is a critical element of any stakeholder consultation process. Stakeholder consultation processes ensure that all communication is transparent and open to ensure that both Hancock Energy and the stakeholder understand the planned activity, the proposed timeframe for the activities, potential risks and benefits, the processes required for the activity to occur, how it will be conducted and the rehabilitation or close out of that activity. All outcomes of consultation are recorded and made available to the stakeholder to ensure that the information being captured from the consultation is accurate and reflective of both parties’ understanding of the discussion and any queries or outcomes.

Stakeholder Engagement Key Principle

<p>Collaboration</p>	<p>To date Hancock Energy has demonstrated a clear collaboration approach to stakeholder consultation. In accordance with the SMP, identification of potential mutually beneficial outcomes and approaches to activities is a key aspect of the consultation approach. The cooperative and collaborative approach has enabled strong stakeholder relationships to continue throughout the various phases of the exploration activities and will continue. The collaboration between Hancock Energy and its stakeholders will enable opportunities to be identified to deliver positive or mutually beneficial outcomes for all parties.</p>
<p>Inclusiveness</p>	<p>As the former permit holder, Mineral Resources’ stakeholder engagement process commenced in 2022 with regard to the EP 368, with Hancock Energy continuing this ongoing process of inclusiveness. The inclusion of the stakeholders in the planning and preparation for activities and keeping the stakeholders informed during the entire Project life cycle has been and is a critical aspect of effective stakeholder consultation. Early engagement with stakeholders in the infancy of project phases and the continuation of that engagement and consultation has enabled strong stakeholder relationships to be developed.</p>
<p>Integrity</p>	<p>As with all key principles of stakeholder consultation and engagement, integrity is critical. Ensuring the Hancock Energy representatives engage with stakeholders to maintain an open and honest approach with integrity, enables the development of a mutual respect and trust. Hancock Energy’s established stakeholder relationships have clearly demonstrated that integrity is a critical aspect and is equally important to Hancock Energy and all associated representatives. Demonstration of ongoing effective, open, honest and respectful communication, engagement and consultation assists with developing and maintaining good stakeholder relationships for the long term.</p>

In accordance with Hancock Energy’s Stakeholder Engagement Policy, these principles are achieved through:

- Early engagement with stakeholders in the infancy of activities and project phases with inclusion of stakeholders in the planning and preparation processes
- Continuation of clear and transparent engagement and consultation to develop long-term stakeholder and community relationships
- Establishing open and two-way communication channels appropriate to the relevant stakeholder
- Communicating and engaging in a transparent and open manner throughout the lifecycle of any project or activity
- Providing a voice to stakeholders and listen to stakeholder interests, concerns and queries
- Providing appropriate information as early as possible in relation to future activities and projects, including timeframes, potential risks and benefits, the processes and approvals required, how the activity will be conducted and the rehabilitation or close out of that activity
- Establishment of a regional office in the town centre of Mingenew, which is the closest town to the Proposal. This office is permanently resourced by two Hancock Energy staff whose focus is on giving effect to the above.

Collaboration with stakeholders to identify potential mutually beneficial outcomes and approaches to activities and projects

- Ensuring the Hancock Energy representatives engaging with stakeholders maintain an open and honest approach with integrity to enable the development of mutual respect and trust
- Subject to prevailing legislation, standards, guidelines and applying international best practise irrespective of the operating region
- Continuous review and true improvement
- A commitment to a social responsibility across a project lifecycle.

Ongoing consultation and communication will be continued and maintained throughout implementation of the activity and life of the Proposal.

2.1. Key Stakeholders

Hancock Energy has continued and strengthened the consultation that was initiated by Mineral Resources for the Lockyer Conventional Gas Project Proposal prior to its acquisition. The key stakeholders identified in relation to the environmental aspects of the Proposal are listed in **Table 2-2**.

Table 2-2: Key stakeholders for the proposal

Keyword	Definition
Regulatory Agencies	Department of Biodiversity, Conservation and Attractions (DBCA)
	Department of Mines, Petroleum and Exploration (DMPE)
	Department of Energy and Economic Diversification (DEED)
	Department of Local Government, Industry Regulation and Safety (DLGIRS)
	Department of Primary Industries and Regional Development (DPIRD)
	Department of Planning Lands and Heritage (DPLH)
	Department of Water and Environmental Regulation (DWER)
	Environmental Protection Authority (EPA)
	Western Australian Planning Commission (WAPC)
Local Government	Shire of Irwin
	Shire of Mingenew
Traditional Owners	Yamatji Southern Regional Corporation (YSRC)
Landowners and Community	Private landowners
	Community
	Irwin Arrowsmith Advisory Council (IAAC)
	Mingenew-Irwin Group (MIG)
	Mid-West Development Commission (MWDC)

2.2. Stakeholder Engagement Process

The SMP is managed and primarily implemented by the General Manager Health, Safety and Environmental (HSE), and the Regional Manager who is based in Hancock Energy's Mingenew office. In addition, all Hancock Energy employees and contractors are educated on the protocols associated with the SMP through inductions to ensure that all stakeholder engagement is conducted in line with the key principles, appropriately recorded, and actions implemented where required.

In accordance with the SMP, any stakeholder consultation, purposes, contacts, issues and outcomes associated with the Proposal are recorded in a Stakeholder Consultation Register on a dedicated management database, allowing Hancock Energy to support stakeholder engagement across its projects. The database is a platform in which all activities, discussions and communications are captured, monitored, and tracked for reference as the project advances. The SMP also stipulates the usage of a stakeholder email inbox, which provides key stakeholders and other community members an additional avenue to reach out to ask any queries or voice concerns regarding the Proposal. The email address is actively monitored, with correspondence stored in the stakeholder database.

Hancock Energy will continue to undertake stakeholder consultation in accordance with the SMP throughout the Proposal's approval process, construction, operation, and decommissioning stages. This will ensure that stakeholder awareness of the Proposal is maintained at an appropriate level and that any concerns are understood and addressed in a timely manner as the Proposal progresses. The ultimate aim for ongoing engagement between stakeholders and Hancock Energy is to ensure positive two-way communication is maintained through the life of the Proposal.

The SMP fits within the broader Hancock Energy HSEMS and requires at least an annual review. In addition, significant complaints or incidents, along with changes of operational activity will trigger a review of the SMP to ensure that it is appropriate and that all personnel and contractors are adequately informed regarding its requirements.

2.3. Stakeholder Consultation Outcomes

Hancock Energy has broadened the engagement with stakeholders that was originally initiated by Mineral Resources for the Lockyer Conventional Gas Project Proposal prior to its acquisition in December 2024.

Hancock Energy has engaged with DWER and the EPA on matters associated with the s38 Referral, groundwater licence and Works Approval for the Proposal since late 2025. Consultation with DWER included a presentation to the DWER Director General and Deputy Director General in September 2025 and several subsequent project updates. Hancock Energy Regional Officers have been in regular consultation on water licensing matters with DWER Regional Officers since August 2025. The EPA Chair and key EPA Services personnel undertook a site visit on 11 February 2026, visiting the proposed CPF site, pipeline route, WE-3 bore site and Lockyer Gas proposal site. The DWER has acknowledged Part V of the EP Act provides suitable regulatory mechanisms to manage the environmental risks associated with the Proposal.

Engagement with DMPE has been on-going since July 2025 on matters associated with the Proposal, with a presentation delivered to the DMPE Director General and other key executive personnel in September 2025 with several subsequent project updates. The DMPE has acknowledged the PGER Act and PP Act provide suitable regulatory mechanisms to manage the environmental risks associated with the Proposal.

The local community has been kept informed of all aspects of the Proposal via Town Hall sessions held in Mingenew and Dongara in November 2025. These forums enabled one on one conversations with landholders, stakeholders and interested parties. A Development Application for the CPF lodged with DPLH (Significant Development Assessment Unit) under Part 11B of the *Planning and Development Act 2005* (Part 11B) in November 2025 included a public consultation period. The public consultation resulted in five submissions, with four being positive, and one neutral. DPLH is considering feedback from the community, key stakeholders, local government and State agencies to inform a recommendation for the WAPC. Hancock Energy is continuing to engage closely with DPLH.

Hancock Energy opened an office in Mingenew in October 2025, to enable community members and other interested parties to engage directly with local Hancock Energy personnel. Local engagement activities, land access and community support initiatives are facilitated through the Hancock Energy Mingenew office. The Regional Office maintains a close relationship with local authorities to facilitate operational activities of seismic explorations, drilling operations, feasibility studies, environmental studies and land holder negotiations while developing the Proposal.

Hancock Energy has attended a number of Council Meetings with the Shire of Mingenew and the Shire of Irwin, providing updates on the Proposal, addressing relevant queries and ensuring the Proposal takes into consideration the views of the local community.

Hancock Energy has undertaken consultation and several on-country activities with the YSRC in relation to the Proposal since late 2024. The engagement has included engagement of heritage monitors for associated seismic, feasibility and drilling exploration activities as well as site investigations and a heritage survey being undertaken for the Proposal in February 2026. In a letter from YSRC to the EPA dated 13 April 2026, YSRC confirmed that for the purposes of this s. 38 Referral, Hancock Energy is continuing to undertake appropriate consultation and engagement in relation to the Proposal. The letter summarises the consultation and engagement activities undertaken to date and indicates YSRC is supportive of the Proposal with qualifications (**Appendix E**).

Table 2-3 provides a summary of significant consultation and engagement activities undertaken by Hancock Energy in relation to the Proposal to date; this includes Director General level meetings with all key relevant State Government agencies. The key stakeholders, as identified in **Table 2-2**, are listed in **Table 2-3**, along with a brief overview of the issues and topics raised and any Hancock Energy response or related actions.

Table 2-3: Stakeholder Consultation Register

Stakeholder	Date	Issues / topics raised	Proponent response / outcome
Regulatory Agencies			
DBCA	04/08/2025	4/8/25: Regulation 4 permit application to environmental surveys in reserve areas potentially adjacent to the Proposal.	Regulation 4 permit granted.
	19/11/2025	Presentation to DBCA regarding the Proposal and discussions regarding the relatively minor nature of environmental impacts of the Proposal.	For information only. Acknowledgement of environmental impact reduction relative to Proposal alternatives.
DEED	21/10/2025	Presentation to DEED Director General and senior staff providing an overview of Hancock Energy, the acquisition of the Lockyer gas project, proposal of the Belisama Gas Project including relocation benefits and the Proposal key approvals and timelines.	Commitment to provide updates as the project progresses.
	15/04/2026	Presentation to DEED Deputy Director General and others providing an update on the Proposal approvals progress and expected timelines.	Commitment to provide updates as the project progresses.
DLGIRS	5/12/2025	Presentation to DLGIRS Director General and senior staff providing an overview of Hancock Energy, the acquisition of the Lockyer gas project, proposal of the Belisama Gas Project including relocation benefits and the Proposal key approvals and timelines.	Commitment to provide updates as the project progresses.
DMPE	29/08/2025	Introduction to the proposed Belisama gas project during regular briefing.	Commitment to continue communications going forward.
	24/09/2025	Presentation to DMPE Director General and senior staff providing an overview of Hancock Energy, the acquisition of the Lockyer gas project, proposal of the Belisama Gas Project including relocation benefits and the Proposal key approvals and timelines.	Commitment to provide updates as the project progresses.
	25/11/2025	An update on all Environment Plan submissions and revisions going forward, including an outline of the Proposal.	For information only.
	3/02/2026	Update on the Proposal including key environmental impacts, management actions and anticipated regulation under the PGER Act and PP Act.	Acknowledgement from DMPE that the PGER Act and PP Act provide suitable regulatory mechanisms to manage environmental risks associated with the Proposal.
DPLH / SDAU / WAPC	07/08/2025	Application for section 41 approval under DBP Act to facilitate environmental and heritage surveys within the DBNGP corridor.	S41 approval to undertake activities granted.
	3/10/2025	Presentation of the Proposal to DPLH Assistant Director Generals providing an overview of Hancock Energy, the acquisition of the Lockyer gas project, proposal of the Belisama Gas Project including relocation benefits and the Proposal key approvals and timelines.	Commitment to provide updates as the project progresses.
	On-going	Hancock Energy has responded to collated feedback from public submissions and State government agency responses on the Development Application for the gas processing facilities. Relevant environmental agency advice and feedback has included: <ul style="list-style-type: none"> • Confirmation of other approvals relevant to the Proposal • Request for a Biosecurity Management Plan to ensure that machinery is clean on entry to and exit from the site • Request for an updated Stormwater Management Plan to ensure the CPF will not impact Sand Plain Creek or downstream Irwin River aquatic environments • Request for a post-approval noise assessment and compliance report See 'Landholders and community' for a summary of public submissions on the Development Approval.	Hancock is progressing the relevant approvals including this referral, a Works Approval (and future licence), approvals for treatment of sewage and water licence updates. An updated Stormwater Management Plan has been prepared and supports this referral. A Biosecurity Management Plan and Noise Assessment and Compliance Report will be prepared as required by conditions of the Development Approval.
DWER	February 2025 - ongoing	Hancock Energy currently holds a number of groundwater extraction licences in the area. Hancock has been liaising with the Midwest Gascoyne DWER Regional office closely since February 2025 with regard to, amendments, licencing, 26Ds, 5Cs and licence reporting. Discussions and processing between DWER Midwest Gascoyne and HE commenced in February 2025 as part of a licence handover from Mineral Resources to Hancock Energy. Groundwater licences currently held by HE in the Arrowsmith Water Management Area to support the CPF development and exploration well drilling include: <ul style="list-style-type: none"> - GWL 156102 - GWL 213093 - GWL 213210 - GWL 205861 	Clarification of the Project area was sent to DWER for licence approval. Hancock Energy is the license holder of GWL 156102. GWL 156102 has an allocation of 1.69 GL per annum for agricultural purposes on the Mt Adams Farm. Hancock Energy has consulted with the DWER Geraldton Regional Officers and has been informed Hancock can apply for an amendment to GWL 156102, to include water for construction, dust suppression and operations without exceeding the current license application. Hancock will apply for a 26D to drill a new bore in the vicinity of the CPF site and include the extraction point in the existing GWL 156102. Hancock Energy has an approved Operational Strategy for GWL 156102.
	24/09/2025	Presentation to DWER Director General and Deputy Director General outlining the Proposal and favourable environmental and physical characteristics of the new site relative to the approved Lockyer CPF.	Site visit invitation to the Director General.
	10/02/2026	Project introduction to DWER Part V Director Major Projects and key team members and Works Approval application discussion.	Hancock Energy to submit a Works Approval application for categories 10 and 85.

	2/04/2026	Update on the Proposal including key environmental impacts, management actions and anticipated regulation under Part V of the EP Act.	Acknowledgement from DWER that Part V of the EP Act provides suitable regulatory mechanisms to manage environmental risks associated with the Proposal.
EPA / DWER EPA Services branch	24/09/2025	Presentation to DWER Director General and Deputy Director General outlining the Proposal and favourable environmental and physical characteristics of the new site relative to the approved Lockyer CPF.	Site visit invitation to the Director General.
	24/11/2025	Project overview and pre-referral briefing to EPA Services.	Positive feedback on the opportunity to engage early in the project and support for site visit.
	19/01/2026	Meeting with the Deputy Director General Approvals and Director Major Projects Part IV Assessments to discuss the referral of the Development Application including the gas processing facility and Operations Village, through the SDAU.	EPA to issue RFI. Acknowledgment that Hancock Energy intends to refer the Proposal in its entirety.
	11/02/2026	Site visit – EPA Chairman and key EPA Services personnel.	Acknowledgment that the receiving environment was relatively free of environmental values.
Local Government			
Shire of Irwin	10/01/2025	Notification to the Shire by Hancock Energy Chief Executive Officer that Hancock Energy acquired Exploration Permits 368 and 426 in December 2024 from Mineral Resources. These permits include the Lockyer gas and Erregulla oil fields. Advised that senior representatives of Hancock Energy will soon be in the region to formally meet and discuss exploration plans and the approach to evaluate opportunities to accelerate development and enable production to be brought to market as soon as possible.	NA
	19/03/2025	Presentation to Shire and Councillors by Hancock Energy managers introducing Hancock Energy and outlining the acquisition of the Lockyer Gas Project and the intent to review the new assets in conjunction with Hancock Energy's other assets in the region. Commitment to regularly engage with the Shire.	Commitment to regularly engage.
	27/08/2025	Meeting with Shire regarding community involvement and Shire response to possible change of plant location from Irwin to Mingenew Shire	Positive feedback on the opportunity to engage early in the project.
	25/11/2025	Presentation to full Council Meeting Concern over the relocation of the CPF to within the Shire of Mingenew and the impacts on roads.	Additional meetings proposed.
Shire of Mingenew	10/01/2025	Notification to the Shire by Hancock Energy Chief Executive Officer that Hancock Energy acquired Exploration Permits 368 and 426 in December 2024 from Mineral Resources. These permits include the Lockyer gas field. Provided advice that senior representatives of Hancock Energy will soon be in the region to formally meet and discuss exploration plans and the approach to evaluate opportunities to accelerate development and enable production to be brought to market as soon as possible.	NA
	19/03/2025	Presentation to Shire and Councillors by Hancock Energy managers introducing Hancock Energy and outlining the acquisition of the Lockyer Gas Project and the intent to review the new assets in conjunction with Hancock Energy's other assets in the region. Commitment to regularly engage with the Shire.	Commitment to regularly engage.
	21/08/2025	Presentation with Shire regarding the Proposal and other proposed exploration activities. Confirmed commitment to work closely with the Shire including in relation to road use agreements, SDAU application, health regulation, planning and building approvals and community engagement.	Positive feedback on the opportunity to engage early in the project.
	6/11/2025	See Town Hall meeting under 'Landowners and community'.	
Traditional Owners			
YSRC	On-going since December 2024	On-going engagement has occurred and continues to occur between Hancock Energy and YSRC in relation to the Proposal since December 2024. Consultation and engagement activities have included: <ul style="list-style-type: none"> • Overview of acquisition of the Lockyer Gas Project • Belisama Gas Project overview and briefing updates • Scope and timing of heritage surveys and monitoring • Monitoring of geotechnical investigation activities • EPA referral, including environmental impact assessment outcomes • On country engagement 	YSRC has issued a Letter of Support for the Proposal with qualifications.
	20/03/2025	Presentation to YSRC by Hancock Energy managers introducing Hancock Energy and outlining the acquisition of the Lockyer Gas Project and the intent to review the new assets in conjunction with Hancock Energy's other assets in the region. Commitment to regularly engage with YSRC in relation to proposed exploration activities and the outcomes of the asset review.	Commitment to regularly engage.
	25/07/2025	Meeting with YSRC Chief Heritage and Culture Office to provide an overview of Hancock Energy and the Proposal. Discussed proposed new YSRC Heritage management processes, heritage survey and monitoring priorities across the Hancock Energy assets including the Proposal. Agreed critical timing for heritage monitoring of geotechnical assessments and survey of the Proposal area prior to March 2026.	Commitment to continue engagement, provide spatial and activity information as early as possible to ensure activity priorities can be accommodated.

	15/09/2025	YSRC provided formal advice from the Board that all new Heritage activities would be paused until February 2026 to enable restructure of Heritage services. Existing planned activities would continue.	Hancock Energy confirmed with YSRC that Heritage monitoring of geotechnical works would proceed in November 2025 and the Proposal Heritage survey would proceed in February 2026.
	09/02/2026	Hancock Energy and YSRC completed an onsite Heritage survey with the nominated Heritage Service Provider after a desktop Due Diligence assessment.	Heritage Survey of the Proposal completed.
	09/04/2026	Meeting to discuss the outcomes of the Heritage survey and ongoing heritage management measures.	Commitment to ongoing engagement and consultation.
Landowners and Community			
Private landowner	20/03/2025	Presentation to key directly impacted landholders by Hancock Energy managers introducing Hancock Energy and outlining the acquisition of the Lockyer Gas Project and the intent to review the new assets in conjunction with Hancock Energy's other assets in the region. Commitment to regularly engage and ensure appropriate levels of communication as the review progresses and in relation to associated activities.	Commitment to ongoing engagement and consultation.
Private landowners	July 2025 – ongoing	Engagement and consultation regarding provision of land access to support environmental, heritage, technical and associated surveys and assessment to support the development of the Proposal.	Ongoing engagement and communication regarding land access.
Private landowner	4/11/2025	Request for information - could not attend the Mingenew November 2025 Town Hall.	Hancock Energy to leave information with the Mingenew office team. Offer to go through the Town Hall presentation.
Community	6/11/2025	Town Hall meeting to inform the public and Shire Council of all aspects of the Proposal and other activities in the Shire of Mingenew. A presentation and general information were provided and one on one conversations with landholders, stakeholders and interested parties were held.	Attendance of 20 plus people. No specific community concerns were noted. Positive feedback regarding office presence in Mingenew and potential for positive impacts in the community.
Private landowner	20/11/2025	Photos taken from sensitive receptor sites on farms.	Incorporation into visual impact assessment.
Community	25/11/2025	Town Hall Meeting attended by Hancock staff in the Shire of Irwin. Presentation and one on one discussions with the public in Dongara with regard to Hancock Energy activities and plans.	No specific community concerns were noted.
	December 2025	Public advertising of the Development Application for the gas processing facility and workers operational village (accommodation).	Five total submissions, four in support and one neutral.

3. IDENTIFICATION OF ENVIRONMENTAL FACTORS

Environmental factors are those parts of the environment that may be impacted by an aspect of a Proposal. The EPA has 14 environmental factors, organised into five themes: sea, land, water, air, and people. The 14 environmental factors and how they relate to the Proposal are presented in **Appendix B1**.

Based on an assessment of potential impacts associated with the Proposal, the environmental factors considered relevant to the Proposal are:

- Flora and Vegetation (**Section 4**)
- Terrestrial Fauna (**Section 5**)
- Inland Waters (**Section 6**)
- Air Quality (**Section 7**)
- Greenhouse Gases (**Section 8**)
- Terrestrial Environmental Quality (**Section 9**)
- Social Surroundings (**Section 10**).

4. FLORA AND VEGETATION

For the purposes of environmental impact assessment (EIA), the EPA defines flora as ‘native vascular plants’ and vegetation as ‘groupings of different flora patterned across the landscape that occur in response to environmental conditions’ (EPA 2016a).

4.1. EPA Environmental Factor Objective

The EPA’s objective for the Flora and Vegetation factor is ‘to protect flora and vegetation so that biological diversity and ecological integrity are maintained’ (EPA 2016a).

4.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Flora and Vegetation and how they have been considered for this Proposal are summarised below in **Table 4-1**.

Table 4-1: Policy and Guidance for Flora and Vegetation

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline: Flora and Vegetation (EPA 2016a)	The information provided in this section addresses the ‘considerations for environmental impact assessment’ listed in this document.
Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b)	This document guides the appropriate obtainment and collation of flora and vegetation data to be used in EIA. All studies conducted for the Proposal have been undertaken with regard for this guidance document.
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

4.3. Receiving Environment

4.3.1. Studies and Survey Effort

The Proponent commissioned three consultants, Biologic Environmental Survey Pty Ltd (herein, referred to as Biologic), Viridis Environmental Pty Ltd and Umwelt (Australia) Pty Ltd to undertake coordinated reconnaissance, targeted, and detailed flora and vegetation surveys to identify the flora and vegetation values within for the Development Envelope and surrounding areas. A total of ten trips were undertaken by the consultancies between July and November of 2025. The results of these surveys and associated discussion and conclusions are provided in one consolidated report (Biologic 2026; **Appendix C1**).

The Survey Area covered the Development Envelope and wider surrounds, including a 300 m buffer along most sections of the proposed export pipeline and central flowline routes, encompassing an area of approximately 6,830 ha. The details of this survey are presented in **Table 4-2** and **Figure 4-1**.

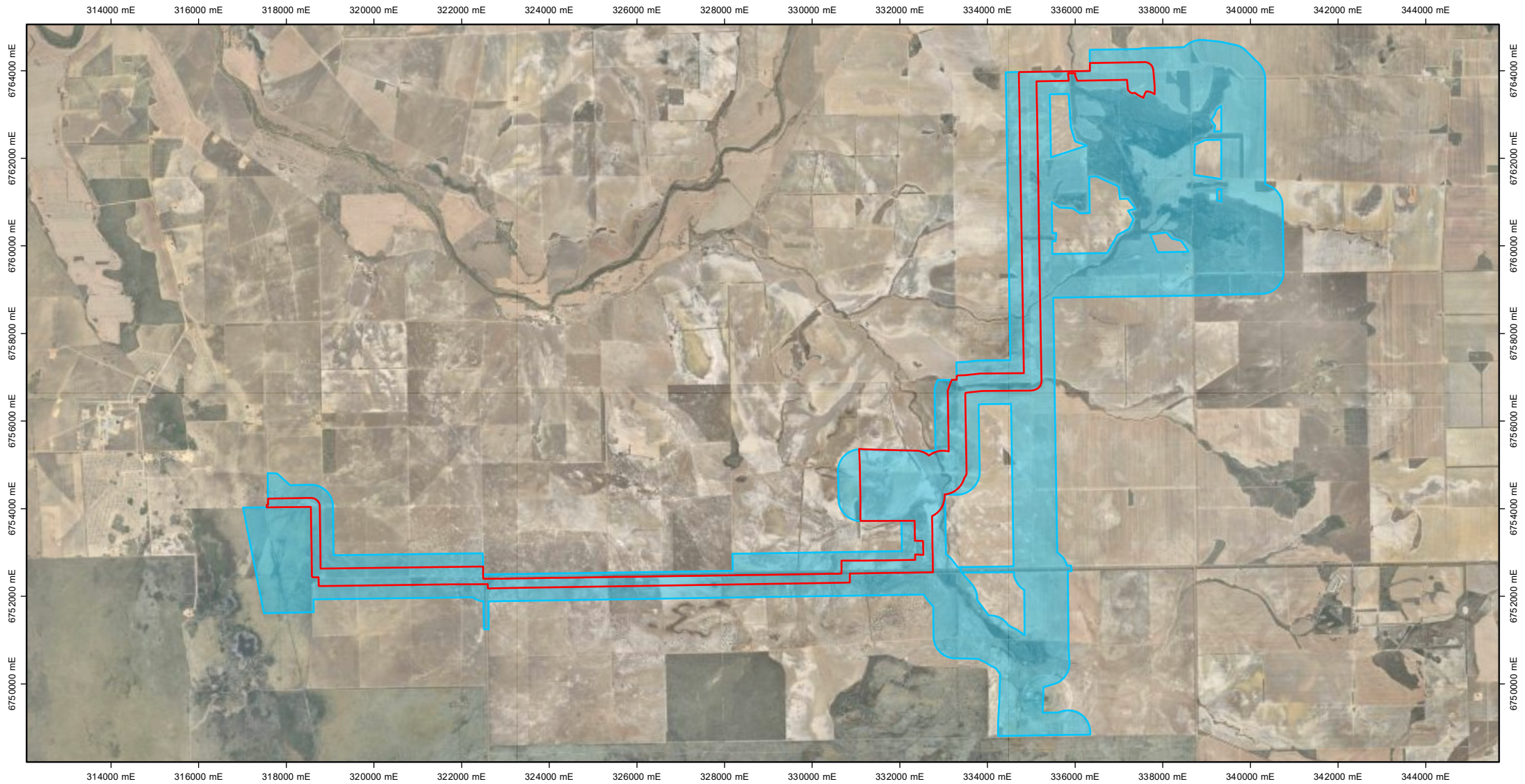
Additionally, more than 20 other flora and vegetation surveys have been conducted within the vicinity (less than 25 km) of the Survey Area, providing significant contextual background for flora and vegetation values within the broader region.

Except where indicated, the information in the following sections derives from the *Belisama Conventional Gas Project Flora and Vegetation Survey* report (Biologic 2026; **Appendix C1**).

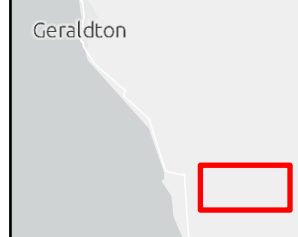
Table 4-2: Key Flora and Vegetation Survey

Survey	Area	Scope and Timing	Study / Survey Effort	Consistency with Guidance and Limitations
<p>Belisama Conventional Gas Project Flora and Vegetation Survey (Biologic 2026a)</p> <p>Appendix C1</p>	6,830 ha	<p>Scope included:</p> <ul style="list-style-type: none"> • Desktop assessment of available literature and databases to gather contextual information on the Survey Area and surrounds • Reconnaissance flora and vegetation survey to define the values • Detailed flora and vegetation survey • A targeted significant flora survey, focusing on Threatened flora • The preparation of a technical report with supporting data <p>Field surveys were conducted across 10 trips, totalling 164 person days:</p> <ul style="list-style-type: none"> • Reconnaissance survey: <ul style="list-style-type: none"> – 30 July – 2 August 2025 • Reconnaissance and Targeted surveys: <ul style="list-style-type: none"> – 20 – 22 August 2025 • Targeted Survey: <ul style="list-style-type: none"> – 7 – 10 October 2025 – 12 – 17 October 2025 – 22 – 24 October 2025 – 4 – 5 November 2025 – 14 – 17 November 2025 	<p>The field survey included a total of 209 sample sites:</p> <ul style="list-style-type: none"> • 47 10x10 m quadrats • 36 relevé • 130 vegetation mapping notes 	<p>This survey was conducted in accordance with appropriate technical guidance including:</p> <ul style="list-style-type: none"> • Statement of Environmental Principles, Factors, Objectives and Aims of EIA (EPA 2023a) • Environmental Factor Guideline: Flora and Vegetation (EPA 2016a) • Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b) • Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE 2013) • Survey Guidelines for Australia’s threatened orchids. Guidelines for detecting orchids listed as 'Threatened' under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (DoE 2014) • Methods for survey and identification of Western Australian threatened ecological communities (DBCA 2025) <p>No major limitations or constraints were identified for the survey. The key constraint related to collection, collation and management of data from three separate consultancies.</p>

Survey	Area	Scope and Timing	Study / Survey Effort	Consistency with Guidance and Limitations
		<ul style="list-style-type: none"> - 26 – 28 November 2025 • Detailed Survey: <ul style="list-style-type: none"> - 18 – 29 August 2025 - 15 – 26 September 2025 		



AREA OF DETAIL:



PREPARED BY:

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28 – 42 Ventnor Ave
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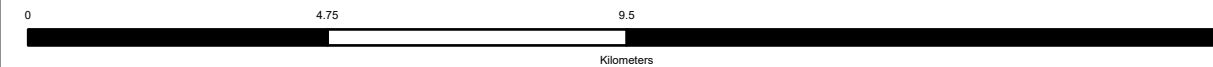
Phone: +61 8 9429 8222



LEGEND:

- Development Envelope
- Biologic Environmental (2026) Belisama Flora and Vegetation Survey Extent

Scale: 1:120,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-1: Flora and Vegetation Survey Area

SUBTITLE:

DATE: 18/03/2026

DATA SOURCE:
Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
0						21/01/2026

4.3.1. Vegetation

The Proposal is located in a floristically rich and diverse bioregion; however, it occurs in a highly cleared agricultural setting with fragmented remnants of largely degraded vegetation. The CPF is located in a cleared paddock, and the central flowline and export pipeline follow farm boundaries, adjacent to existing roads, tracks and paddock fences, primarily devoid of native vegetation.

4.3.1.1. IBRA Region

Native vegetation is described and mapped at different scales to illustrate patterns in its distribution. The Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway and Cresswell 1995) divides Australia into 89 bioregions and 419 subregions. These bioregions/subregions are defined based on climate, lithology, geology, landform, and vegetation (DCCEEW 2025a).

The Development Envelope is situated within the Geraldton Sandplains bioregion (Lesueur Sandplain and Geraldton Hills subregions). The Geraldton Sandplains bioregion is composed mainly of proteaceous heaths and scrub-heaths rich in endemics, growing on the sandy earths of an extensive, undulating, lateritic sandplain (Desmond and Chant 2001). Alluvial outwash plains support York gum and *Acacia* woodlands, and proteaceous heath and *Acacia* scrubs occur on coastal sandplains (Desmond and Chant 2001).

4.3.1.2. Vegetation Associations

Mapping of pre-European vegetation of Western Australia was completed by Beard (1975) at a 1:1,000,000 scale. This was later re-assessed by Shepard et al. (2002), resulting in the State being divided into 819 vegetation associations. The remnant native vegetation of three vegetation associations intersects the Development Envelope (**Figure 4-2**). **Table 4-3** summarises the current and pre-European extent of these vegetation associations within Western Australia.

Table 4-3: Vegetation Associations within the Development Envelope

Vegetation association	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Vegetated extent in Development Envelope (ha)	% of Development Envelope
Eridoon 378 – Mixed heath with scattered tall shrubs	93,524	60,827	65.0%	0.1	<0.1%
Irwin 352 - Medium woodland; York gum	12,999	1,747	13.4%	0.3	<0.1%
Tathra 379 - Shrublands; scrub-heath on lateritic sandplain in central Geraldton Sandplain region	545,938	129,586	23.7%	63.6	4.8%
Total				64.0	4.8%

Source: (DFC 2019a)

4.3.1.3. *Vegetation Types*



Across the combined Survey Area, four broad landforms supporting a total of 23 vegetation types were identified:



- Drainage Lines/Floodplains – six vegetation types
- Undulating Plains – eleven vegetation types
- Lateritic Uplands and Upper Slopes – three vegetation types
- Sandplains – three vegetation types.



Of these vegetation types, 18 occur within the Development Envelope. Four additional vegetation units were mapped but not described to National Vegetation Information System (NVIS) Level 5, as they were highly modified with limited native vegetation (PCr, PEc, PEt, and Re). The remainder of the Survey Area consisted of five mapping units absent of native vegetation (Ag, Cl, OW, P, and Rd), and one mapping unit not sampled due to access or distance from Disturbance Footprint (NS). The vast majority of the Development Envelope consisted of paddock and pasture areas (P; 1,142.3 ha; 86.1%). The most common vegetation type within the Development Envelope was VT02 (13.3 ha; 1.0%).

The extent of and descriptions of these vegetation types are summarised in **Table 4-4**, and depicted in **Figure 4-3**.



Table 4-4: Vegetation Types within the Development Envelope



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
Drainage Lines / Floodplains						
VT01	<p>AcAbAs JhHhhCc</p> <p><i>Acacia acuminata</i>, <i>Acacia blakelyi</i>, <i>Acacia saligna</i> tall open to isolated shrubs (+/- <i>Acacia neurophylla</i> subsp. <i>neurophylla</i>, <i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628), <i>Jacksonia sternbergiana</i>) over <i>Jacksonia hakeioides</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, <i>Conostylis candicans</i> low isolated shrubs over introduced pasture weeds.</p>	43.0	0.6%	1.3	0.1%	
VT02	<p>AcaMvvAs SITnGbOE Emo</p> <p><i>Allocasuarina campestris</i>, <i>Melaleuca viminea</i> subsp. <i>viminea</i>, <i>Acacia saligna</i> (+/- <i>Acacia neurophylla</i> subsp. <i>neurophylla</i>, <i>Acacia blakelyi</i>, <i>Acacia aciphylla</i>) tall open shrubland <i>Scholtzia laxiflora</i>, <i>Thryptomene nitida</i>, <i>Grevillea biternata</i>, <i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628) (+/- <i>Stylobasium australe</i>, <i>Alyogyne hakeifolia</i>, <i>Santalum acuminatum</i>) mid open to isolated shrubs over <i>Ecdeiocolea monostachya</i> mid isolated sedges over mixed native and introduced forbs and grasses.</p>	29.2	0.4%	13.3	1.0%	



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT03	<p>AbCqaAc AIIIMIHIHhh EmoMps</p> <p><i>Acacia blakelyi</i>, <i>Calothamnus quadrifidus</i> subsp. <i>angustifolius</i>, <i>Allocasuarina campestris</i> mid isolated shrubs over <i>Acacia latipes</i> subsp. <i>latipes</i>, <i>Melaleuca leuropoma</i>, <i>Hakea lissocarpha</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i> low isolated shrubs over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i> sedges over introduced grasses and forbs, dominated by <i>Avena barbata</i>, <i>Vulpia muralis</i>, <i>Hypochaeris glabra</i>.</p>	7.3	0.1%	<0.05	<0.01%	
VT04	<p>AcaGbAnnMco SITrCp</p> <p><i>Allocasuarina campestris</i>, <i>Grevillea biternata</i>, <i>Acacia neurophylla</i> subsp. <i>neurophylla</i>, <i>Melaleuca concreta</i> tall to mid open shrubland over <i>Scholtzia laxiflora</i>, <i>Thryptomene racemulosa</i>, <i>Cryptandra pungens</i> low (to mid) sparse shrubland over introduced grassland and forbland.</p>	25.2	0.4%	0.7	0.05%	

Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT05	<p>Aca Emo</p> <p><i>Allocasuarina campestris</i> tall open to sparse shrubland over (+/- <i>Melaleuca concreta</i>, <i>Melaleuca radula</i> shrubland mid open shrubland over) <i>Ecdeiocolea monostachya</i> mid open sedgeland over introduced grassland and forbland.</p>	24.1	0.4%	6.0	0.5%	
VT06	<p>Aca McoAacMr Emo</p> <p><i>Allocasuarina campestris</i> tall sparse to isolated shrubs over <i>Melaleuca concreta</i>, <i>Acacia acuminata</i>, <i>Melaleuca radula</i> mid sparse shrubland over <i>Ecdeiocolea monostachya</i> mid sparse sedgeland over introduced pasture weeds.</p>	60.9	0.9%	0.1	0.01%	



Lateritic Uplands and Upper Slopes



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT20	<p>MtMcoMmMa Bs</p> <p><i>Melaleuca tinkerii</i>, <i>Melaleuca concreta</i>, <i>Melaleuca marginata</i>, <i>Melaleuca acutifolia</i> (+/- <i>Thryptomene nitida</i>, <i>Acacia saligna</i>, <i>Ericomyrtus tenuior</i>, <i>Labichea lanceolata</i> subsp. <i>lanceolata</i>) tall to mid open shrubland over <i>Borya sphaerocephala</i>, <i>Trachymene ?cyanopetala</i> low sparse forbland with low sparse grassland.</p>	32.1	0.5%	5.1	0.4%	
VT21	<p>Hrr OE Rd Emo</p> <p><i>Hakea recurva</i> subsp. <i>recurva</i> tall sparse shrubland over <i>Olearia</i> sp. <i>Eremicola</i> (Diels & Pritzel s.n. PERTH 00449628) mid sparse shrubland over <i>Rhagodia drummondii</i> low open shrubland over <i>Ecdeiocolea monostachya</i> mid sparse sedgeland over forbland.</p>	9.0	0.1%	1.0	0.1%	



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT23	<p>Aca HaBfcHnHI EmoMps</p> <p><i>Allocasuarina campestris</i> mid isolated shrubs over <i>Hakea auriculata</i>, <i>Banksia fraseri</i> subsp. <i>crebra</i>, <i>Hakea neospathulata</i>, <i>Hakea lissocarpha</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i> low isolated sedges over forbland.</p>	6.6	0.1%	2.6	0.2%	
Sandplains						
VT16	<p>BaEbmCgGc MIDddCwHhh MpsEmo</p> <p>(+/- <i>Eucalyptus todtiana</i> low isolated trees over) <i>Banksia attenuata</i>, <i>Eremaea beaufortioides</i> var. <i>microphylla</i>, <i>Calothamnus glaber</i>, <i>Grevillea candelabroides</i> mid open shrubland over <i>Melaleuca leuropoma</i>, <i>Daviesia divaricata</i> subsp. <i>divaricata</i>, <i>Conospermum wycherleyi</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i> and <i>Persoonia acicularis</i> low open shrubland over <i>Mesomelaena pseudostygia</i> and <i>Ecdeiocolea monostachya</i> low sparse sedgeland.</p>	194.1	2.8%	<0.05	<0.01%	


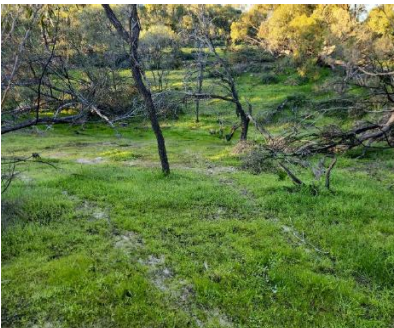
Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT18	<p>ShAscLI MpsEmo</p> <p><i>Seringia hermanniifolia</i>, <i>Acacia scirpifolia</i>, <i>Lechenaultia linarioides</i> low open shrubland over <i>Mesomelaena pseudostygia</i>, <i>Ecdeiocolea monostachya</i> low sparse sedgeland.</p>	7.4	0.1%	0.1	0.01%	
VT19	<p>EbmHhhCg TcPa MpsEmo</p> <p><i>Eremaea beaufortioides</i> var. <i>microphylla</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, <i>Calothamnus glaber</i> mid isolated shrubs over <i>Tersonia cyathiflora</i>, <i>Persoonia acicularis</i> low sparse shrubland over <i>Mesomelaena pseudostygia</i>, <i>Ecdeiocolea monostachya</i> mid isolated sedges.</p>	97.2	1.4%	-	-	



Undulating Plains



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT07	<p>Aca MmMtMI EmoMps</p> <p><i>Allocasuarina campestris</i> tall, isolated shrubs over <i>Melaleuca marginata</i>, <i>Melaleuca tinkeri</i>, <i>Melaleuca leuropoma</i>, <i>Daviesia divaricata</i> subsp. <i>divaricata</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i> low open shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i> mid isolated sedges over introduced grassland and forbland.</p>	1.4	0.02%	0.4	0.03%	
VT08	<p>Ah GcAsLoSI HhhDdd</p> <p><i>Allocasuarina huegeliana</i> low isolated trees over <i>Grevillea candelabroides</i>, <i>Acacia saligna</i>, <i>Leptospermopsis oligandra</i>, <i>Scholtzia laxiflora</i> mid to tall sparse shrubland over mixed low sparse shrubland including <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, <i>Daviesia divaricata</i> subsp. <i>divaricata</i> over introduced grassland and forbland.</p>	1.4	0.02%	-	-	



Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT09	<p>Ah BaAca</p> <p><i>Allocasuarina huegeliana</i> low isolated trees over <i>Banksia attenuata</i>, <i>Allocasuarina campestris</i>, <i>Melaleuca</i> spp. (<i>M. leuropoma</i>, <i>M. tinkeri</i>, <i>M. marginata</i>) mid sparse shrubland over mixed low sparse shrubland over introduced grassland.</p>	69.6	1.0%	-	-	
VT10	<p>AMH EmoMpsLpp</p> <p><i>Allocasuarina campestris</i>, <i>Allocasuarina microstachya</i>, <i>Melaleuca tinkeri</i>, <i>Melaleuca marginata</i>, <i>Melaleuca aspalathoides</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, mixed mid to low open shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i>, <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> mid open sedgeland over <i>Austrostipa elegantissima</i> isolated grassland over forbland.</p>	33.9	0.5%	5.0	0.4%	


Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT11	<p>Bp GeCgEbb EmoMps</p> <p><i>Banksia prionotes</i> (+/- <i>Nuytsia floribunda</i>, <i>Eucalyptus todtiana</i>) woodland over <i>Grevillea eriostrachya</i>, <i>Calothamnus glaber</i>, <i>Eremaea beaufortoides</i> var. <i>beaufortoides</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i> mid shrubs over mixed low sparse shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i> mid sparse sedgeland.</p>	6.9	0.1%	0.02	<0.01%	
VT12	<p>BaBsSIMIHhhJn EmoMps</p> <p>(+/- <i>Eucalyptus todtiana</i> low isolated trees over) <i>Banksia attenuata</i>, <i>Banksia scabrella</i>, <i>Scholtzia laxiflora</i>, <i>Melaleuca leuropoma</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, <i>Jacksonia nutans</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i> mid sparse sedgeland over grassland forbland.</p>	15.1	0.2%	5.6	0.4%	

Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT13	<p>Ec MvvMcoAsAa</p> <p><i>Eucalyptus camaldulensis</i> (+/- <i>Casuarina obesa</i>) low isolated trees over <i>Melaleuca viminea</i> subsp. <i>viminea</i>, <i>Melaleuca concreta</i>, <i>Acacia saligna</i>, <i>Acacia acuminata</i> tall sparse shrubland over mixed shrubland/sedgeland with <i>Typha domingensis</i> in wetter areas over introduced grassland and forbland.</p>	27.9	0.4%	8.2	0.6%	
VT14	<p>Ell Aca</p> <p><i>Eucalyptus loxophleba</i> subsp. <i>loxophleba</i> low isolated trees over <i>Allocasuarina campestris</i> tall sparse shrubland over low open shrubland over introduced grassland.</p>	21.5	0.3%	-	-	

Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT15	<p>Et MIHhh EmoMpsLpp</p> <p><i>Eucalyptus todtiana</i> low isolated mallee trees over (+/- <i>Leptospermopsis oligandra</i>, <i>Allocasuarina humilis</i> mid isolated shrubs) <i>Melaleuca leuropoma</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i> low sparse shrubland over <i>Ecdeiocolea monostachya</i>, <i>Mesomelaena pseudostygia</i>, <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> mid sparse sedgeland over introduced grassland and forbland.</p>	64.6	1.0%	6.2	0.5%	
VT17	<p>MIHhh Emo</p> <p>(+/- <i>Eucalyptus todtiana</i> low isolated trees over) <i>Melaleuca leuropoma</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, low open shrubland over <i>Ecdeiocolea monostachya</i> mid sparse sedgeland over introduced grassland and forbland.</p>	22.1	0.3%	8.4	0.6%	

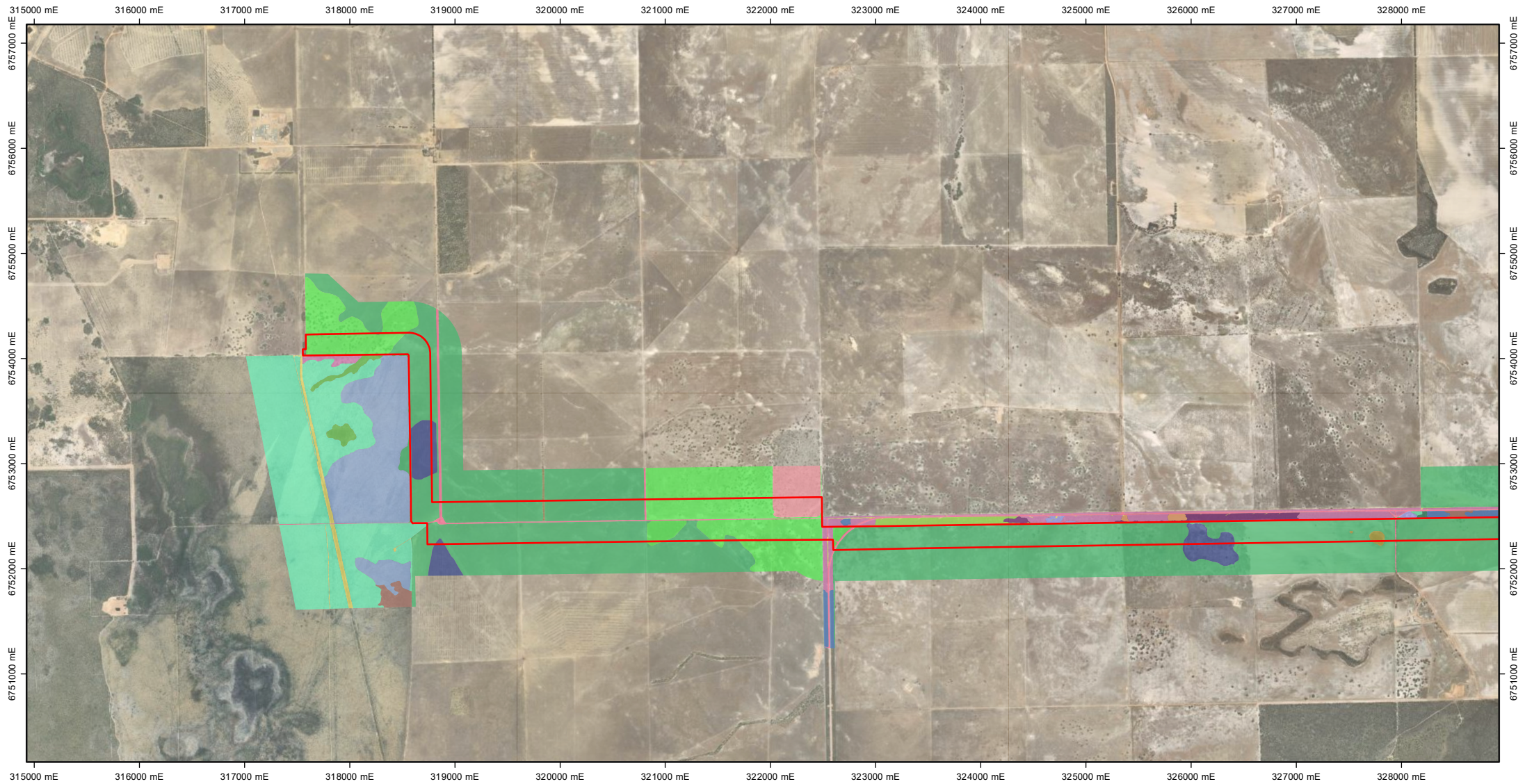
Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
VT22	<p>MIHhhJh</p> <p><i>Ae Melaleuca leuropoma</i>, <i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>, <i>Jacksonia hakeoides</i> low (to mid) sparse shrubland over <i>Austrostipa elegantissima</i> isolated clumps of grasses over sparse sedges and introduced forbland and grassland.</p>	9.2	0.1%	-	-	
Modified Vegetation Units						
PCr	<p>Perennial crops of <i>*Chamaecytisus palmensis</i> over scattered native shrubs (including <i>Jacksonia hakeoides</i>) over introduced pasture weeds.</p>	144.1	2.1%	16.2	1.2%	

Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
PEc	<i>Eucalyptus camaldulensis</i> (planted) mid woodland over introduced pasture weeds.	87.8	1.3%	6.8	0.5%	
PEt	<i>Eucalyptus todtiana</i> low isolated mallee trees over <i>Macrozamia fraseri</i> , <i>Rhagodia preissii</i> subsp. obovata isolated tall shrubs over introduced pasture weeds within paddocks that are grazed with no intact vegetation.	298.4	4.4%	71.6	5.4%	

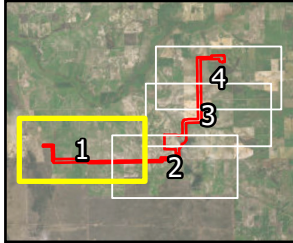
Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
Re	Regrowth of old roadside gravel pits with mixed species.	3.9	0.06%	-	-	
Mapping Units						
Ag	Agricultural pivots for fodder crops.	114.3	1.7%	-	-	
CI	Cleared areas, generally associated with minor tracks, road maintenance (drainage culverts) and agricultural infrastructure	19.9	0.3%	1.3	0.1%	
NS	Areas of the Survey Area that were not sampled (unlikely to be impacted by any proposed disturbances)	525.7	7.7%	<0.05	<0.01%	
OW	Area of open water associated with dams or Sand Plain Creek	1.9	0.03%	-	-	
P	Paddock and pasture areas for crops or stock grazing (cows and sheep)	4,740.4	69.4%	1,142.3	86.1%	

Vegetation Type	Description	Extent in Survey Area		Extent in Development Envelope		Representative Photograph
		(ha)	%	(ha)	%	
Rd	Gazetted roads and tracks throughout the Survey Area (including Yandanooka West Road)	84.5	1.2%	24.5	1.8%	
Total		6,830.5	100.0	1,326.9	100.0	

Source: (Biologic 2026; Appendix C1)



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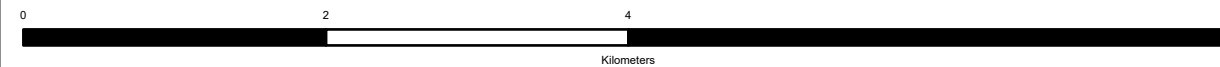
LEGEND:

Development Envelope

Vegetation Types

- | | | | |
|-----|------|------|------|
| Cl | Rd | VT12 | VT22 |
| P | Re | VT15 | VT23 |
| PCr | VT03 | VT16 | |
| PEc | VT08 | VT17 | |
| PEt | VT10 | VT18 | |
| | VT11 | VT19 | |

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TITLE: Figure 4-3: Vegetation Types within and surrounding the Development Envelope

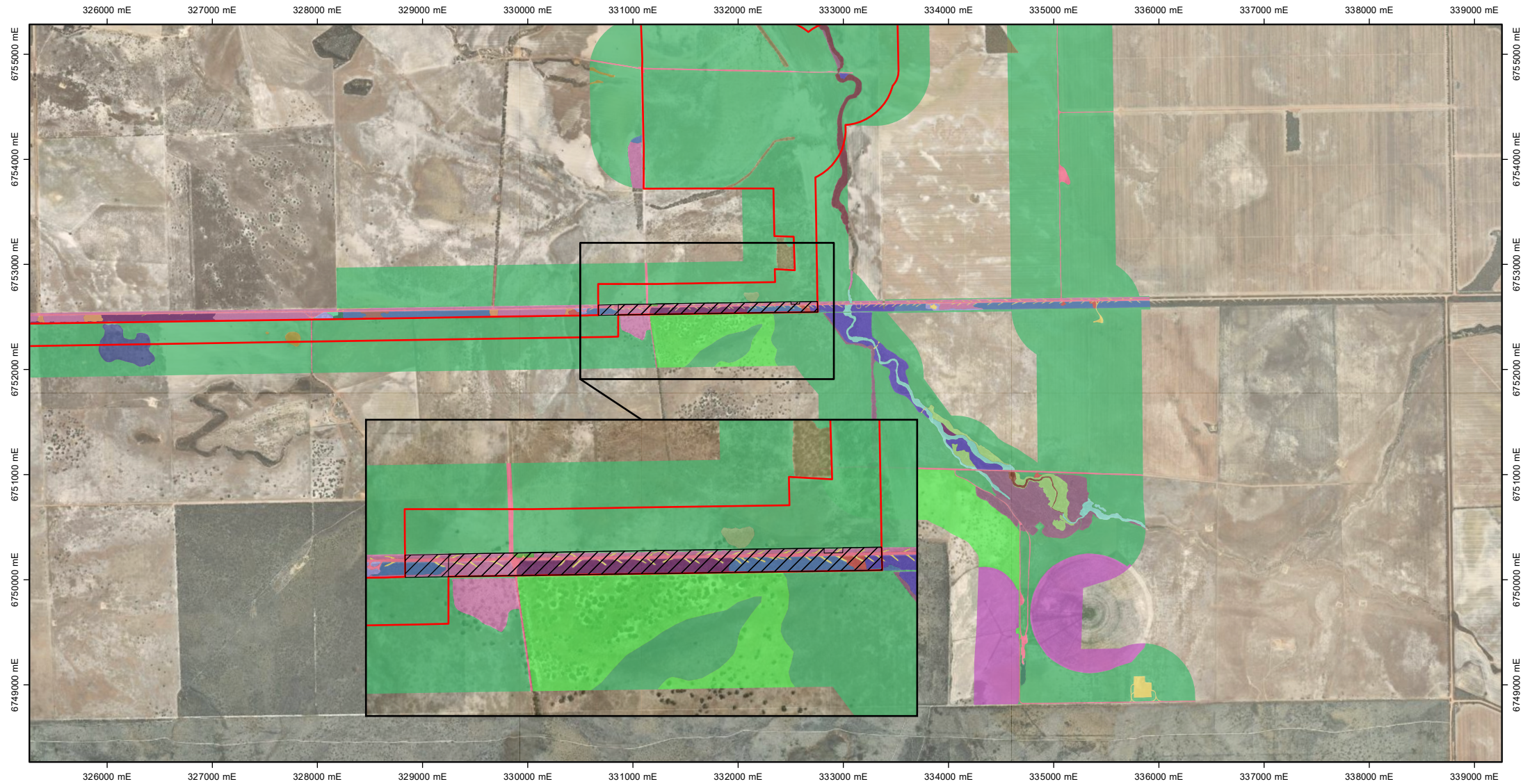
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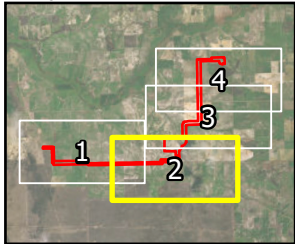
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Service Layer Credits: Earthstar Geographics

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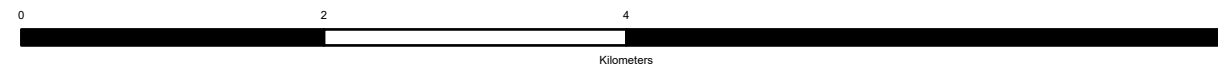
LEGEND:

- Development Envelope
- Clearing Exclusion Zone

Vegetation Types

- | | | | |
|-----|------|------|------|
| Ag | PEc | VT04 | VT13 |
| Cl | PEt | VT05 | VT15 |
| NS | Rd | VT07 | VT16 |
| OW | Re | VT08 | VT18 |
| P | VT01 | VT10 | VT21 |
| PCr | VT02 | VT11 | VT23 |
| | VT03 | VT12 | |

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



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TITLE: Figure 4-3: Vegetation Types within and surrounding the Development Envelope

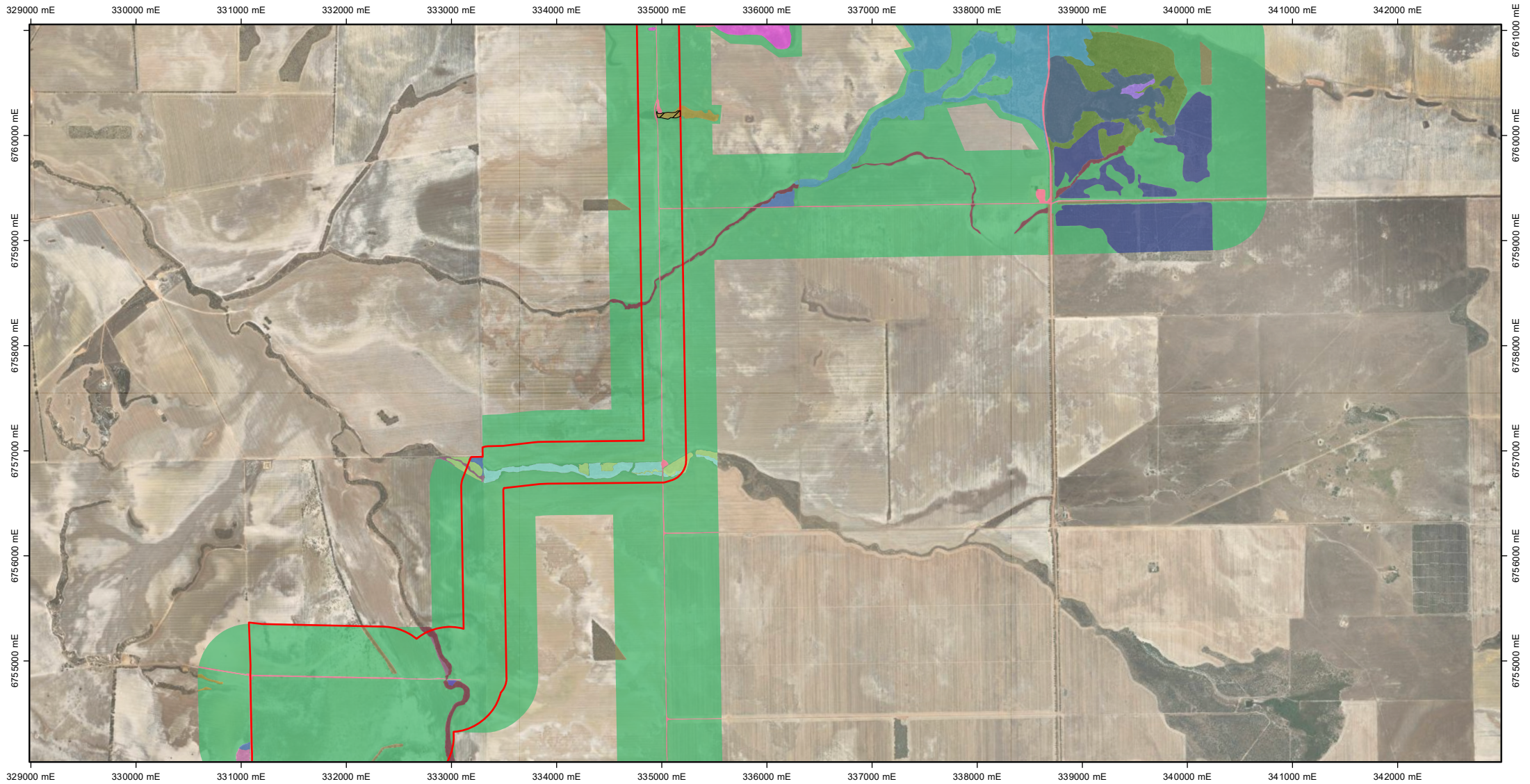
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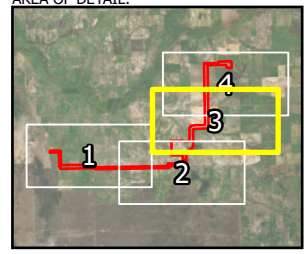
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LEGEND:

- Development Envelope
- Clearing Exclusion Zone

Vegetation Types

- | | | |
|--|---|---|
| NS | VT01 | VT10 |
| P | VT02 | VT13 |
| PCr | VT04 | VT14 |
| PEc | VT05 | VT15 |
| Rd | VT06 | VT20 |
| | VT09 | VT23 |

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TITLE: Figure 4-3: Vegetation Types within and surrounding the Development Envelope

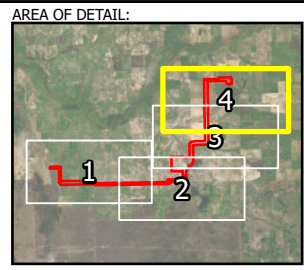
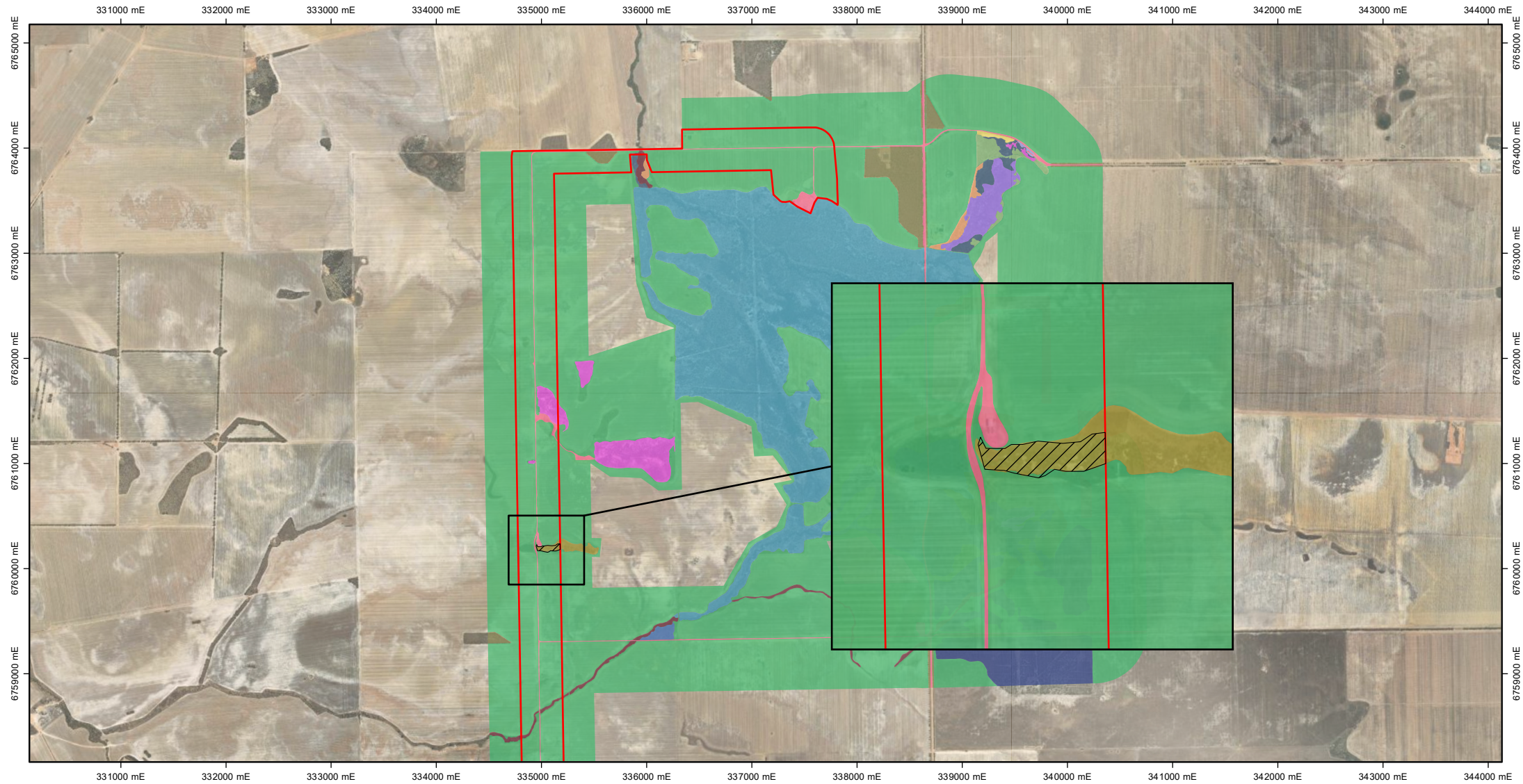
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LEGEND:
 Development Envelope
 Clearing Exclusion Zone

Vegetation Types

- | | | |
|-----|------|------|
| Cl | Rd | VT13 |
| NS | Re | VT14 |
| P | VT03 | VT20 |
| PCr | VT06 | VT21 |
| PEc | VT09 | VT23 |
| | VT10 | |

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



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TITLE: Figure 4-3: Vegetation Types within and surrounding the Development Envelope

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
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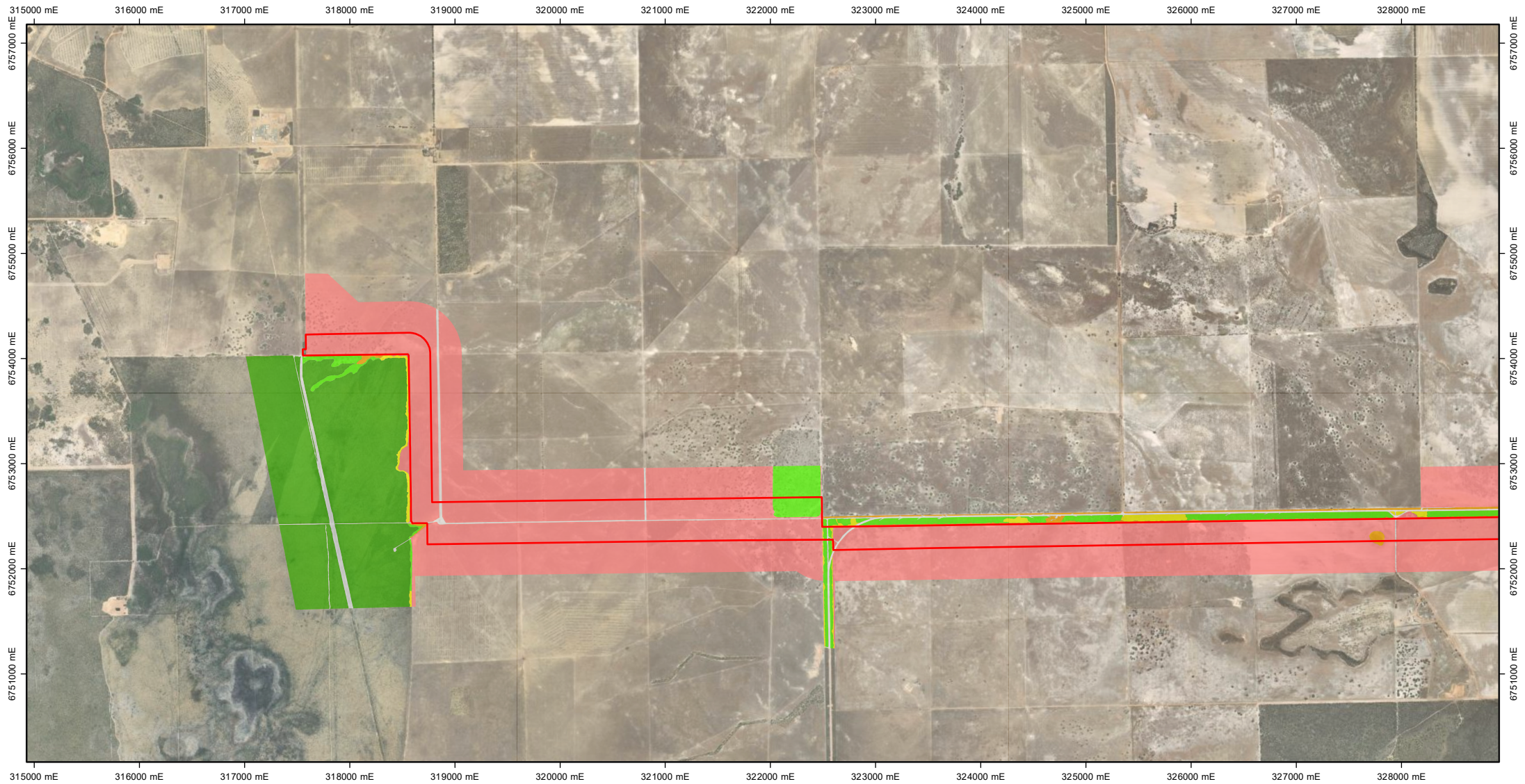
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4.3.1.1. *Vegetation Condition*

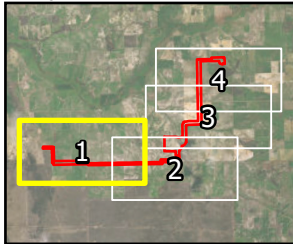
The majority of remnant vegetation within the Development Envelope (1,237.2 ha; 93.2%) is considered to be in a Completely Degraded condition, based on the Keighery (1994) vegetation scale provided in the EPA *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b), due to substantial clearing for agricultural purposes. Vegetation fringing these areas were recorded as Degraded or occasionally Good, due to their proximity to roads and the encroachment of agricultural weeds. The only vegetation of Excellent condition recorded was a large area of *Banksia* woodland at the Western end of the export pipeline that has been entirely avoided by the Development Envelope. A portion of the Not Sampled vegetation type encroaches into the Development Envelope at the northern extent of the central flowline on the periphery of a rural property but is so small it is unlikely to be significant (<0.05 ha; <0.01%). **Table 4-5** and **Figure 4-4** summarise the vegetation condition within the Development Envelope and surrounding Survey Area.

Table 4-5: Vegetation Condition across the Development Envelope

Condition Rating	Extent within the Survey Area (ha)	Extent in Development Envelope (ha)	% of Development Envelope
Excellent	293.7	-	-
Very Good	169.1	18.7	1.4%
Good	165.5	12.6	1.0%
Degraded	173.2	32.4	2.4%
Completely Degraded	5,397.0	1,237.2	93.2%
Cleared	104.5	25.8	1.9%
Not Sampled	527.5	<0.05	<0.01%
Total	6,830.5	1,326.9	100.0%



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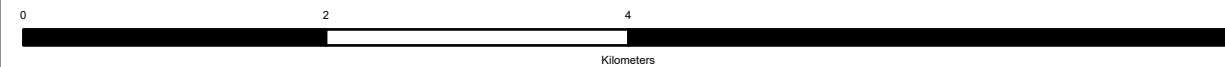
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LEGEND:

- Development Envelope
- Vegetation Condition**
- Excellent
- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-4: Vegetation Condition within and surrounding the Development Envelope

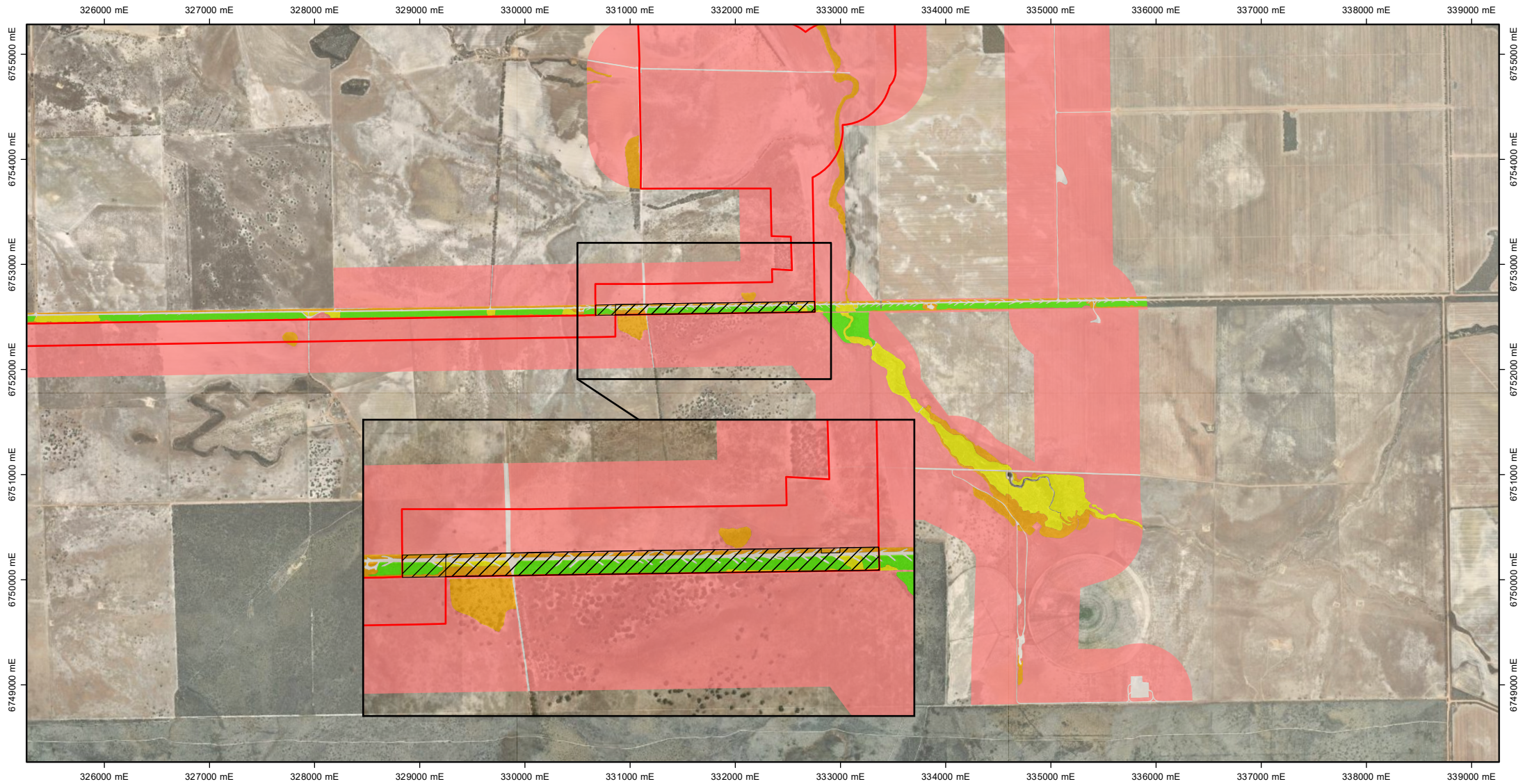
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DATE: 15/04/2026

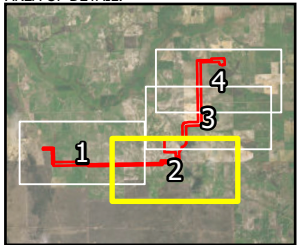
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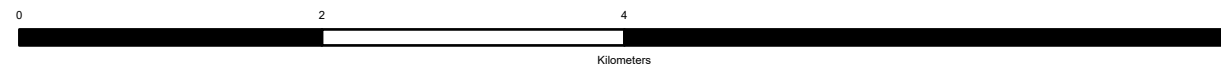
LEGEND:

- Development Envelope
- Clearing Exclusion Zone

Vegetation Condition

- Very Good
- Good
- Degraded
- Completely Degraded
- Cleared

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-4: Vegetation Condition within and surrounding the Development Envelope

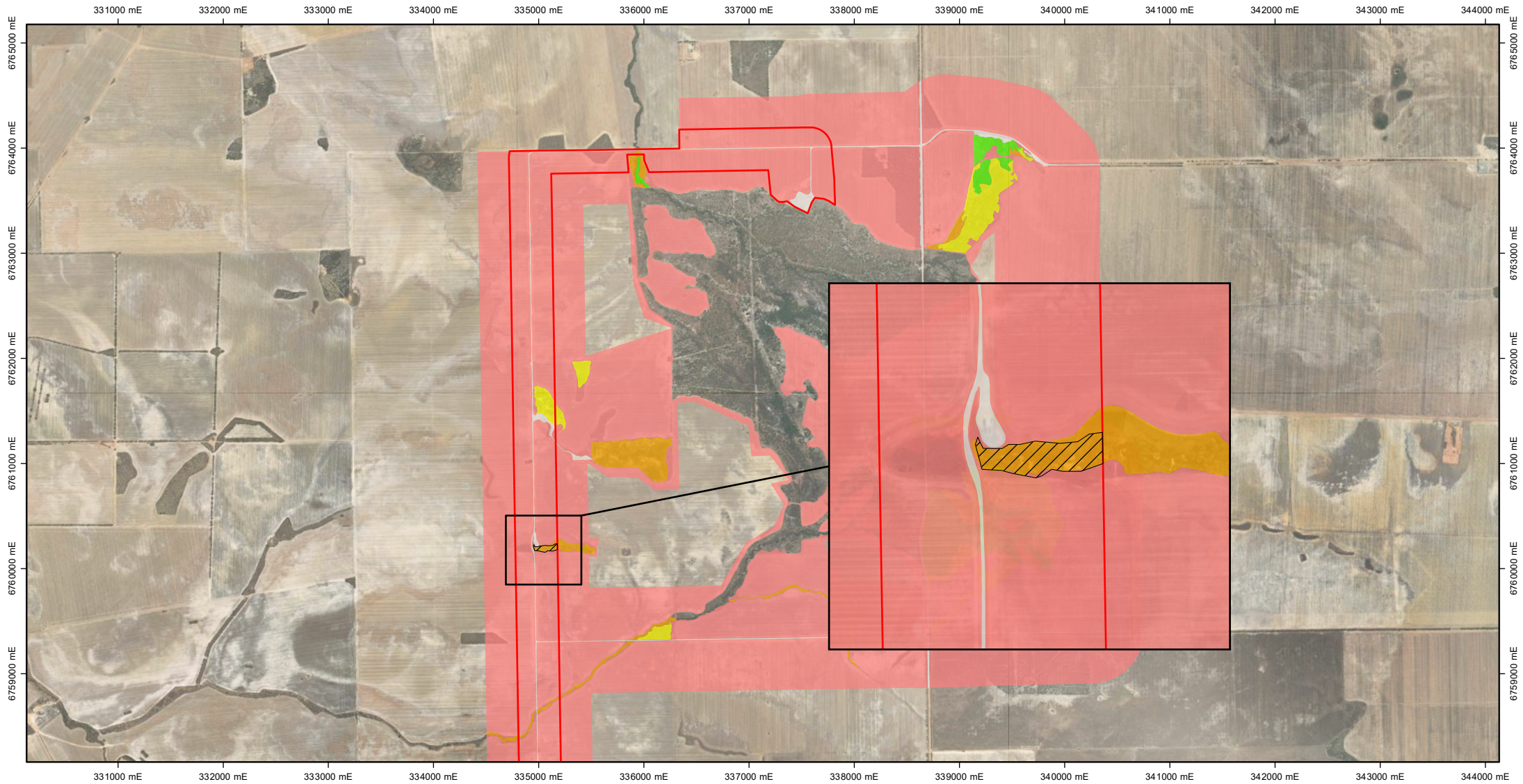
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DATE: 15/04/2026

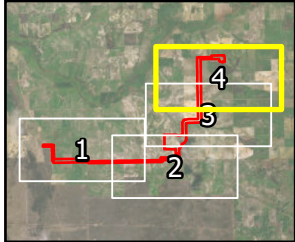
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Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

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


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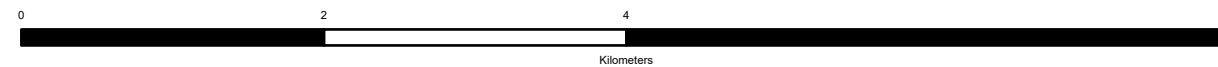
LEGEND:

-  Development Envelope
-  Clearing Exclusion Zone

Vegetation Condition

-  Very Good
-  Good
-  Degraded
-  Completely Degraded
-  Cleared

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-4: Vegetation Condition within and surrounding the Development Envelope

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
Service Layer Credits: Vantor, Earthstar Geographics

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0						21/01/2026

4.3.1.2. Significant Vegetation Types and Ecological Communities

None of the vegetation types present within the Development Envelope or Survey Area were found to resemble any Threatened Ecological Communities (TECs) listed under the EPBC Act or BC Act, or Priority Ecological Communities (PECs) as listed by DBCA, known from the Geraldton Sandplains.

4.3.1.3. Groundwater Dependent Ecosystems

Six vegetation types were mapped within drainage lines or floodplains, predominantly associated with Sand Plain Creek. *Eucalyptus camaldulensis*, a known facultative phreatophyte (taxa that only utilises groundwater when it is readily available) and a potential indicator for groundwater dependent vegetation (GDV), was present in the following vegetation types and mapping units:

- VT13
- PEc.

VT13 also contained the following riparian flora; *Casuarina obesa*, *Melaleuca viminea* and *Typha domingensis*. While it may demonstrate a level of groundwater dependence, it is not considered to be locally or regionally significant, with the majority of VT13 recorded in a Degraded or Completely Degraded condition. While the presence of *E. camaldulensis* represents potential GDV, there is a chance that some individuals have been planted and are not naturally occurring.

Mapping unit PEc is not considered to represent a GDE; as it was clear that *E. camaldulensis* individuals were planted, and it occurred over introduced grasses and other weeds within degraded paddocks.

Remaining vegetation types present within drainage lines are likely to have low or negligible dependence on groundwater; based on the absence of phreatophytic tree species they are likely to be inflow dependent systems that rely on seasonal surface water inputs.

4.3.1. Flora

The survey identified a total of 504 flora taxa in the survey area representing 72 families and 222 genera. The most common families recorded were Myrtaceae (63 taxa), Fabaceae (49 taxa), Proteaceae (46 taxa) and Asteraceae (44 taxa) (Biologic 2026a). Classifications of conservation significant species are defined in **Appendix A4**.

4.3.1.1. Conservation Significant Flora

The survey recorded 29 conservation significant flora taxa. One Threatened taxa, *Thelymitra stellata* (EN BC Act and EPBC Act), was recorded outside of the Development Envelope (only). Of the remaining taxa, two are listed as P1, four are listed as P2, 16 are listed as P3 and six are listed as P4. Three additional conservation significant flora taxa are considered to possibly occur within the Survey Area according to the Assessment of Occurrence but were not recorded during the survey; *Paracaleana dixonii* (EN EPBC Act; VU BC Act), *Comesperma griffinii* (P2) and *Austrostipa nunaginensis* (P3). Biologic (2026a) identified suitable potential habitat for these species in the west of the survey area within intact Good-or-better condition vegetation. Suitable habitat does not occur within the Development Envelope.

Figure 4-5 and **Table 4-6** detail the conservation significant flora recorded within the Survey Area and their presence within the Development Envelope.

The Proposal occurs within a well-surveyed area. Given the extent and intensity of regional and Project specific on-ground survey, flora taxa considered unlikely to occur within the Survey Area or taxa that were recorded or considered to have potential to occur, but not within the Development Envelope, are not discussed further.

Table 4-6: Occurrence of Conservation Significant Flora in the Survey Area and Development Envelope

Species	Conservation Status	Habitat	Veg Type Presence	Occurrence within the Survey Area	No. in Survey Area	No. in Development Envelope
<i>Thelymitra stellata</i>	EN (BC Act and EPBC Act)	Sand, gravel, and lateritic loams, often in woodlands.	Re - Adjacent to VT07, VT12, VT15	Recorded	2	-
<i>Malleostemon decipiens</i>	P1 (DBCA)	Sandplain vegetation dominated by <i>Melaleuca</i> , <i>Acacia</i> or <i>Allocasuarina</i> , sometimes on breakaways. Geographically restricted to Mingenew area.	VT01	Recorded	45	-
<i>Poranthera asybosca</i>	P1 (DBCA)	Open kwongan shrubland on white sand over laterite. Only known from a small area between Badgingarra and Eneabba.	VT12, VT16, VT19	Recorded	17	13
<i>Poranthera moorokatta</i>	P2 (DBCA)	Yellow or grey-brown sand on slopes and flats, between Cervantes and Perth in the Swan Coastal Plain bioregion.	V10, VT11, VT12, VT15, CI	Recorded	413	378
<i>Schoenus badius</i>	P2 (DBCA)	Grey sand in moist areas, between Northampton and Cataby in the Geraldton Sandplains and Swan Coastal Plains bioregions.	VT07	Recorded	50	-
<i>Schoenus</i> sp. <i>Eneabba</i> (F. Obbens & C. Godden 1154)	P2 (DBCA)	Grey, yellow or white sand, undulating sandplains, midslopes, tops of rises.	VT15, VT16, VT19	Recorded	122	-
<i>Thysanotus kalbarriensis</i>	P2 (DBCA)	Flat plains in yellow or grey sand in shrublands that are often dominated by <i>Banksia</i> and <i>Grevillea</i> species.	VT16, VT19	Recorded	2,180	-

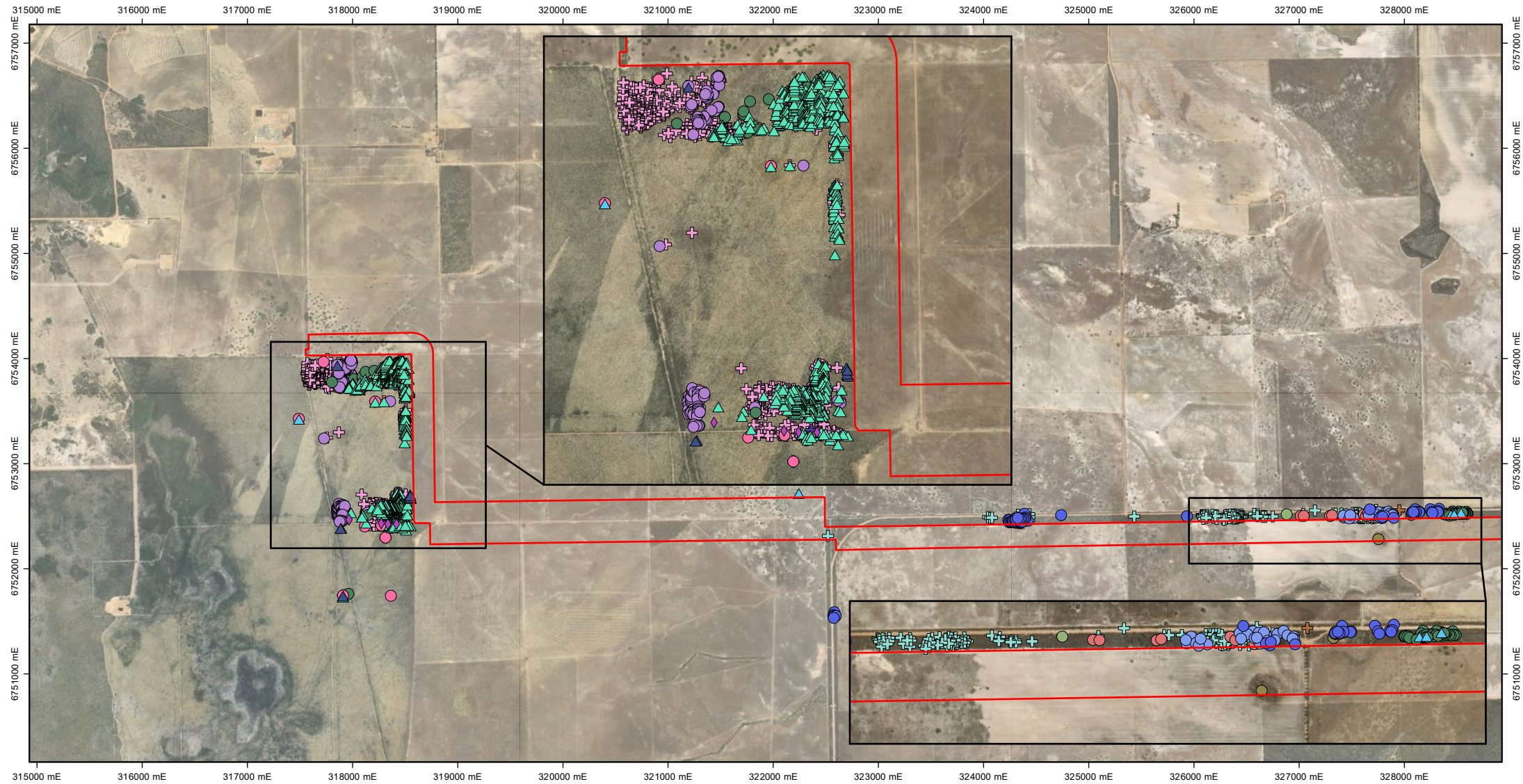
Species	Conservation Status	Habitat	Veg Type Presence	Occurrence within the Survey Area	No. in Survey Area	No. in Development Envelope
<i>Acacia isoneura</i> subsp. <i>isoneura</i>	P3 (DBCA)	Yellow-brown sand on flats and low rises, over an approximately 60 km range from east of Dongara to west of Three Springs	VT01	Recorded	2	-
<i>Baeckea</i> sp. Walkaway (A.S. George 11249)	P3 (DBCA)	Yellow-brown or white sand on undulating plains and hillslopes, in the South-west botanical province in the Geraldton Sandplains and Avon Wheatbelt bioregions.	VT16	Recorded	10	-
<i>Banksia fraseri</i> var. <i>crebra</i>	P3 (DBCA)	Yellow or grey sand on plains, between Cataby and Port Denison within the Geraldton Sandplains and Swan Coast Plain bioregions.	VT03, VT07, VT10, VT12, VT15, VT23, P, Rd, Re	Recorded	514	89
<i>Comesperma rhadinocarpum</i>	P3 (DBCA)	Sandy soils within the Geraldton Sandplains, Coolgardie, Great Victoria Desert, Jarrah Forest and Swan Coastal Plain bioregions.	VT10, VT11, VT16, VT19, Rd, Cl	Recorded	184	-
<i>Gastrolobium rotundifolium</i>	P3 (DBCA)	Open positions on heavier clay or loam soils in wandoo woodland, between Mingenew and Watheroo to the areas around Wagin and Narrogin.	VT09	Recorded	10	-
<i>Hopkinsia anoectocolea</i>	P3 (DBCA)	Winter-wet depressions, floodplains, salt lakes with white or grey sand, often saline	VT13	Recorded	1	-
<i>Lechenaultia juncea</i>	P3 (DBCA)	White, grey or yellow sand, sandy gravel	VT16, VT19	Recorded	5,232	-

Species	Conservation Status	Habitat	Veg Type Presence	Occurrence within the Survey Area	No. in Survey Area	No. in Development Envelope
<i>Mesomelaena stygia</i> subsp. <i>deflexa</i>	P3 (DBCA)	White, grey or lateritic sand, clay, and gravel within the Geraldton Sandplains bioregion.	VT10	Recorded	43	-
<i>Persoonia rudis</i>	P3 (DBCA)	White, yellow or grey sand over laterite, within the Geraldton Sandplains, Jarrah Forest and Swan Coastal Plains bioregions.	VT15	Recorded	1	-
<i>Stylidium drummondianum</i>	P3 (DBCA)	Sand or clay sand over laterite in upper hillslopes and breakaways, within the Geraldton Sandplains and Avon Wheatbelt bioregions.	VT15, VT16, VT23, Re	Recorded	165	1
<i>Stylidium torticarpum</i>	P3 (DBCA)	Sandy clay and clay loam over laterite, adjacent to creeklines, depressions, and beneath breakaways, within the Geraldton Sandplains, Avon Wheatbelt and Swan Coastal Plain bioregions.	VT02, VT04, VT05, VT06, VT20, VT23, OW	Recorded	400	53
<i>Styphelia hyalina</i>	P3 (DBCA)	Sand or loam soils, on lateritic uplands and often associated with breakaways, from south of Mingenew to west of Three Springs within the Geraldton Sandplains bioregion.	VT07	Recorded	10	-
<i>Thryptomene nitida</i>	P3 (DBCA)	Yellow sands and loam, geographically restricted to a 60 km range between Milo and Depot Hill to the west and north-west of Mingenew respectively, and west of Three Springs to the south.	VT01, VT02, VT05, VT13, VT15, VT20	Recorded	2,912	2,353
<i>Tricoryne soullierae</i>	P3 (DBCA)	Yellow to grey sand, gravelly clay quartz, laterite, limestone on midslopes and uplands, within the Avon Wheatbelt, Coolgardie, Geraldton Sandplains, Jarrah Forest and Geraldton Sandplains bioregions.	VT15	Recorded	58	1

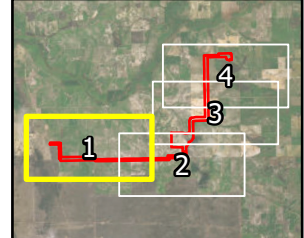
Species	Conservation Status	Habitat	Veg Type Presence	Occurrence within the Survey Area	No. in Survey Area	No. in Development Envelope
<i>Verticordia densiflora</i> var. <i>roseostella</i>	P3 (DBCA)	Sandplains and breakaways with yellow, grey or white sand or sandy loam, often with laterite	VT15	Recorded	16	-
<i>Verticordia luteola</i> var. <i>luteola</i>	P3 (DBCA)	Grey sand over gravel on flat, within the Geraldton Sandplains and Avon Wheatbelt bioregions.	VT12	Recorded	1	-
<i>Banksia elegans</i>	P4 (DBCA)	Sandplains, low consolidated dunes with yellow sand	VT16, VT19	Recorded	2	-
<i>Banksia scabrella</i>	P4 (DBCA)	White, grey or yellow sometimes with lateritic gravel on sandplains and lateritic ridges, west of Three Springs to Geraldton within the Geraldton Sandplain bioregion.	VT10, VT12, VT15	Recorded	344	40
<i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i>	P4 (DBCA)	White or grey sand over laterite on hillslopes, ridges, and sandplains	VT10, VT12, VT15	Recorded	1	-
<i>Schoenus griffinianus</i>	P4 (DBCA)	White sand on gently undulating low plains and sandplains, between Geraldton and Lake Grace within the Geraldton Sandplains, Avon Wheatbelt, Mallee and Swan Coastal Plain bioregions.	VT10, VT11, VT12, CI	Recorded	12	8
<i>Stawellia dimorphantha</i>	P4 (DBCA)	Undulating plains and slopes with white, grey, or yellow sand	VT15, VT16, VT19, Rd	Recorded	5,262	-

Species	Conservation Status	Habitat	Veg Type Presence	Occurrence within the Survey Area	No. in Survey Area	No. in Development Envelope
<i>Stylidium longitubum</i>	P4 (DBCA)	Sandy clay or clay soils, seasonal wetlands	VT01	Recorded	1	-
<i>Paracaleana dixonii</i>	EN (EPBC Act) VU (BC Act)	Deep sand in open areas beneath dense tall shrubs with scattered <i>Banksias</i> , or in heathland in shallow sand over laterite.	Potential in west of Survey Area in Good or better condition vegetation	Possible	-	-
<i>Comesperma griffinii</i>	P2 (DBCA)	Yellow or grey sand in heath or shrublands.	Potential in west of Survey Area in Good or better condition vegetation	Possible	-	-
<i>Austrostipa nunaginensis</i>	P3 (DBCA)	Yellow-brown sand, slopes. <i>Banksia</i> woodlands, shrublands, <i>Allocasuarina</i> or Marri woodland.	Potential in west of Survey Area in Good or better condition vegetation	Possible	-	-

Source: (Biologic 2026; Appendix C1)



AREA OF DETAIL:



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LEGEND:

Development Envelope

Priority 1

◆ *Poranthera asybosca*

Priority 2

- ▲ *Poranthera moorokatta*
- ▲ *Schoenus sp. Eneabba (F. Obbens & C. Godden 1154)*
- ▲ *Thysanotus kalbarriensis*

Priority 3

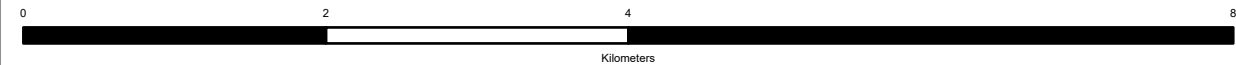
● *Baeckea sp. Walkaway (A.S. George 11249)*

- *Banksia fraseri var. crebra*
- *Comesperma rhadinocarpum*
- *Lechenaultia juncea*
- *Persoonia rudis*
- *Stylidium drummondianum*
- *Tricoryne soullierae*
- *Verticordia densiflora var. roseostella*
- *Verticordia luteola var. luteola*

Priority 4

- ✚ *Banksia elegans*
- ✚ *Banksia scabrella*
- ✚ *Eucalyptus macrocarpa subsp. elachantha*
- ✚ *Schoenus griffinianus*
- ✚ *Stawellia dimorphantha*

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PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-5: Conservation Significant Flora within and surrounding the Development Envelope

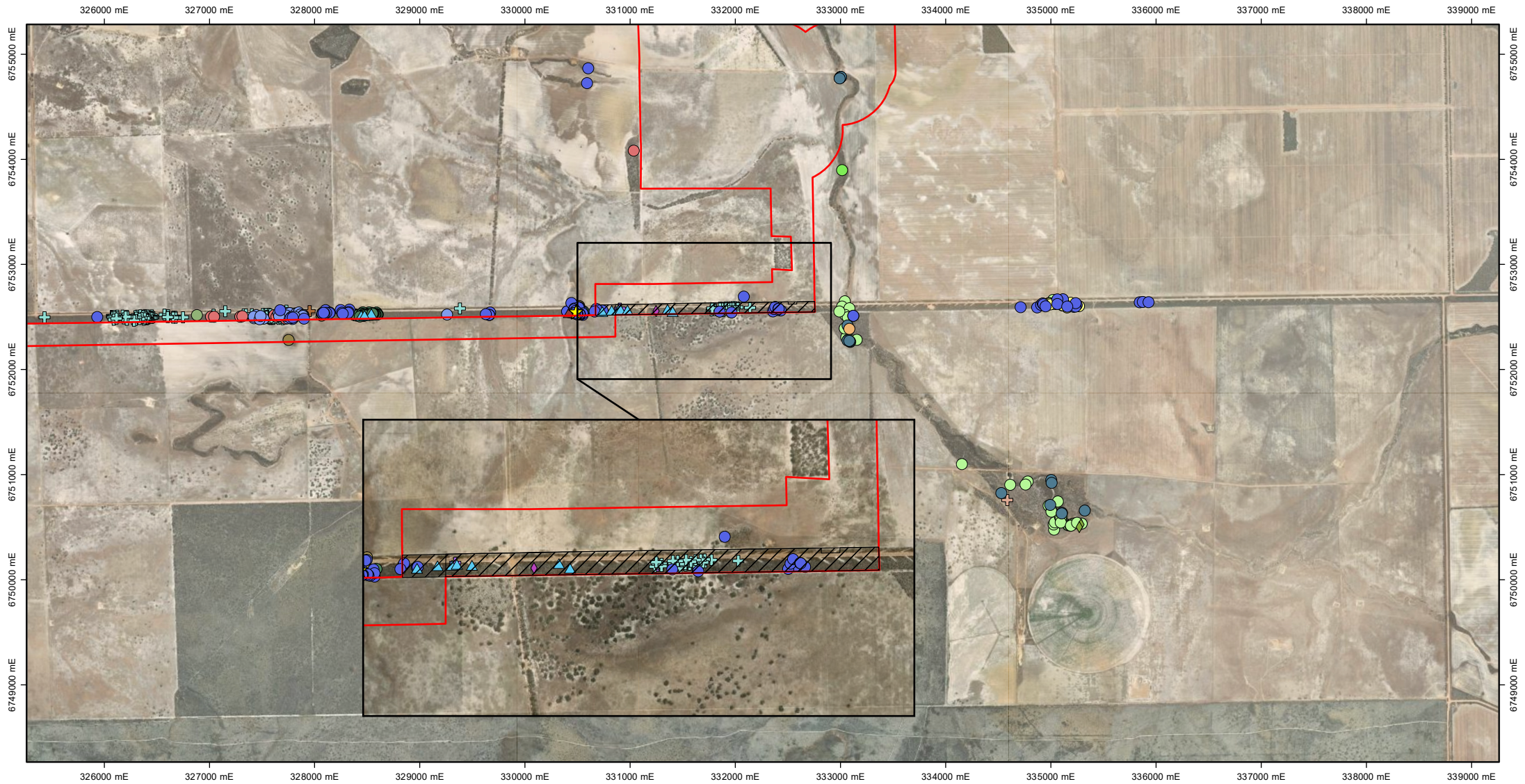
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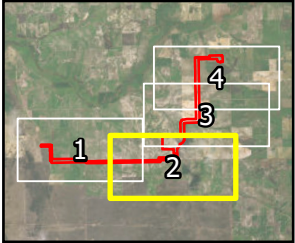
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 Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026



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LEGEND:

Development Envelope

CEZ

Threatened

Thelymitra stellata

Priority 1

Malleostemon decipiens

Poranthera asybosca

Priority 2

Poranthera moorokatta

Schoenus badius

Priority 3

Acacia isoneura subsp. isoneura

Banksia fraseri var. crebra

Comesperma rhadinocarpum

Hopkinsia anoetocolea

Mesomelaena stygia subsp. deflexa

Stylidium drummondianum

Stylidium torticarpum

Styphelia hyalina

Thryptomene nitida

Tricoryne soullierae

Verticordia densiflora var. roseostella

Verticordia luteola var. luteola

Priority 4

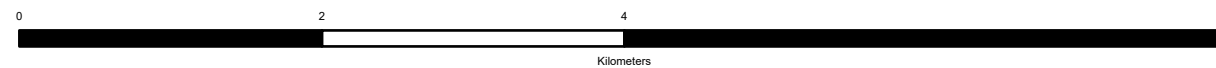
Banksia scabrella

Eucalyptus macrocarpa subsp. elachantha

Schoenus griffinianus

P4, Stylidium longitubum

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-5: Conservation Significant Flora within and surrounding the Development Envelope

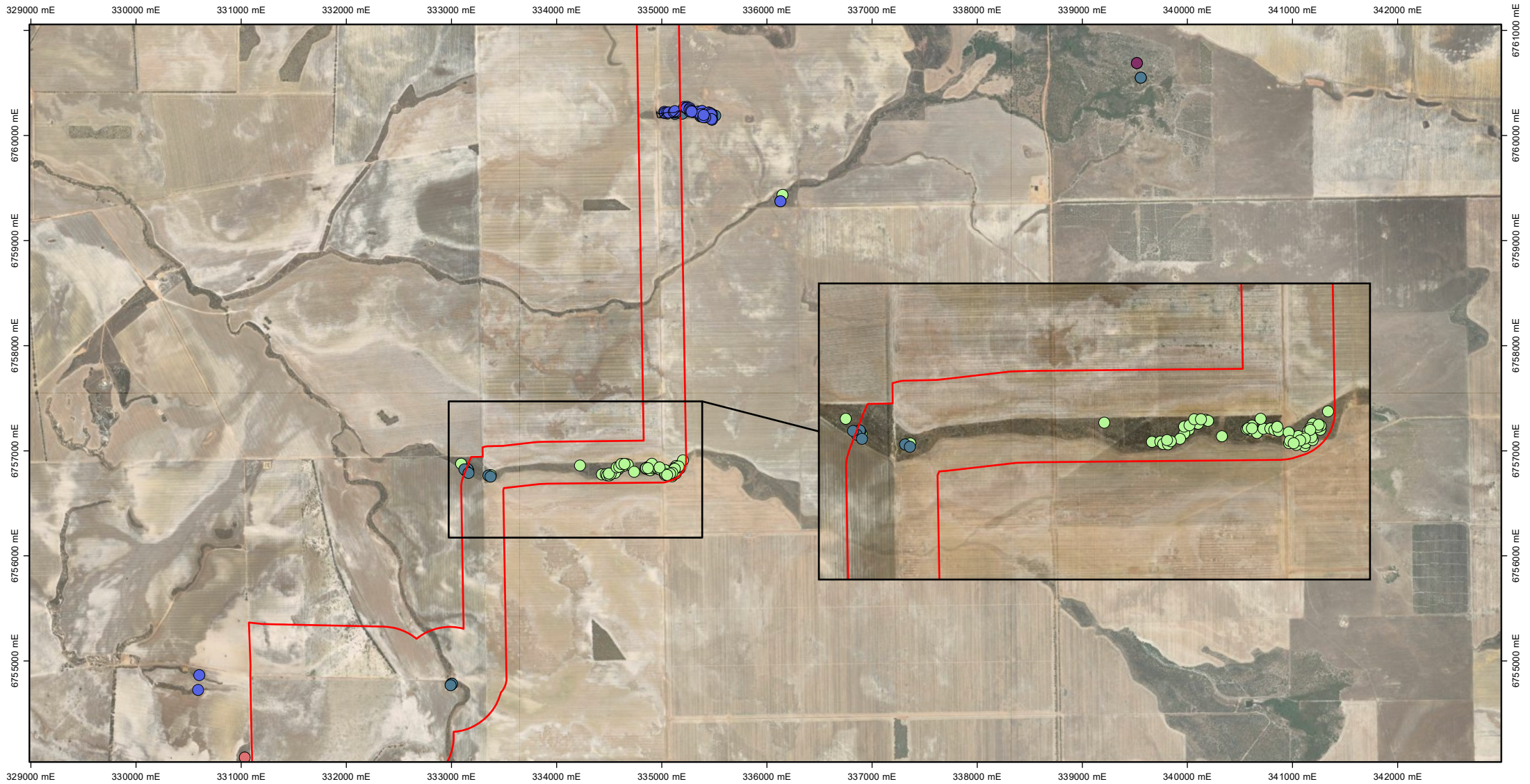
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DATE: 14/04/2026

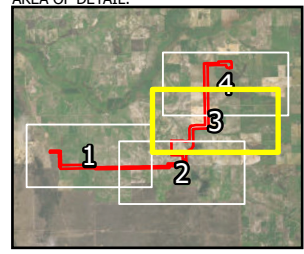
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0						



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LEGEND:

- Development Envelope
- CEZ
- *Thryptomene nitida*
- *Verticordia densiflora var. roseostella*
- Priority 3**
- *Banksia fraseri var. crebra*
- *Gastrolobium rotundifolium*
- *Stylidium torticarpum*

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-5: Conservation Significant Flora within and surrounding the Development Envelope

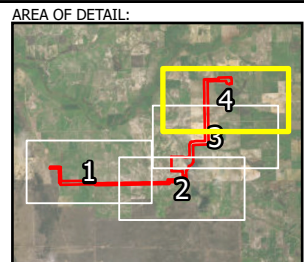
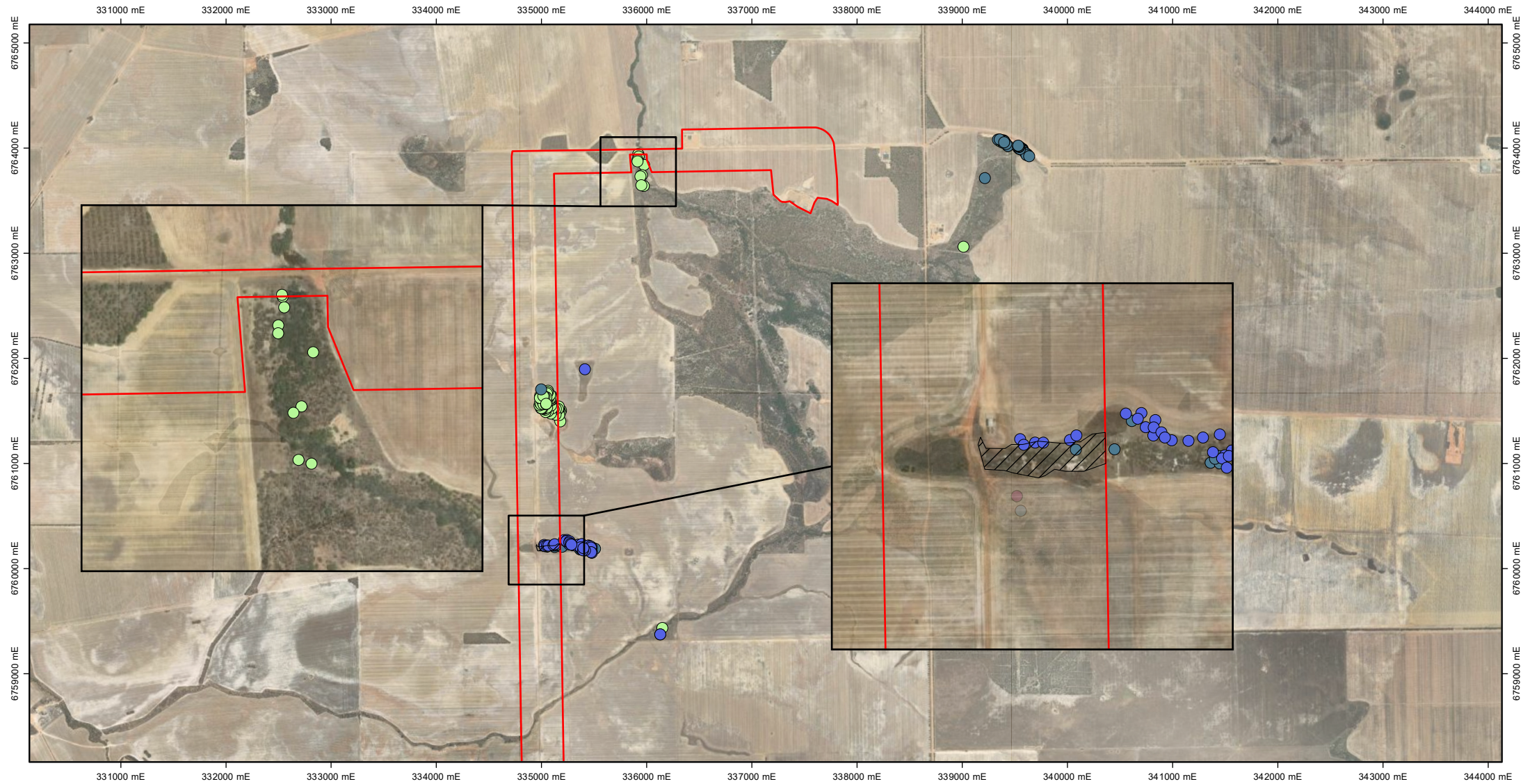
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DATE: 14/04/2026

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 Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date



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- LEGEND:**
- Development Envelope
 - CEZ
 - *Thryptomene nitida*
 - *Banksia fraseri var. crebra*
 - *Gastrolobium rotundifolium*
 - *Stylidium torticarpum*
- Priority 3**

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 4-5: Conservation Significant Flora within and surrounding the Development Envelope

SUBTITLE:

DATE: 14/04/2026

DATA SOURCE:
 Service Layer Credits: Vantor, Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026

4.3.1.1. *Introduced Flora*

A total of 54 introduced (weed) flora taxa were recorded within the Survey Area, of which 19 occur within the Development Envelope. Of these species, *Echium plantagineum* (Patterson's Curse), is listed as a Declared Pest s22(2) under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) and is common in agricultural areas. This weed was recorded in 14 patches within the Development Envelope, all of which were in riparian vegetation along the banks of Sand Plain Creek or the other unnamed tributaries.

4.4. Proposed Mitigation

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce the potential impacts on flora and vegetation as far as practicable. Potential impacts have primarily been avoided or minimised through the design of the CPF, pipeline, and associated infrastructure during the planning phase of the Proposal. Specific mitigation measures are summarised in **Table 4-7**.

Key avoidance measures during the Proposal's design included the location of the CPF, central flowline, and export pipeline in previously disturbed areas, with impacts to remnant vegetation occurring only where alternative alignments were not feasible. To further avoid impacts to remnant vegetation, the Proponent has opted for a strategy that will utilise HDD for installation of the central flowline and export pipeline under Yandanooka West Road, Mount Adams Road, and the Sand Plain Creek crossing, to avoid any impacts to these corridors of roadside and riparian vegetation.

Within the Development Envelope, the Proponent has identified two areas of higher environmental value and plans to implement a CEZ over native vegetation in these areas. CEZ 1 occurs approximately 1.6 km to the south of the CPF and covers roadside vegetation along both sides (north and south) of Yandanooka West Road. This CEZ covers approximately 15.0 ha of native vegetation and has been placed specifically for the purpose of avoiding impacts to Priority flora (among other values), with a high density of conservation significant flora taxa present at this location. CEZ 1 includes the following Priority flora:

- 13 *Poranthera asybosca* (P1) – 100% of individuals within the Development Envelope
- 378 *Poranthera moorokatta* (P2) – 100% of individuals within the Development Envelope
- 42 *Banksia fraseri* var. *crebra* (P3) – 43.0% of individuals within the Development Envelope
- 1 *Tricoryne soullierae* (P3) – 100% of individuals within the Development Envelope
- 39 *Banksia scabrella* (P4) – 97.5% of individuals within the Development Envelope
- 8 *Schoenus griffinianus* (P4) – 100% of individuals within the Development Envelope.

CEZ 2 occurs approximately 6.1 km north of the CPF, approximately midway along the central flowline. This CEZ was placed for the purpose of avoiding an area of high habitat value for short-range invertebrate fauna, however it also covers:

- 31 *Banksia fraseri* var. *crebra* (P3) – 33.3% of individuals within the Development Envelope
- 17 *Stylidium torticarpum* (P3) – 23.6% of individuals within the Development Envelope.

In addition to the above, management and mitigation measures used to minimise the impacts to flora and vegetation during construction are detailed in the Construction Environmental Management Plan (CEMP; **Appendix D1**) and are outlined in **Table 4-7**.

4.4.1. Other Regulatory Processes

It is anticipated clearing of native vegetation will be managed under the Native Vegetation Clearing Permit Process under Part V of the EP Act, subject to a 'Not assessed' decision by the EPA. Through a combination of guiding principles set under the Act, and the ability to set conditions for the project, the native vegetation

clearing permit (NVCP) process is likely to ensure outcomes are consistent with the EPA's flora and vegetation factor objective.

Potential indirect impacts to flora and vegetation during construction and operation of the Proposal will be assessed and managed under an approved Environment Plan, required by the PP Act and PGER Act and associated Regulations. The development and approval of an Environment Plan is guided by overarching objectives to 'ensure that any petroleum activity or geothermal activity carried out in the State is carried out in a manner consistent with the principles of ecologically sustainable development' and to 'demonstrate that all environmental risks and impacts associated with a petroleum and/or geothermal activity are reduced to as low as reasonably practicable'. By adhering to these overarching objectives, the outcomes of the Environment Plan are likely to align with the EPA's objective for flora and vegetation.

These other regulatory processes are considered in more detail in **Appendix A2**.

4.5. Identified Environmental Impacts

The potential direct, indirect, and cumulative impacts on flora and vegetation from the construction and operation of the Proposal are identified below. Residual impact and specific mitigation measures are summarised in **Table 4-7**.

The Proposal is a conventional gas project and as such there will be no impacts from unconventional gas activities such as fracking.

4.5.1. Direct Impacts

The potential direct impacts of the Proposal on flora and vegetation have been identified as:

- Loss and fragmentation of remnant native vegetation
- Loss of Priority flora.

4.5.2. Indirect Impacts

The potential indirect impacts of the Proposal on flora and vegetation have been identified as:

- Introduction and/or spread of weeds
- Increased dust deposition
- Increased risk of bushfire ignition.

Table 4-7: Identified Environmental Impacts for Flora and Vegetation

Risk	Avoidance	Mitigation and management	Residual Impact
<p>Loss and fragmentation of remnant native vegetation</p>	<p>The Development Envelope includes two CEZs covering:</p> <ul style="list-style-type: none"> 9.5 ha of Very Good condition native vegetation 1.5 ha of Good condition native vegetation <p>'s <i>Land Access (including Ground Disturbance) Procedure</i> and the associated Ground Disturbance Permit (GDP) will be used for all land clearing activities to avoid any clearing outside of the approved Development Envelope or within these CEZs.</p> <p>The flowline and export pipeline will be constructed using HDD in three locations to avoid clearing of Sand Plain Creek riparian vegetation and remnant roadside vegetation.</p>	<ul style="list-style-type: none"> The Development Envelope has been minimised as far as practicable to reduce the extent of clearing required Clear demarcation of proposed native vegetation clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management 	<p>Clearing of remnant native vegetation within the Development Envelope.</p>
<p>Loss of conservation significant flora</p>	<p>The Development Envelope has been designed to avoid all known records of <i>Thelymitra stellata</i> (EN) and potential habitat for <i>Paracaleana dixonii</i> (EN).</p> <p>The Disturbance Footprint has been designed to avoid high density areas of Priority flora as far as practicable.</p> <p>Within the Development Envelope, two CEZs will be implemented, resulting in the avoidance of:</p> <ul style="list-style-type: none"> 13 <i>Poranthera asybosca</i> (P1) 378 <i>Poranthera moorokatta</i> (P2) 73 <i>Banksia fraseri</i> var. <i>crebra</i> (P3) 17 <i>Stylidium torticarpum</i> (P3) 1 <i>Tricoryne soullierae</i> (P3) 	<ul style="list-style-type: none"> Clear demarcation of proposed native vegetation clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management 	<p>Clearing of Priority flora species</p>

Risk	Avoidance	Mitigation and management	Residual Impact
	<ul style="list-style-type: none"> • 39 <i>Banksia scabrella</i> (P4) • 8 <i>Schoenus griffinianus</i> (P4) <p>Hancock Energy's <i>Land Access (including Ground Disturbance) Procedure</i> and the associated GDP will be used for all land clearing activities to avoid any clearing outside of the approved Development Envelope.</p>		
<p>Degradation of vegetation due to the introduction and/or spread of weeds</p>	<p>N/A</p>	<p>The following weed management controls will be implemented to manage the spread of weeds within the Development Envelope and surrounding environment and will be captured in a Biosecurity Management Plan relevant to clearing and construction activities:</p> <ul style="list-style-type: none"> • Establish weed hygiene check points • Recording and reporting of opportunistic sightings of WoNs or Declared Weed species within the Development Envelope • Implementation of appropriate weed controls to manage the occurrence of WoNS or Declared Weed species recorded within the Development Envelope <p>Additional measures may be included under private land access agreements.</p>	<p>Potential introduction or spread of weeds in patches of native vegetation</p>
<p>Degradation of native flora from increased dust deposition</p>	<p>The Disturbance Footprint has been designed to avoid large areas of native vegetation as far as practicable.</p>	<p>Excessive dust will be minimised through:</p> <ul style="list-style-type: none"> • Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading) • Minimising time between clearing and grading or trenching and backfill/reinstatement • Sealing of primary roads within the CPF site • Using water or stabilisers via water trucks and sprayers to dampen down soil as required 	<p>Potential for localised short-term increase in fugitive dust during construction</p>

Risk	Avoidance	Mitigation and management	Residual Impact
		<ul style="list-style-type: none"> • Maintaining a low-speed environment on unsealed roads and right of way within the CPF site • Limiting topsoil stockpile heights to less than 2 m • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles (where applicable) 	
<p>Increased bushfire ignition risk</p>	<p>N/A</p>	<p>The following fire management controls will be implemented to manage the risk of bushfire ignition within the Development Envelope and surrounding environment:</p> <ul style="list-style-type: none"> • Develop and ensure works are in accordance with a Bushfire Management Plan • Include designated smoking areas and appropriate waste disposal for cigarette butts in the design of facilities • Ensure fire extinguishers are available on all mobile equipment and at all work locations • Fit water trucks with high pressure monitors and pumps for fire management where required • Maintain adequate on-site firefighting water supply • Store flammable and combustible materials appropriately and segregate them from ignition sources, in accordance with AS1940:2017 • Develop and submit a hot work permit procedure to the Project Director/Site Supervisor and ensure it is approved prior to commencing on site. The permit will include the following requirements: <ul style="list-style-type: none"> – Risk assessment to be completed before commencement of any hot work 	<p>Potential increased occurrence of accidental bushfires</p>

Risk	Avoidance	Mitigation and management	Residual Impact
		<ul style="list-style-type: none"> - Exemptions sought from Bushfires Act 1954 for hot work on total fire ban days - Daily weather check for fire ban status prior to conducting hot works • Equip fire control equipment in fire-risk areas including but not limited to hazardous material storage areas, hot works areas and service trucks • Ensure adequate numbers of personnel trained with basic fire awareness, fire response and use of fire suppression equipment to be on site at all times during the Proposal • Restrict open fires on site at any time • Liaise regularly with the local government authorities regarding fire danger status • Maintain hot machinery only in designated cleared areas whenever possible • Check vehicle undersides regularly (e.g., at daily pre-starts etc.) for any material stuck around the exhaust system, and any identified material removed 	

4.5.3. Cumulative Impacts

The Proposal has potential to contribute to the following cumulative impacts at a regional scale:

- Loss of native vegetation due to clearing
- Loss of Priority flora due to clearing.

As per EPA guidance, baseline characterisation takes into consideration the impacts of past and present activities on the receiving environment (EPA 2026a). The dataset for EPA Referred Significant Proposals (DWER-120; DWER 2025) was utilised to determine the number of and extent of nearby projects that may contribute as future activities to cumulative impacts to flora and vegetation, where EPA determined flora and vegetation to be a key factor (**Table 4-8**).

If the Proposal is implemented, the development of the West Erregulla Processing Plant and Pipeline Project is unlikely to be progressed but has been included as a conservative measure. Subject to timely approvals, the downstream elements (i.e. CPF and export pipeline) of the Lockyer Conventional Gas Project will not be progressed and have not been included as a cumulative impact.

Table 4-8: Future Activities that may Contribute to Cumulative Impacts to Flora and Vegetation

Proponent	Project
Eridoon 378	
Tronox Management	Dongara Titanium Minerals Project
Origin Energy Resources	Freshwater Point 1 Drilling Project
AWE Perth Pty Ltd	Waitsia Gas Project Stage 2
AGI Operations	West Erregulla Processing Plant and Pipeline (unlikely to be progressed)
AWE Perth Pty Ltd	Gynatrix-1 Conventional Exploration Drilling Program
Irwin 352	
Energy Resources Limited (acquired by Hancock Energy)	Upstream gathering system of the Lockyer Conventional Gas Project
AWE Perth Pty Ltd	Waitsia Gas Project Stage 2
Tathra 379	
Tronox Management	Dongara Titanium Minerals Project
Energy Resources Limited (acquired by Hancock Energy)	Upstream gathering system of the Lockyer Conventional Gas Project
Project Haber Pty Ltd	Project Haber
Strike South Pty Ltd	South Erregulla Conventional Gas Development
ERM Power	Three Springs Gas Fired Power Station

Proponent	Project
Strike Energy Limited	West Erregulla Field Development Program
AGI Operations	West Erregulla Processing Plant and Pipeline (unlikely to be progressed)
AWE Perth Pty Ltd	Waitsia Gas Project Stage 2
FI Joint Venture Pty Ltd	Yogi Magnetite Project
Tathra 49	
Energy Resources Limited (acquired by Hancock Energy)	Upstream gathering system of the Lockyer Conventional Gas Project
Project Haber Pty Ltd	Project Haber
Strike South Pty Ltd	South Erregulla Conventional Gas Development
ERM Power	Three Springs Gas Fired Power Station
Strike Energy Limited	West Erregulla Field Development Program
AGI Operations	West Erregulla Processing Plant and Pipeline (unlikely to be progressed)

4.6. Assessment and Significance of Residual Impacts

4.6.1. Direct Impacts

4.6.1.1. Loss and Fragmentation of Native Vegetation due to Clearing

The Proposal is located within a highly disturbed landscape with much of the native vegetation having been cleared for agricultural use. As a result, it has been possible for the Proposal to be designed to largely avoid areas of remnant vegetation in Good or better condition by preferentially locating the Development Envelope within existing cleared areas. Clearing of native vegetation is primarily restricted to small non-contiguous remnant areas where an alternative pipeline alignment or access was not feasible.

Consequently, impacts associated with fragmentation, which can affect recruitment and community structures, have been minimised. Where a corridor of roadside vegetation occurs within the Development Envelope in predominantly Very Good condition along Yandanooka West Road, the Proponent is committed to avoidance of clearing within the vegetation through placement of a CEZ. HDD at creeks and road crossings will further avoid fragmentation of these vegetated corridors. The landscape in which the Proposal will be constructed is already highly fragmented as a result of land clearing for agricultural use and the Proposal is not expected to increase existing fragmentation.

Based on the indicative Disturbance Footprint, the Proposal will result in the clearing of up to 22.4 ha of vegetation (**Table 4-9**) in primarily Degraded to Completely Degraded condition (**Table 4-10**). Of this, only 5.7 ha is considered to represent remnant native vegetation types. Modified vegetation types (PCr, PEc, and PEt; 16.8 ha) are not considered extant remnant vegetation, though some native taxa may be present. These

vegetation types have previously been cleared for agricultural use and comprise scattered *Eucalyptus* sp. and shrubs, weeds and cropping species within paddocks.

Of the indicative Disturbance Footprint, approximately 271.0 ha (92.2%) has been mapped as Completely Degraded and 3.3 ha (1.1%) has been mapped as Degraded. Only 1.6 ha (0.6%) has been mapped as being in Good or Very Good condition. This is primarily due to a concerted effort to avoid areas of native vegetation wherever possible during the planning and design phase. None of the vegetation units that will be impacted are representative of any known TECs, PECs or locally restricted ecological communities.

The Proponent is committed to ensuring that overall clearing of extant native vegetation as a result of the Proposal is no higher than that within the indicative Disturbance Footprint.

Table 4-9: Vegetation Clearing by Vegetation Type

Vegetation Types	Within Survey Area (ha)	Within Development Envelope (ha)	Within CEZs (ha)	Within indicative Disturbance Footprint (ha)	% of indicative Disturbance Footprint
Drainage Lines / Floodplains					
VT01	43.0	1.3	-	0.1	0.04%
VT02	29.3	13.3	-	3.0	1.0%
VT03	7.3	<0.05	-	<0.05	<0.01%
VT04	25.2	0.7	0.4	-	-
VT05	24.1	6.0	-	0.4	0.2%
VT06	60.9	0.1	-	0.1	0.03%
Undulating Plains					
VT07	1.4	0.4	0.4	-	-
VT08	1.4	-	-	-	-
VT09	69.6	-	-	-	-
VT10	33.9	5.0	4.0	0.1	0.02%
VT11	6.9	<0.05	-	<0.05	<0.01%
VT12	15.1	5.6	5.6	<0.05	<0.01%
VT13	27.9	8.2	-	0.3	0.1%
VT14	21.5	-	-	-	-
VT15	64.6	6.2	4.7	0.2	0.06%
VT17	22.1	8.4	-	0.7	0.2%

Vegetation Types	Within Survey Area (ha)	Within Development Envelope (ha)	Within CEZs (ha)	Within indicative Disturbance Footprint (ha)	% of indicative Disturbance Footprint
VT22	9.2	-	-	-	-
Sandplains					
VT16	194.1	<0.05	-	<0.05	<0.01%
VT18	7.4	0.1	0.1	-	-
VT19	97.2	-	-	-	-
Lateritic Uplands and Upper Slopes					
VT20	32.1	5.1	-	0.5	0.2%
VT21	9.0	1.0	-	0.3	0.1%
VT23	6.6	2.6	1.1	<0.05	<0.01%
Mapping Units					
Ag	114.3	-	-	-	-
Cl	19.9	1.3	1.3	<0.05	<0.01%
NS	525.7	<0.05	-	-	-
OW	1.8	-	-	-	-
P	4,740.4	1,142.3*	0.9	254.2*	87.2%
Rd	84.5	24.5*	3.2	14.9*	5.1%
Modified Vegetation Units					
PCr	144.1	16.2	-	1.4	0.5%
PEc	87.8	6.8	-	1.7	0.6%
PEt	298.4	71.6*	0.1	13.7*	4.7%
Re	3.9	-	-	-	-
Total	6,830.5	1,326.9	19.8	291.5	100%

*Vegetation type mapping of small areas of the Development Envelope that was not covered by Biologic (2026a) Survey Area have been extrapolated from satellite imagery.

Table 4-10: Vegetation Clearing by Vegetation Condition

Vegetation Condition	Within Survey Area (ha)	Within Development Envelope (ha)	Within CEZs (ha)	Within indicative Disturbance Footprint (ha)	% of indicative Disturbance Footprint
Excellent	293.7	-	-	-	-
Very Good	169.1	18.7	9.5	0.8	0.3%
Good	165.5	12.6	1.5	1.6	0.6%
Degraded	173.2	32.4	5.4	3.3	1.1%
Completely Degraded	5,397.0	1,237.2*	1.0	271.0*	93.0%
Cleared	104.5	25.8*	4.4	14.9*	5.1%
Not Sampled	527.5	<0.05	-	-	-
Total	6,830.5	1,326.9	21.8	291.5	100%

*Vegetation type mapping of small areas of the Development Envelope that were not covered by Biologic (2026a) have been extrapolated from satellite imagery.

At a regional scale the Proposal will result in the clearing of remnant native vegetation across the three Beard (1975) vegetation associations present within the Development Envelope; Eridoon 378, Irwin 352 and Tathra 379 (Table 4-11). Irwin 352 and Tathra 379 have less than 30% of their pre-European extents remaining and are therefore noted as being regionally significant. All of the remnant native vegetation within Irwin 352 that could be impacted by the Proposal is in Degraded condition, while 3.0 ha of remnant native vegetation within Tathra 379 is Degraded or in worse condition.

Table 4-11: Clearing of Remnant Native Vegetation by Vegetation Association

Vegetation association	Current extent (ha)	Within Development Envelope (remnant) (ha)	Within indicative Disturbance Footprint (remnant) (ha)	% of Current Extent
Eridoon 378	60,827	0.1	0.1	<0.01%
Irwin 352	1,747	0.3	0.3	0.02%
Tathra 379	129,586	63.6	5.3	<0.01%

Given the significant avoidance of remnant vegetation, the small areas of overall clearing (<0.05% of any vegetation association), the nature of the remnant vegetation as largely Degraded or Completely Degraded, and the presence of the vegetation types beyond the Development Envelope, the clearing of 5.7 ha of remnant native vegetation types is not likely to be significant.

4.6.1.2. Loss of Priority Flora

No species listed as Threatened under the BC Act or the EPBC Act have been recorded or are considered likely to occur within the Development Envelope.

Furthermore, due to the design and placement of the CEZs, no direct impacts will occur to the following priority species:

- *Poranthera asybosca* (P1)
- *Poranthera moorokatta* (P2)
- *Tricoryne soullierae* (P3)
- *Schoenus griffinianus* (P4).

The impact of the Proposal on relevant Priority flora species is outlined in **Table 4-12**.

Four Priority 3 flora species (*Banksia fraseri* var. *crebra*, *Stylidium drummondianum*, *Stylidium torticarpum* and *Thryptomene nitida*) and one Priority 4 species (*Banksia scabrella*) have the potential to be directly impacted by clearing under the Proposal. Potential impacts to these species are considered in more detail in the following sections. Of these species, only *Stylidium torticarpum* and *Thryptomene nitida* intersect the indicative Disturbance Footprint.

Table 4-12: Indicative Loss of Priority Flora Species

Species name	No. Individuals in Survey Area	No. of Individuals in the Development Envelope	No. of Individuals in CEZs	No. of Individuals in Indicative Disturbance Footprint
<i>Poranthera asybosca</i> (P1)	17	13	13	-
<i>Poranthera moorokatta</i> (P2)	413	378	378	-
<i>Banksia fraseri</i> var. <i>crebra</i> (P3)	514	89	73	-
<i>Stylidium drummondianum</i> (P3)	165	1	-	-
<i>Stylidium torticarpum</i> (P3)	400	53	17	20
<i>Thryptomene nitida</i> (P3)	2,912	2,353	-	71
<i>Tricoryne soullierae</i> (P3)	58	1	1	-
<i>Banksia scabrella</i> (P4)	344	40	39	-
<i>Schoenus griffinianus</i> (P4)	12	8	8	-

Banksia fraseri var. *crebra* (P3)

A total of 514 individuals of *Banksia fraseri* var. *crebra* were recorded within the Survey Area, with 89 occurring within the Development Envelope. These individuals were recorded predominantly within either Lateritic Uplands and Upper Slopes (VT21, VT23) in a Degraded condition vegetation, or Undulating Plains (VT10, VT12) in a Very Good condition vegetation. Of the 89 individuals, 73 are located within a CEZ and will not be impacted by clearing. The 16 individuals remaining within the Development Envelope represent approximately 2.9% of the individuals recorded within the Survey Area and of these none are located within the indicative Disturbance Footprint.

The Priority 3 status indicates that this species may be insufficiently surveyed. Whilst there are only 17 records lodged with the WA Herbarium (WAH 1998), the species can be prolific in kwongan heath. Previous surveys to the south in remnant vegetation in West Erregulla recorded 951 individuals of *Banksia fraseri* var. *crebra* by Biologic (2026b) and 500 individuals by JBS&G (2022). A further 164 individuals were also recorded further south at Ocean Hill, south of Eneabba (JBS&G 2021). Approximately 187 individuals have also been recorded immediately to the south of the Development Envelope around the intersection of Mount Adams and Thomkins Road (Biologic and Viridis 2026).

Given that the species is classified as a Priority 3 species which are not considered to be under imminent threat, the small proportion of locally known individuals within the Development Envelope, avoidance of individuals located within the CEZ, and lack of individuals within the indicative Disturbance Footprint, the impact on the species due to the Proposal is not likely to represent a significant residual impact.

It is noted that the differences between this Priority species and the common *Banksia fraseri* var. *fraseri* is based on height, leaf length and pistil length in the flower. As height is not a reliable indicator in the field and the other attributes overlap, it is possible that this species is not a true taxon (Mike Hislop, WAH, pers. comm). Taxonomic revision is required and further search effort would likely record more of the species.

Stylidium drummondianum (P3)

A total of 165 individuals of *Stylidium drummondianum* were recorded within the Survey Area, with one individual (0.6% of the individuals recorded within the Survey Area) occurring within the Development Envelope within the Lateritic Uplands and Upper Slopes landform (VT23) in Degraded condition vegetation.

The Priority 3 status indicates that this species may be insufficiently surveyed, with 37 records at the WA Herbarium (WAH 1998). Previous surveys to the south in remnant vegetation in West Erregulla recorded 962 individuals of *Stylidium drummondianum* (P3) by Biologic (2026b) and 9,294 by Woodman (2020). Woodman notes that the species is locally common where it was recorded, which aligns with the records within the Survey Area. It is considered highly likely further individuals would be located in lateritic areas outside of the Development Envelope.

Given that the species is classified as a Priority 3 species which are not considered to be under imminent threat, occurrence of only one individual within the Development Envelope (outside of the indicative Disturbance Footprint), and likely presence of additional records within the local area, the residual impact on the species due to the Proposal is not likely to be significant.

Stylidium torticarpum (P3)

A total of 400 individuals of *Stylidium torticarpum* were recorded within the Survey Area, with 53 occurring within the Development Envelope. These individuals were recorded almost entirely within Degraded vegetation, following Drainage Lines (VT02, VT04, VT05) or in Lateritic Uplands and Upper Slopes (VT23, VT20). Of the 53 individuals, 17 occur within a CEZ and will not be impacted by clearing. Of the 36 individuals remaining within the Development Envelope, 20 occur within the indicative Disturbance Footprint.

Previous surveys to the south in remnant vegetation in West Erregulla recorded an additional 2,309 individuals of *Stylidium torticarpum* (P3) by Biologic (2026b) and 1,111 by Woodman (2020). Clearing of all 36 individuals outside of CEZs would represent 9.0% of records within the survey area and 0.9% of known records in the wider region. However, clearing of 20 individuals within the indicative Disturbance Footprint (5.0% and 0.5% respectively) is considered a more realistic estimate of actual impacts of the Proposal.

The Priority 3 status indicates that this species may be insufficiently surveyed (52 records at the WA Herbarium; WAH 1998). The preferred habitat of this species is wetter low-lying areas, but it was also recorded on a low rise in the Survey Area and often co-occurs with *Thryptomene nitida* (P3). With further survey effort in the local area, it is considered highly likely that further individuals would be recorded.

Given that the species is classified as a Priority 3 species which are not considered to be under imminent threat, and the species appears to be regionally common, persists in disturbed areas, the impact on the species due to the Proposal is not considered to be a significant residual impact.

Thryptomene nitida (P3)

A total of 2,912 individuals of *Thryptomene nitida* were recorded within the Survey Area, with 2,353 occurring within the Development Envelope and 71 occurring within the indicative Disturbance Footprint. These individuals were recorded either in association with ephemeral drainage lines (VT02, VT04, VT05, VT13) in largely Degraded condition, or within a small patch of Lateritic Uplands and Upper Slopes vegetation type (VT20) in Good condition.

A further 3,492 and 62 individuals of *Thryptomene nitida* (P3) were recorded by JBS&G (2024) and Phoenix (2023a) respectively for surveys for the Lockyer Conventional Gas Project. The closest population is immediately to the west (~600 m) of the northern part of the Development Envelope. The clearing of 71 individuals represents approximately 2% of the individuals recorded within the Survey Area, and approximately 1% of the known wider local population.

Phoenix (2023a) conclude that it is highly likely more individuals would be recorded with further survey, but noted a lack of landholder permission to fully explore the populations they recorded. This then suggests with further survey effort in the local area and wider region, more individuals would be recorded.

The Priority 3 status indicates that this species may be insufficiently surveyed, which is supported by the absence of detailed records (34 population records, 28 records at the WA Herbarium; ALA 2026; WAH 1998). The distribution of the records for the species indicate that it is generally restricted within the broader region, with the Proposal occurring in the middle of the species distribution, which extends from east of Geraldton to Three Springs.

Given that Priority 3 species are not considered to be under imminent threat, that the species appears to be locally common and persists in disturbed areas, with additional records considered likely in proximity to the Development Envelope, the clearing of 71 individuals is not likely to constitute a significant impact.

Given the occurrence of 36.4% of the known local population within the Development Envelope, and outside of CEZs, the Proponent is committing to ensuring that clearing does not represent a significant impact to this species. The Proposal will be implemented to ensure that clearing does not impact more than 10% (291 individuals) of the local population of *Thryptomene nitida* recorded within the Survey Area.

Banksia scabrella (P4)

A total of 344 individuals of *Banksia scabrella* were recorded within the Survey Area, with 40 occurring within the Development Envelope. These individuals were recorded predominantly within Undulating Plains vegetation types (VT10, VT12 and VT15) in Very Good condition vegetation. All but one of the individuals within the Development Envelope are located within a CEZ and will not be impacted by clearing. The single individual remaining within the Development Envelope (representing 0.3% of the individuals recorded within the Survey Area) is located within roadside vegetation at the intersection of Yandanooka West Road and Mount Adams Road and is likely to be avoided through the use of HDD that is proposed in this location.

Banksia scabrella is a Priority 4 species which indicates that it is likely to be rare or near threatened and may require monitoring. However, this species is a dominant component of kwongan heath in the West Erregulla area. Previous surveys to the south in remnant vegetation in West Erregulla recorded 31,256 individuals by Biologic (2026b), and it is considered highly likely that more individuals would be recorded with further survey effort in this area and in the wider region.

Given that the species is classified as a Priority 4 species, is locally common with additional records likely in proximity to the Development Envelope, and that all records within the Development Envelope apart from one will be avoided through placement of a CEZ, no significant residual impact to this species is anticipated.

4.6.1. Indirect Impacts

4.6.1.1. Introduction and/or spread of weed species

The landscape in which the Proposal occurs is largely cleared, and weed species are common throughout the local area. A total of 19 weed species were recorded within the Development Envelope, one of which is a Declared Pest under the BAM Act (*Echium plantagineum*; Patterson's Curse). Remnant vegetation adjacent to the Proposal is largely degraded, reflecting a high level of fragmentation and presence of other threatening processes. The Proposal is thus unlikely to result in impacts to flora and vegetation through the spread or introduction of weed species.

During the construction and operation of the Proposal, the Proponent will implement the management measures outlined within the CEMP (**Appendix D1**) to further reduce the risk of existing weeds being spread or new weeds being introduced into the Development Envelope.

As a result, no significant residual impacts on vegetation condition from spread of weed are expected from the Proposal.

4.6.1.2. *Smothering of vegetation due to dust generation*

Dust will primarily be generated during the construction phase of the Proposal, from activities including vegetation clearing, earthworks and vehicle movements. During construction, the generation of fugitive dust will be managed using the mitigation measures outlined in the CEMP (**Appendix D1**).

Given the Proposal's short construction phase, impacts that may occur would be relatively short in duration. In addition, the Proposal is largely located in a cleared agricultural landscape with limited potential to impact on sensitive vegetation. The Proposal may result in a minor, temporary increase in localised dust deposition on vegetation during construction, however, through the implementation of standard industry management and mitigation measures, as described in **Section 4.5** impacts associated with increased dust emissions are expected to be localised and temporary in nature, and unlikely to be significant.

4.6.1.3. *Increased risk of bushfires*

Construction activities, particularly clearing of native vegetation and welding, and the movement of vehicles and heavy machinery have the potential to result in a bushfire that could cause widespread damage and loss of native vegetation and flora. To minimise increased fire risk, all construction activities will be carried out in accordance with the requirements of regulatory and local fire authorities, including daily checks on fire danger ratings, ensuring first response equipment is available and maintained in safe working order, and training selected personnel as specified in the CEMP (**Appendix D1**). The Proponent standard protocols include requirements for Hot Work Certificates to manage these activities including vehicle movement in hazardous areas.

Increased fire frequency or intensity is unlikely to be a significant risk as a result of the Proposal.

4.6.2. **Cumulative Impacts**

Pre-European Beard (1975) vegetation association mapping has been used in combination with the most recent available vegetation extent mapping within the Geraldton sandplains IBRA bioregion to assess the potential cumulative impacts of projects in the bioregion. Cumulative impacts have been calculated based on indicative Disturbance Footprints of the Proposal and future activities (where available) (**Table 4-8**).

The Proposal will impact native vegetation across three pre-European vegetation associations: Eridoon 378, Irwin 352 and Tathra 379. The future activities considered are the projects described in **Section 4.5.3** that intersect with any of these vegetation associations. Freshwater Point 1 Drilling Project and Gynatrix-1 Conventional Exploration Drilling Program were found to have a negligible impact to native vegetation and have not been considered, while the Waitsia Gas Project Stage 2 was found only to impact native vegetation in the Eridoon 378 association.

Cumulative impacts to vegetation associations impacted by the Proposal are negligible at a regional scale (**Table 4-13**).

The maximum cumulative impact of clearing is a 1.2% reduction to the current extent of Eridoon 378 vegetation association. Furthermore, only a minor contribution of the <0.01% cumulative clearing of this vegetation association is associated with the Proposal (**Table 4-13**), with most associated with the Dongara

Titanium Minerals Project (1.1%). For the other three vegetation associations the cumulative clearing will result in a less than 0.5% decline to their current extents. Cumulative clearing of vegetation associations associated with the Proposal and other nearby projects is not likely to represent a significant impact at a regional scale.

Table 4-13: Cumulative Clearing of Native Vegetation

Extent of remnant vegetation	Eridoon 378	Irwin 352	Tathra 379
Current Extent (ha)	60,826	1,747	129,586
Clearing (ha)			
This Proposal	0.1	0.3	5.3
Lockyer Conventional Gas Project - Upstream	-	0.8	2.3
Waitsia Gas Project Stage 2	15.0	-	-
Dongara Titanium Minerals Project	694.1	-	21.1
Project Haber	-	-	1.3
Three Springs Gas Fired Power Station	-	-	0.4
West Erregulla Field Development Program	-	-	48.8
West Erregulla Processing Plant and Pipeline	9.7	-	75.5
Yogi Magnetite Project*	-	-	386.9
Cumulative clearing total (ha)	718.9	1.1	541.6
% of Current Extent	1.2%	0.1%	0.4%

*The Yogi Magnetite Project does not have available Disturbance Footprint data to utilise and required utilising Development Envelope instead which is inherently conservative.

Cumulatively, the Proposal and future activities will contribute to clearing of up to 1.2%, 0.1 and 0.4% of remnant vegetation within the Eridoon 378, Irwin 352 and Tathra 379 vegetation associations respectively. As such it is considered unlikely that clearing will exceed any thresholds relevant to terrestrial fauna in the region.

In addition, the Proposal is designed as a direct replacement for the CPF and export pipeline under the approved Lockyer Conventional Gas Project proposal. Approximately 4.5 ha of remnant native vegetation occurs within the Lockyer Conventional Gas Project proposal CPF and export pipeline, of which 2.9 ha occurs in Tathra 379 and 1.5 ha occurs in Irwin 352 vegetation associations. As such, the cumulative outcome of implementing this Proposal (clearing of 5.7 ha of native remnant vegetation) is not dissimilar to the alternative and current approved scenario of implementing Lockyer Conventional Gas Project as referred (clearing of 4.5 ha of native remnant vegetation).

4.6.2.1. Species Specific Cumulative Impacts

Each of the projects outlined in **Section 4.5.3** were assessed for any impact to Priority flora species that have potential to be impacted by the Proposal. Of the Priority flora species recorded within the Development Envelope and outside of CEZs, only *Stylidium drummondianum* and *Banksia scabrella* are impacted by any of the future activities identified.

Stylidium drummondianum is impacted by the West Erregulla Processing Plant and Pipeline and the West Erregulla Field Development Program, whilst *Banksia scabrella* is impacted by both these projects as well as the Dongara Titanium Minerals Project. For each of these species, only one individual was recorded within the Development Envelope outside of the CEZs, and neither are located within the indicative Disturbance Footprint. It is therefore unlikely that the Proposal will contribute towards significant cumulative impacts to any Priority flora species.

4.7. Environmental Outcomes

No significant residual impacts to flora and vegetation associated with the Proposal are anticipated due to the following:

- The Proposal has been designed to avoid areas of remnant vegetation and to be constructed primarily within cleared areas or tracks or occurs along the periphery of patches of native vegetation and is thus unlikely to cause significant fragmentation to the remnant vegetation surrounding the Development Envelope.
- Two CEZs have been located to avoid 11.0 ha of Good or better condition native vegetation, including the following:
 - 9.5 ha of Very Good condition native vegetation
 - 1.5 ha of Good condition native vegetation
 - 13 *Poranthera asybosca* individuals
 - 378 *Poranthera moorokatta* individuals
 - 73 *Banksia fraseri* var. *crebra* individuals
 - 17 *Stylidium torticarpum* individuals
 - 1 *Tricoryne soullierae* individuals
 - 39 *Banksia scabrella* individuals
 - 8 *Schoenus griffinianus* individuals.
- Outside of the CEZs, 22.4 ha of vegetation occurs within the Development Envelope, of which approximately 93.0% (20.8) has been mapped as being in a Degraded to Completely Degraded condition. Only 5.7 ha of the indicative Disturbance Footprint is considered to represent remnant native vegetation types, of which 2.4 ha (42.1%) is in Good or better condition.
- The following Priority flora species occur within the Development Envelope outside of the CEZs, and have potential to be impacted by clearing:
 - *Banksia fraseri* var. *crebra* (P3): 16 individuals (2.9% of records within the Survey Area)
 - *Stylidium drummondianum* (P3): 1 individual (0.6% of records within the Survey Area)

-
- *Stylidium torticarpum* (P3): up to 36 individuals (9.0% of records within the Survey Area)
 - *Thryptomene nitida* (P3): 2,353 individuals (81% of records within the Survey Area and 36.4% of individuals in the local population)
 - *Banksia scabrella* (P4): 1 individual (0.3% of records within the Survey Area).
- Of these, only *Stylidium torticarpum* (20 individuals) and *Thryptomene nitida* (71 individuals) intersect the indicative Disturbance Footprint
 - Given the occurrence of 36.4% of the known local population of *Thryptomene nitida* within the Development Envelope (outside of CEZs), the Proposal will be implemented to ensure that clearing does not impact more than 10% (291 individuals) of individuals recorded within the Survey Area. Actual impacts are expected to be lower, given the location of most individuals within creeklines that are unlikely to be disturbed. Based on the indicative Disturbance Footprint, direct impacts are only anticipated to 71 individuals of this species (2% of the individuals recorded in the Survey Area)
 - The regional vegetation associations which intersect with the Development Envelope will undergo a maximum direct reduction of less than 0.1% and a maximum cumulative reduction of 0.1% as a result of the Proposal
 - The indirect impacts likely to occur during the construction of the Proposal, namely the introduction/spread of weed species, the generation of fugitive dust and accidental bushfires, will be minimised through the implementation of the mitigation measures outlined within the Proposal's CEMP (**Appendix D1**)
 - Cumulative impacts to total remnant vegetation extent are 1.2% at the greatest extent, for the Eridoon 378 vegetation association. Cumulative clearing in other vegetation associations amount to less than 0.5% of the total remnant vegetation extent and is not dissimilar to clearing of fauna habitat under the alternative currently approved Lockyer Conventional Gas Project CPF location and export pipeline
 - There are no known cumulative impacts on conservation significant flora from future activities.

The Proponent considers that due to the avoidance and proposed management measures described, biological diversity and ecological integrity will be maintained such that the EPA's objective for the Flora and Vegetation factor can be met.

5. TERRESTRIAL FAUNA

For the purposes of EIA, the EPA defines terrestrial fauna as animals living on land, or using land (including aquatic systems) for all or part of their lives, inclusive of both vertebrate and invertebrate groups (EPA 2016c).

5.1. EPA Environmental Factor Objective

The EPA's objective for the Terrestrial Fauna factor is to: *'Protect terrestrial fauna so that biological diversity and ecological integrity are maintained'* (EPA 2016c).

5.2. Relevant Policy and Guidance

Relevant policy and guidance documents related to the Terrestrial Fauna factor and how these have been considered as part of the Proposal are summarised below in **Table 5-1**.

Table 5-1: Relevant Policy and Guidance for Terrestrial Fauna

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline: Terrestrial Fauna (EPA 2016c)	The information provided in this chapter addresses the 'considerations for environmental impact assessment' listed in this document.
Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)	This document guides the appropriate obtainment and collation of terrestrial fauna data to be used in EIA. All studies conducted for the Proposal were undertaken with regard for this guidance document.
Technical Guidance: Sampling of Short-range Endemic Invertebrate Fauna (EPA 2016b)	This document guides the appropriate sampling and collation of SRE invertebrate fauna data to be used in EIA. All studies conducted for the Proposal were undertaken with regard for this guidance document.
Referral guideline for 3 WA threatened black cockatoo species (DAWE 2022)	Used to guide survey design and impact assessment criteria for Carnaby's Cockatoo.
Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed migratory shorebird species (DoE 2017)	Used to guide appropriate environmental assessment criteria when assessing impact on migratory waterbird species.
DBCA National Malleefowl Monitoring Manual (National Malleefowl Recovery Team 2016)	Used to guide the terrestrial fauna survey methods for species specific survey.
Guideline for Cumulative Impact Assessment (EPA 2026b)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

5.3. Receiving Environment

5.3.1. Studies and Survey Effort

A targeted fauna survey and habitat assessment was undertaken in the winter of 2025 by Phoenix Environmental Services (Phoenix 2025; **Appendix C2**) to assess the fauna values of the Development Envelope and surrounding area (**Table 5-2; Figure 5-1**). The fauna study area covered the vegetated areas of the Development Envelope and wider surrounds, including two additional road intersections and a 300 m buffer along the proposed pipeline route, encompassing an area of approximately 3,731.2 ha, herein referred to as the Study Area (**Figure 5-1**).

A total of 26 sites were sampled across the Study Area during the survey. Survey field methods for terrestrial vertebrate fauna and SRE invertebrate fauna included:

- Active foraging for vertebrates
- Avifauna surveys
- Fauna habitat assessments
- Black cockatoo habitat assessment
- Malleefowl habitat assessment
- SRE invertebrate sampling, including active searching and leaf litter/soil sifting and excavation of Trapdoor spider burrows if they were considered inhabited.

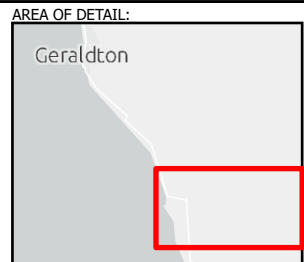
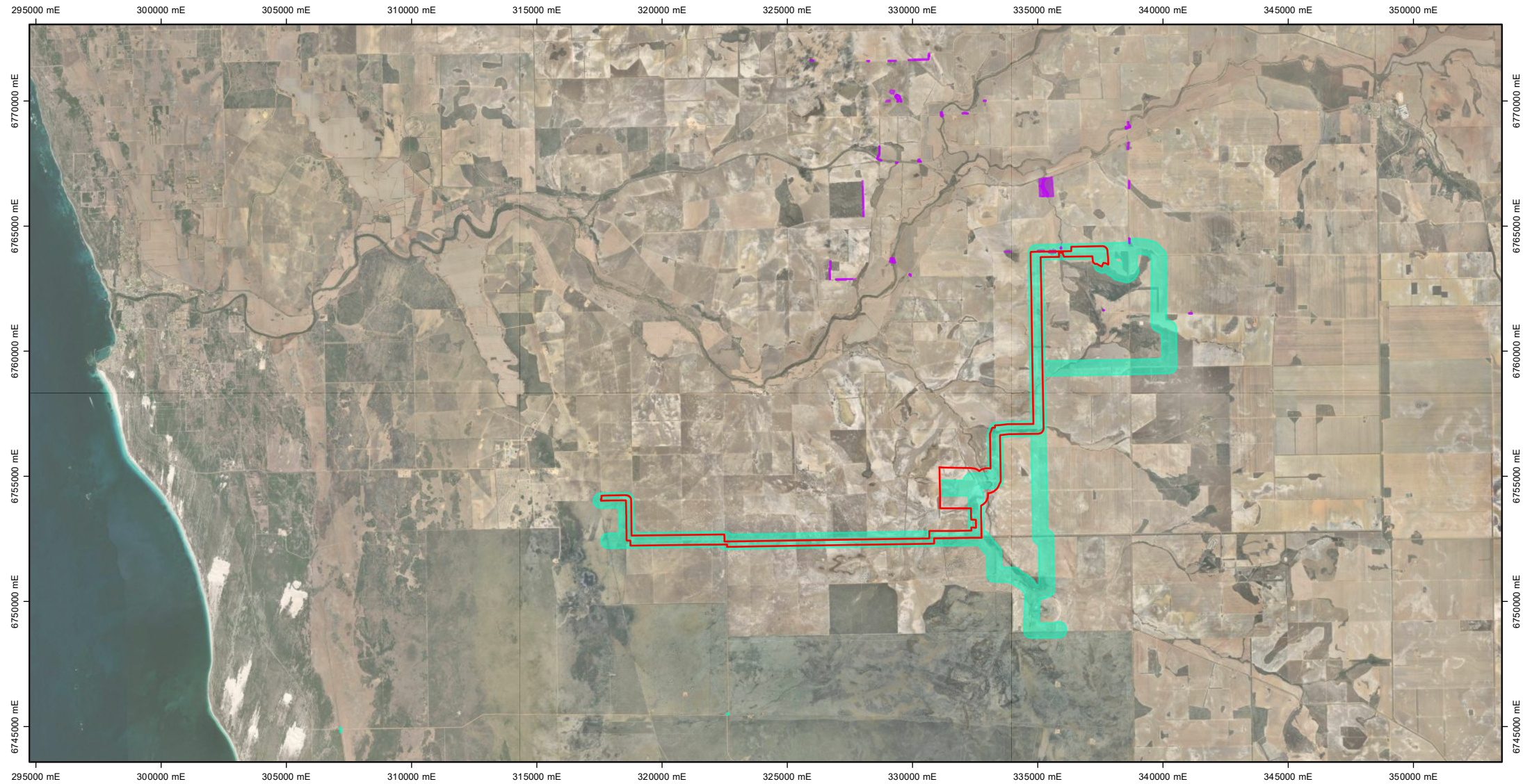
The assessment built on information gathered during a previous terrestrial fauna survey undertaken by Phoenix in the region in 2023 as a part of the approvals process for the Lockyer Conventional Gas Project, which overlaps with the 2025 survey in small areas in the northern extent of the Development Envelope (**Table 5-2**).

Bamford Consulting Ecologists were commissioned to undertake a peer review of the black cockatoo assessment component of the Phoenix 2025 survey report (Bamford 2026; **Appendix C3**). A site inspection in support of the peer review was considered unnecessary due to the Bamford Consulting Ecologists' extensive knowledge of and experience in the area.

Table 5-2: Key Terrestrial Fauna Surveys

Studies and Surveys	Area (ha)	Scope and Timing	Consistency with Guidance and Limitations
<p>Basic and targeted terrestrial fauna survey for the Belisama Conventional Gas Project (Phoenix 2025)</p> <p>Appendix C2</p>	<p>3,731.2</p>	<p>Field survey was conducted during one trip, totalling 3 days:</p> <ul style="list-style-type: none"> • 19 – 23 August 2025 <p>The scope included:</p> <ul style="list-style-type: none"> • A desktop assessment of available literature and databases to identify previously recorded environmental values • Targeted field searches for conservation significant fauna identified in the desktop assessment • Habitat assessments for conservation significant fauna • A targeted SRE invertebrate survey <p>Mapping of desktop assessment results and conservation significant fauna habitat within the study area.</p>	<p>This survey was conducted in accordance with relevant technical guidance including:</p> <ul style="list-style-type: none"> • EPA Environmental Factor Guideline: Terrestrial fauna (EPA 2016a) • EPA Technical Guidance: Terrestrial fauna surveys (EPA 2020b) • EPA Technical Guidance: Sampling of short-range endemic invertebrate fauna (EPA 2016d) • DBCA National Malleefowl Monitoring Manual (National Malleefowl Recovery Team 2016) • DAWE Referral guideline for 3 WA Threatened Black Cockatoo species: Carnaby’s Cockatoo (<i>Zanda latirostris</i>), Baudin’s Cockatoo (<i>Zanda baudinii</i>) and the Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) (DAWE 2022)
<p>Targeted Fauna Survey for the Lockyer Development Project (Phoenix 2023)</p>	<p>76.3</p>	<p>Field surveys were conducted across two trips, totalling six field days:</p> <ul style="list-style-type: none"> • 5 – 9 September 2022 • 22 November 2022. <p>Scope included:</p> <ul style="list-style-type: none"> • A desktop assessment of available literature and databases to identify previously recorded environmental values • Targeted field searches for conservation significant fauna identified in the desktop review 	<p>This survey was conducted in accordance with relevant technical guidance including:</p> <ul style="list-style-type: none"> • EPA Environmental Factor Guideline: Terrestrial fauna (EPA 2016a) • EPA Technical Guidance: Terrestrial fauna surveys (EPA 2020b) • EPA Technical Guidance: Sampling of short-range endemic invertebrate fauna (EPA 2016d) • DBCA National Malleefowl Monitoring Manual (National Malleefowl Recovery Team 2016) • DAWE Referral guideline for 3 WA Threatened Black Cockatoo species: Carnaby’s Cockatoo (<i>Zanda latirostris</i>), Baudin’s Cockatoo

	<ul style="list-style-type: none"> • Habitat assessments for conservation significant fauna • SRE invertebrate survey <p>Mapping of desktop assessment results and conservation significant fauna habitat within the Lockyer survey area</p>	<p>(<i>Zanda baudinii</i>) and the Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) (DAWE 2022)</p> <p>Only 1.2 ha of this survey overlaps with the survey for the Belisama Study Area (Phoenix 2025).</p>
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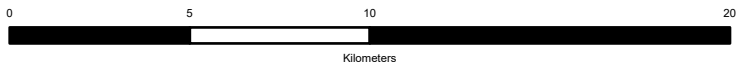


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- LEGEND:**
- Development Envelope
 - Phoenix Environmental Services (2023) Lockyer Targeted Fauna Survey Extent
 - Phoenix Environmental Services (2025) Belisama Targeted Fauna Survey Extent

Scale: 1:210,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-1: Terrestrial Fauna Surveys

SUBTITLE:

DATE: 16/03/2026

DATA SOURCE:
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DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
0					CR	21/01/2026

5.3.2. Terrestrial Fauna Habitat

A total of 10 terrestrial habitat types were identified during the survey, nine of which occur within the Development Envelope (**Table 5-3; Figure 5-2**). The Development Envelope consists primarily of cleared or degraded areas used for agricultural farmland or plantations (1,273.5 ha, 96.0% of the Development Envelope) which are considered to provide limited value to fauna. The remaining 53.3 ha (4.0% of the Development Envelope) consists of remnant native vegetation in the form of woodlands, shrublands, and drainage lines.



The dominant native habitat type within the Development Envelope is Creek line habitat, covering a total of 29.3 ha (2.2% of the Development Envelope; **Table 5-3; Figure 5-2**). This habitat type comprises riparian vegetation that follows the path of Sand Plain Creek and other unnamed minor tributaries in the Study Area (Phoenix 2025; **Appendix C2**).



Other fauna habitat types in the Development Envelope include Woodland (primarily Open *Banksia* Woodland) and mixed Shrubland habitat types, which make up the remaining 24.0 ha of native fauna habitat.



Table 5-3 provides a description of the habitat types within the Study Area, as well as their extents within the Study Area and Development Envelope.



Table 5-3: Fauna Habitat Type Extent and Description in the Development Envelope

Habitat type	Fauna habitat description	Extent in Study Area		Extent in Development Envelope		Representative photograph
		(ha)	%	(ha)	%	
Degraded		3,337.2	89.4%	1,273.5	96.0%	
Cleared	Land that has been historically cleared for paddocks, agriculture or roads. No native vegetation present.	3,104.8	83.2%	1,257.8*	94.8%	
Plantation	Historically cleared land that has been replanted with eucalypts and other species, in varying stages of growth. Includes planted roadside vegetation.	127.1	3.4%	2.3	0.2%	

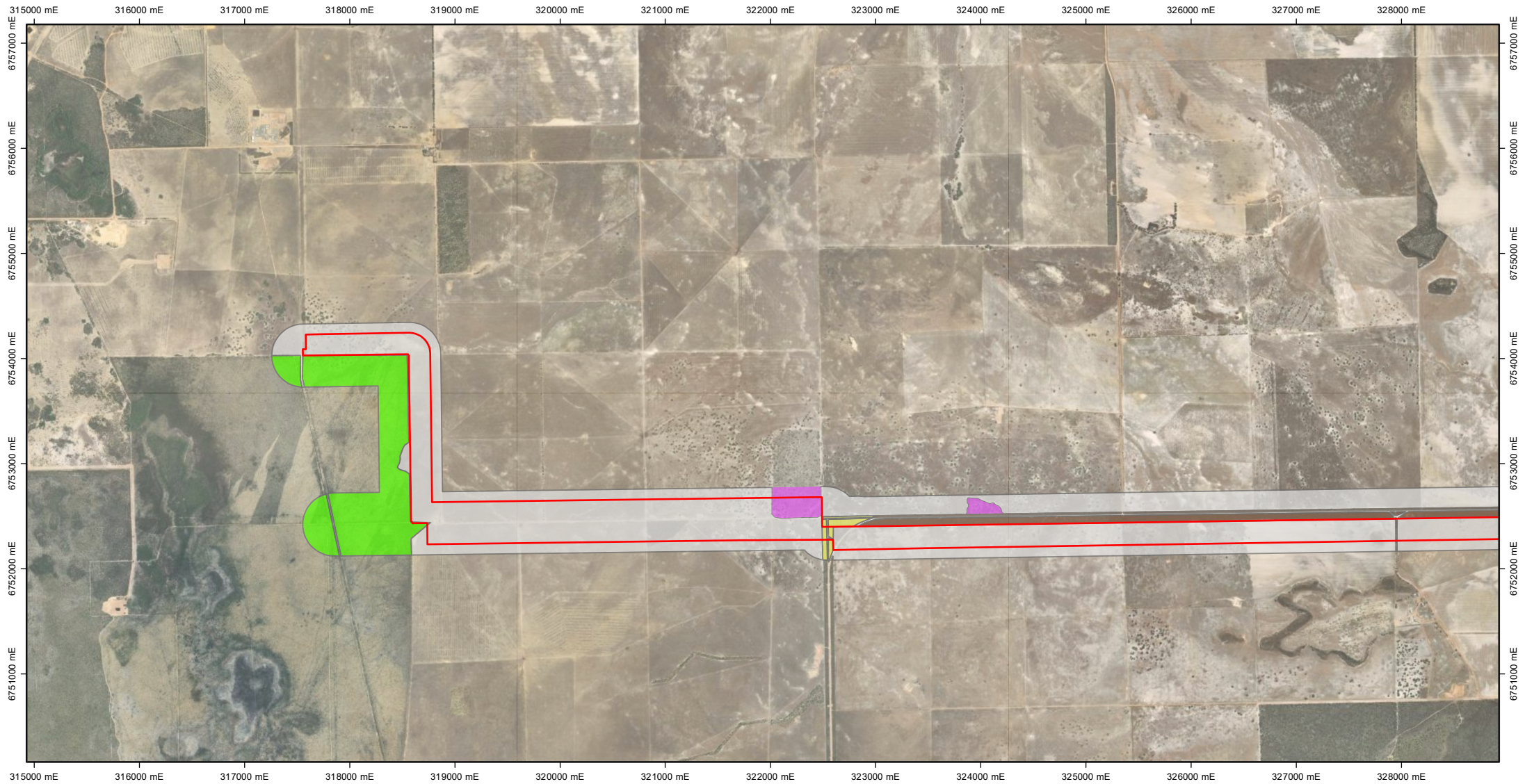
Habitat type	Fauna habitat description	Extent in Study Area		Extent in Development Envelope		Representative photograph
		(ha)	%	(ha)	%	
Remnant woodland/shrubland over paddock	Areas of remnant overstorey (eucalypts, tall <i>Acacia</i> shrubs) over degraded paddocks with no native understorey. Often heavily degraded and grazed by livestock.	105.3	2.8%	13.4*	1.0%	
Woodlands		186.6	5.0%	12.1	0.9%	
Open <i>Banksia</i> woodland	Mid to tall <i>Banksia</i> open woodland over mixed mid to low shrubland and native grasses on sandy soil. The largest patch of this habitat in the Study Area has been recently burnt (2023) and has negligible leaf litter and <i>Banksia</i> cover.	132.8	3.6%	11.9	0.9	

Habitat type	Fauna habitat description	Extent in Study Area		Extent in Development Envelope		Representative photograph
		(ha)	%	(ha)	%	
Open eucalypt woodland	Open eucalypt woodland over sparse shrubland and continuous weed cover. Transitions into Sheoak shrubland on upper slopes.	54.7	1.5%	0.2	<0.1%	
Shrublands		160.4	4.3%	11.9	0.9%	
Sheoak and <i>Acacia</i> shrubland	Sheoak and/or <i>Acacia</i> shrubland in varying densities over mixed mid to low shrubs over tussock grasses and weeds. Scattered eucalypts present. Varying degrees of degradation depending on proximity to paddocks.	81.3	2.2%	5.9	0.4%	

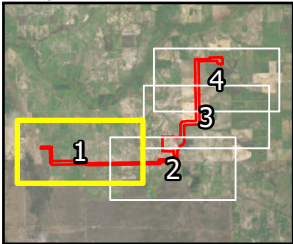
Habitat type	Fauna habitat description	Extent in Study Area		Extent in Development Envelope		Representative photograph
		(ha)	%	(ha)	%	
Low to mid shrubland/ grassland	Mixed low to mid shrubs over tussock grassland on sandy soils. No trees present.	75.4	2.0%	4.9	0.4%	
Shrubland on lateritic breakaway	Sparse tall shrubs over mixed dense shrubland over tussock grasses and invasive grass cover on a south facing lateritic breakaway.	1.8	<0.05%	1.2	0.1%	

Habitat type	Fauna habitat description	Extent in Study Area		Extent in Development Envelope		Representative photograph
		(ha)	%	(ha)	%	
Tall closed shrubland	Dense tall shrubland (<i>Acacia</i> and <i>Melaleuca</i> spp.) over invasive grasses and herbs on sandy loam soil. Transitions into coastal dune systems to the west.	0.3	<0.05%	-	-	
Drainage Lines		47.7	1.3%	29.3	2.2%	
Creek line	Inundated creeks that have formed along low points within the landscape. Bordered by different vegetation depending on the degree of degradation. Reeds and sedges may be present. <i>Eucalyptus camaldulensis</i> (river red gum) often occurring along creeks.	47.7	1.3%	29.3*	2.2%	
Total Area		3,731.2	100%	1,326.9	100%	

*Fauna habitat mapping of small areas of the Development Envelope that were not covered by the Phoenix (2025) the Study Area has been extrapolated from satellite imagery. These areas comprise predominantly degraded agricultural land (137.2 ha), with a small portion comprising Creek line habitat (3.5 ha) and Remnant woodland/shrubland over paddock (1.8 ha).



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LEGEND:

Development Envelope

Terrestrial Fauna Habitat (Phoenix 2025)

Banksia woodland

Cleared

Low to mid shrubland/grassland

Plantation

Remnant woodland/shrubland over paddock

Sheoak and Acacia shrubland

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-2: Terrestrial Fauna Habitat within and surrounding the Development Envelope

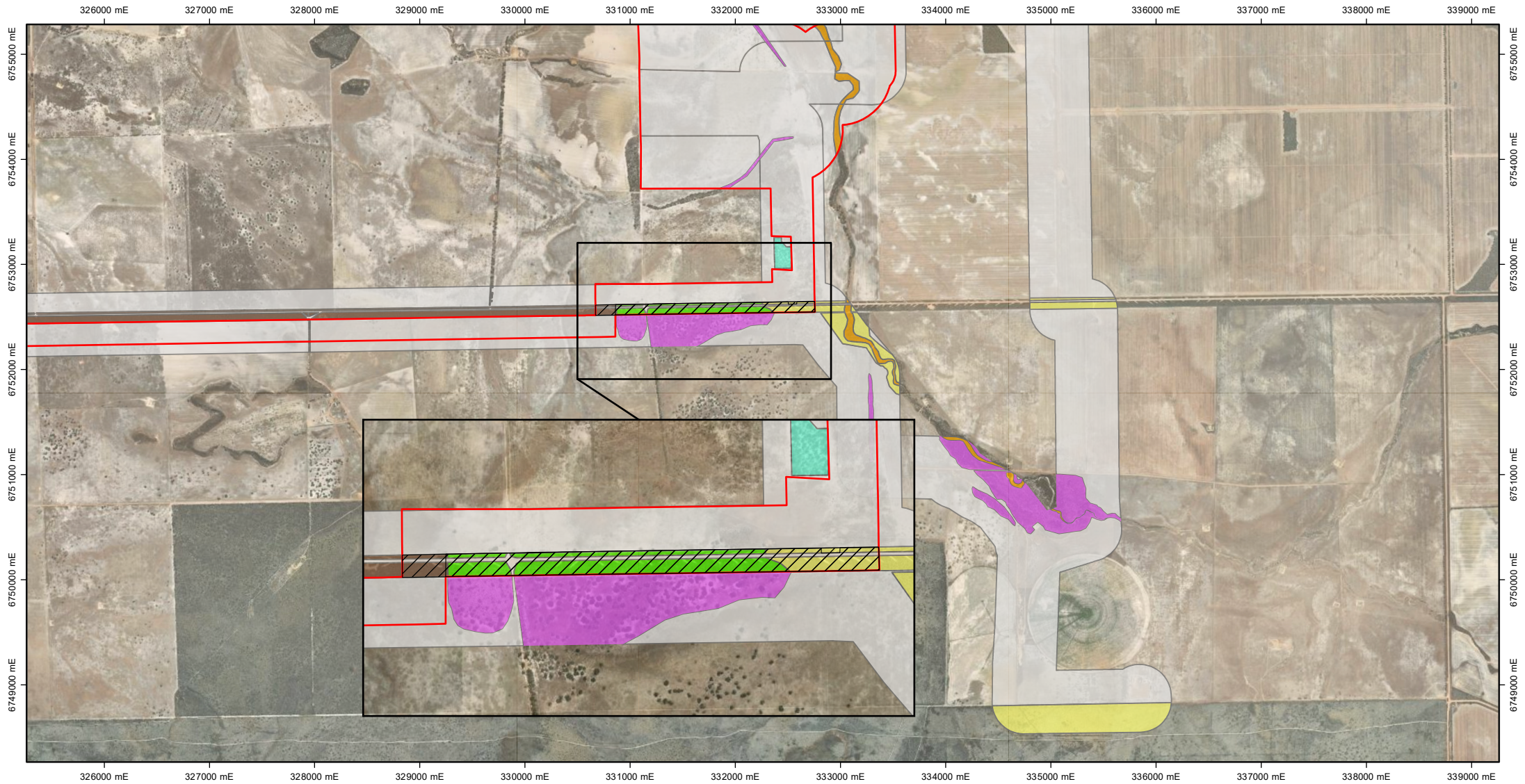
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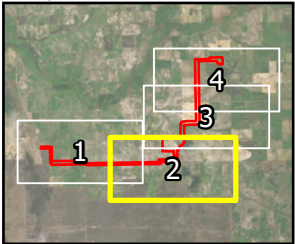
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Service Layer Credits: Vantor, Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
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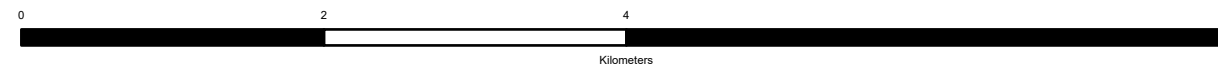
- Development Envelope
- Clearing Exclusion Zone

Terrestrial Fauna Habitat (Phoenix 2025)

- Banksia woodland
- Cleared
- Creekline
- Low to mid shrubland/grassland
- Plantation

- Remnant woodland/shrubland over paddock
- Sheoak and Acacia shrubland

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-2: Terrestrial Fauna Habitat within and surrounding the Development Envelope

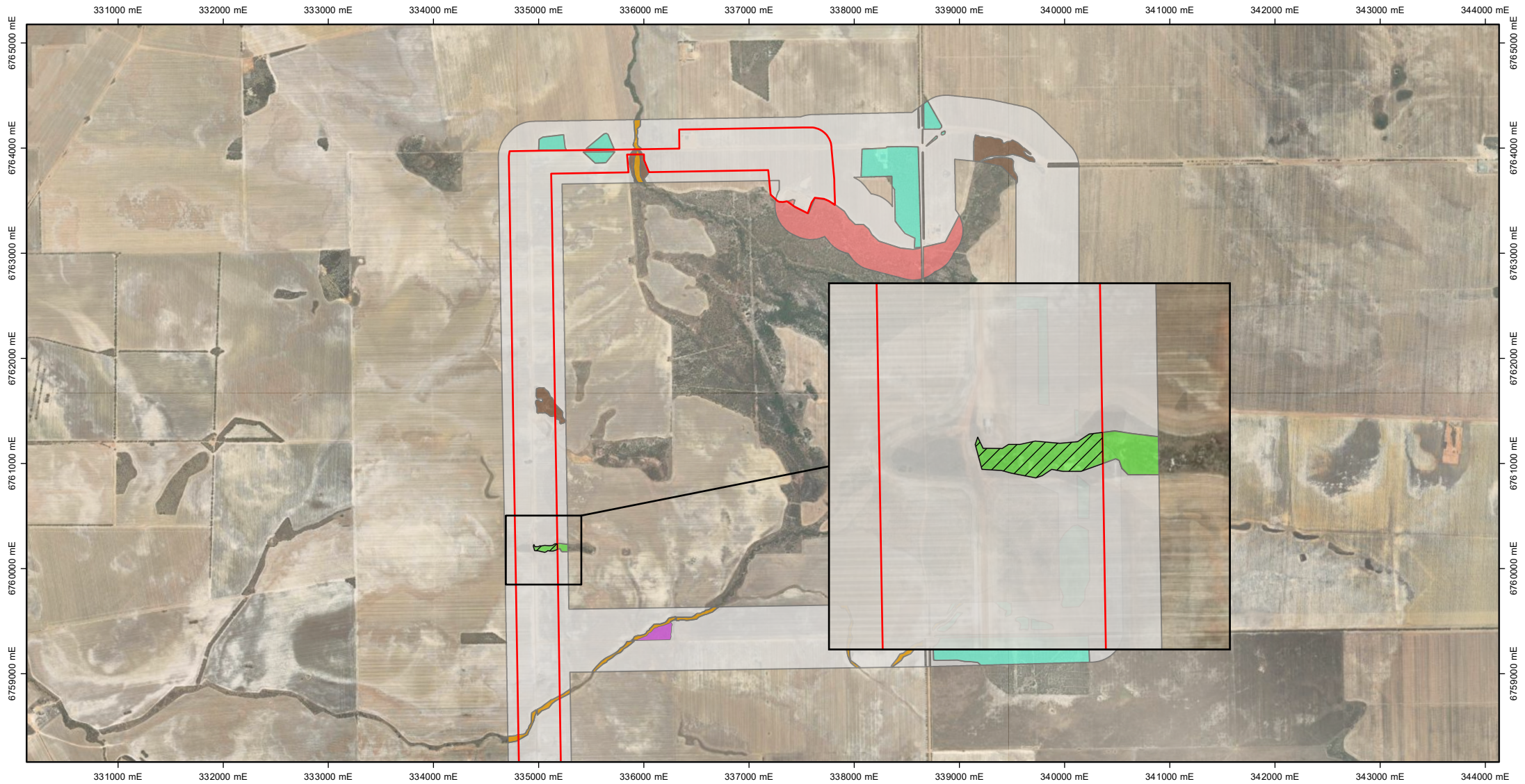
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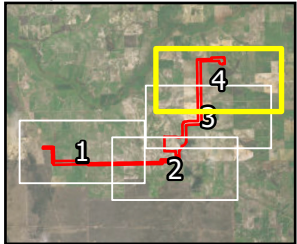
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Service Layer Credits: Earthstar Geographics

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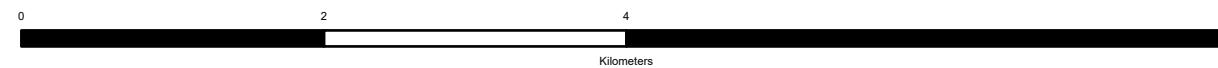
- Development Envelope
- Clearing Exclusion Zone

Terrestrial Fauna Habitat (Phoenix 2025)

- Cleared
- Creepline
- Open Eucalypt woodland
- Plantation
- Remnant woodland/shrubland over paddock

- Sheoak and Acacia shrubland
- Shrubland on lateritic breakaway

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-2: Terrestrial Fauna Habitat within and surrounding the Development Envelope

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
Service Layer Credits: Vantor, Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026

5.3.3. Vertebrate Fauna Species Assemblage

The desktop review identified 254 vertebrate fauna taxa potentially occurring within a 40 km desktop search extent of the Study Area; including 14 amphibians, 51 reptiles, 162 birds, and 27 mammals (Phoenix 2025). During the field survey, a total of 65 terrestrial vertebrate species representing 42 families and 58 genera were recorded; including four amphibians, six reptiles, 43 birds, and 12 mammals (Phoenix 2025; **Appendix C2**).

Of the 65 species of vertebrate fauna recorded, 61 species were native, and four species were introduced. Introduced fauna species included: *Felis catus* (Cat), *Oryctolagus cuniculus* (Rabbit), *Ovis aries* (Sheep), and *Vulpes vulpes* (Red Fox). The presence of numerous introduced species reflects the highly cleared agricultural landscape and degraded nature of the remnant vegetation occurring in the Study Area (Phoenix 2025; **Appendix C2**).

5.3.4. Conservation Significant Vertebrate Fauna

Classifications for Threatened or Priority fauna species are defined in **Appendix A4**.

No Threatened or Priority vertebrate fauna were recorded during the survey (Phoenix 2025). One species, Carnaby's Cockatoo (*Zanda latirostris* – EN [EPBC and BC Acts]), is considered likely to occur within the Study Area and Development Envelope, with a further eight species considered as possibly occurring due to the presence of at least some suitable habitat and known range of the species (**Table 5-4**):

- Common Greenshank (*Tringa nebularia*) – EN and Mig (EPBC Act), Mig (BC Act)
- Common Sandpiper (*Actitis hypoleucos*) – Mig (EPBC and BC Act)
- Southern Whiteface (*Aphelocephala leucopsis*) – VU (EPBC Act)
- Fork-tailed Swift (*Apus pacificus*) – Mig (EPBC Act)
- Peregrine Falcon (*Falco peregrinus*) – OS (BC Act)
- Blue-billed Duck (*Oxyura australis*) – P4 (DBCA list)
- Black-striped Snake (*Neelaps calonotos*) – P3 (DBCA list)
- Water-rat (*Hydromys chrysogaster*) – P4 (DBCA list).

Although *Leipoa ocellata* (Malleefowl) has historically been recorded in the region, this species is considered unlikely to occur within the Study Area or Development Envelope (Phoenix 2025; **Appendix C2**). The Phoenix 2025 survey, and the 2023 survey which included targeted surveys, recorded no evidence of Malleefowl within the Study Area, despite being located within the Malleefowl's current range (Phoenix 2023b, 2025). Furthermore, there is limited habitat present for the species within the Development Envelope, with only 0.2 ha (<0.1% of the Development Envelope) displaying moderate habitat suitability at most, due to the highly fragmented and disturbed nature of the landscape and the introduction of feral predators. On this basis, the species will not be discussed further in this assessment.

Coastal/marine migratory waterbirds are also unlikely to occur due to the lack of coastline/marine habitats.

Carnaby's Cockatoo is described in further detail in **Section 5.3.4.1**, along with consideration of suitability of the recorded fauna habitat types for the species' foraging and roosting requirements. Species considered unlikely to occur have not been discussed further in this referral.

Table 5-4: Conservation Significant Fauna Likelihood of Occurrence Assessment

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
Birds						
<i>Anous tenuirostris melanops</i> Australian Lesser Noddy	VU (EPBC Act); EN (BC Act)					Unlikely Restricted to marine environments.
<i>Aphelocephala leucopsis</i> Southern Whiteface	VU (EPBC Act)	✓	✓			Possible Potentially suitable shrubland habitat present, no Eucalyptus woodland habitat in Development Envelope. Lack of tree hollows to promote roosting.
<i>Apus pacificus</i> Fork-tailed Swift, Pacific Swift	Mig. (EPBC & BC Acts)	✓	✓	✓	✓	Possible Not restricted by terrestrial habitats.
<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	VU (EPBC & BC Acts)					Unlikely Outside of range of the <i>naso</i> subspecies, which is known to extend as far north as the Lancelin region.
<i>Falco hypoleucos</i> Grey Falcon	VU (EPBC & BC Acts)					Unlikely No suitable habitat and outside of current known range.
<i>Falco peregrinus</i>	OS (BC Act)		✓		✓	Possible

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
Peregrine Falcon						<p>A number of records approximately 38 km away at Coalseam Conservation Park.</p> <p>No Eucalyptus woodland habitat in Development Envelope.</p> <p>Unlikely to nest within Study Area but may be an occasional visitor.</p>
<i>Leipoa ocellata</i> Malleefowl	VU (EPBC & BC Acts)					<p>Unlikely</p> <p>Remnant vegetation within Development Envelope and surrounds is too fragmented and degraded to support Malleefowl.</p>
<i>Oxyura australis</i> Blue-billed Duck	P4 (DFCA list)				✓	<p>Possible</p> <p>Potentially suitable waterbodies with dense bordering vegetation present along Sand Plain Creek.</p> <p>Creek lines in Development Envelope are ephemeral and are unlikely to provide consistent water volume important to this species.</p> <p>This species has been recorded nearby; however the most recent record is from 2007.</p>
<i>Rostratula australis</i> Australian Painted Snipe	EN (EPBC & BC Acts)					<p>Unlikely</p> <p>Absence of suitable wetland habitat and no known records within 40 km.</p>

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
<i>Sternula nereis nereis</i> Fairy Tern	VU (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat
<i>Zanda latirostris</i> Carnaby's Cockatoo	EN (EPBC & BC Acts)		✓	✓	✓	Likely Suitable foraging and roosting habitat within the region. Suitable foraging habitat within the Development Envelope. Likely an irregular visitor to the Study Area.
Migratory Waterbirds						
<i>Actitis hypoleucos</i> Common Sandpiper	Mig. (EPBC & BC Acts)				✓	Possible Sand Plain Creek and other unnamed tributaries may provide suitable waterbody habitat. Creek lines in Development Envelope are ephemeral and are unlikely to provide consistent water volume important to this species.
<i>Anous stolidus</i> Common Noddy	Mig. (EPBC & BC Acts)					Unlikely Restricted to marine environments.
<i>Arenaria interpres</i> Ruddy Turnstone	VU/Mig. (EPBC Act); Mig. (BC Act)					Unlikely Absence of suitable coastal habitat.

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	VU/Mig. (EPBC Act); Mig. (BC Act)					Unlikely Absence of suitable wetland habitat.
<i>Calidris canutus</i> Red Knot	VU/Mig. (EPBC Act); EN (BC Act)					Unlikely Absence of suitable coastal habitat.
<i>Calidris ferruginea</i> Curlew Sandpiper	CR/Mig. (EPBC Act); CR (BC Act)					Unlikely Absence of suitable coastal habitat.
<i>Calidris melanotos</i> Pectoral Sandpiper	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Calidris ruficollis</i> Red-necked Stint	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Hydroprogne caspia</i> Caspian Tern	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Limosa lapponica</i> Bar-tailed Godwit	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Motacilla cinerea</i> Grey Wagtail	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable fast-flowing waterbodies and no known records within 40 km.
<i>Numenius madagascariensis</i>	CR/Mig. (EPBC Act); CR (BC Act)					Unlikely

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
Eastern Curlew						Absence of suitable coastal habitat.
<i>Onychoprion anaethetus</i> Bridled Tern	Mig. (EPBC & BC Acts)					Unlikely Restricted to marine environments.
<i>Pandion haliaetus</i> Osprey	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Sterna dougallii</i> Roseate Tern	Mig. (EPBC & BC Acts)					Unlikely Restricted to marine environments.
<i>Sternula albifrons</i> Little Tern	VU/Mig. (EPBC Act); Mig. (BC Act)					Unlikely Absence of suitable coastal habitat.
<i>Thalasseus bergii</i> Greater Crested Tern	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable coastal habitat.
<i>Tringa brevipes</i> Grey-tailed Tattler	Mig. (EPBC & BC Acts); P4 (DACA list)					Unlikely Absence of suitable coastal habitat.
<i>Tringa nebularia</i> Common Greenshank	EN/Mig. (EPBC Act); Mig. (BC Act)				✓	Possible Sand Plain Creek and other unnamed tributaries may provide suitable Creek line habitat. Creek lines in Development Envelope are ephemeral and are unlikely to provide consistent water volume important to this species.

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
<i>Tringa stagnatilis</i> Marsh Sandpiper	Mig. (EPBC & BC Acts)					Unlikely Absence of suitable wetland habitat.
Reptiles						
<i>Cyclodomorphus branchialis</i> Gilled Slender Blue-tongue Skink	VU (BC Act)					Unlikely Absence of suitable habitats with dense leaf litter.
<i>Egernia stokesii</i> subsp. <i>badia</i> Western Spiny-tailed Skink	EN (EPBC Act); VU (BC Act)					Unlikely Absence of suitable York Gum woodlands.
<i>Neelaps calonotos</i> Black-striped Snake	P3 (DBCA list)	✓		✓		Possible Potentially suitable shrubland and woodland habitat within the Development Envelope.
Mammals						
<i>Dasyurus geoffroii</i> Chuditch	VU (EPBC & BC Acts)					Unlikely Outside of current known range.
<i>Hydromys chrysogaster</i> Water-rat	P4 (DBCA list)				✓	Possible Sand Plain Creek and other unnamed tributaries may provide suitable Creek line habitat if inundated. Creek lines in Development Envelope are ephemeral and are unlikely to provide consistent habitat for this species.

Species	Conservation status	Suitable habitat in the Study Area				Likelihood of occurrence within the Development Envelope
		Shrubland	Eucalypt woodland	Banksia woodland	Creek line	
<i>Notamacropus irma</i> Western Brush Wallaby	P4 (DBCAs list)					Unlikely Potentially suitable habitat within wider region, however the most recent record is from 2002.
<i>Phascogale tapoatafa wambenger</i> South-western Brush-tailed Phascogale	CD (BC Act)					Unlikely Outside of current known range and absence of suitable habitat.
<i>Pseudocheirus occidentalis</i> Western Ringtail Possum	CR (EPBC & BC Acts)					Unlikely Outside of current known range and absence of suitable forest habitat.

Source: (Phoenix 2025)

Likelihood definitions:

Likely – Study Area occurs within known range of species and suitable habitat is present and there are previous records of the species either in the area or nearby

Possible – Study Area occurs within known range of species and suitable habitat is present but there are no records of the species

Unlikely – Study Area occurs outside of known range of species; suitable habitat is not present.

5.3.4.1. *Carnaby's Cockatoo*

Carnaby's Cockatoo is endemic to, and widespread throughout, the south-west of Western Australia where it occurs from the Wheatbelt across the south-west, including the Swan Coastal Plain and the southern coast (DAWE 2022). Carnaby's Cockatoo is a highly mobile species that displays a seasonal migratory pattern linked to breeding. The Development Envelope lies within the modelled distribution range and on the edge of the known breeding range of Carnaby's Cockatoo (DAWE 2022; Phoenix 2025; **Appendix C2**).

Breeding generally occurs further east in inland areas receiving 300-750 mm of average rainfall annually (DCCEEW 2025b). During the non-breeding season, the majority of birds migrate to higher rainfall areas including the Midwest coast, Swan Coastal Plain and south coast; however, there are a few resident populations that do not migrate during non-breeding season with these individuals remaining close to their breeding sites year-round. Little is known about home ranges or territories; however, the species area of occupancy is estimated to be between 35,500 km² and 86,800 km² (DPaW 2013).

The species exists as a single population, and there is no accurate estimate of the population number; it is therefore more appropriate to consider significance in terms of impacts on habitat and individuals rather than a resident population (DAWE 2022).

The species feeds on native shrubland vegetation, particularly flowers, seeds and nectar of proteaceous plants (e.g. *Banksia*, *Hakea* and *Grevillea* species), Marri and Callistemon spp. (DCCEEW 2025a; DPaW 2013). Carnaby's Cockatoo may roost in any tall trees, particularly in riparian areas, and may breed in any suitable trees with an appropriate hollow within their breeding range (DAWE 2022).

Carnaby's Foraging Habitat Assessment

A few scattered records of Carnaby's Cockatoo occur within 15 km of the Study Area, with most records occurring over 20-30 km away (Phoenix 2025; **Appendix C2**). The closest known records of breeding occur approximately 35 km to the south-east, while the closest known roosting site occurs approximately 1.4 km north of the export pipeline's western extent (Phoenix 2025; **Appendix C2**). A black cockatoo habitat assessment was undertaken within the Study Area by Phoenix in August 2025 (Phoenix 2025; **Appendix C2**) with the objective of mapping foraging, roosting and breeding habitat for Carnaby's Cockatoo. No evidence of Carnaby's Cockatoo was recorded within the Study Area during the field survey (including foraging evidence, direct sighting, or calls). Additionally, no evidence of breeding or roosting was recorded (Phoenix 2025; **Appendix C2**).

The foraging value of each habitat type was assessed using a scoring system developed by Bamford Consulting Ecologists (Bamford 2021). The scoring system provides a numerical value that reflects the significance of vegetation as foraging habitat for black cockatoos. The score is derived from the following factors:

- Site condition – a score out of 6 for the vegetation composition, condition, and structure
- Site context – a score out of 3 for the context of the site, such as availability of nearby foraging habitat
- Species stocking rate – a score out of 1 for species density based on observed or predicted regular presence of foraging birds.

Subsequently, Bamford Consulting Ecologists reviewed the black cockatoo habitat assessment and suggested slight adjustments to the value given to a number of foraging habitats, which are presented in **Table 5-5**. The suggested changes were not enough to alter the conclusions of the original assessment (Bamford 2026; **Appendix C3**).

Assigned foraging habitat quality ratings for Carnaby’s Cockatoo were variable between habitats in the Development Envelope, but generally low, with scores ranging from 1/10 to 4/10 (Bamford 2026; Phoenix 2025; **Table 5-5**). The highest scoring habitat was Open Banksia woodland (4/10), which is considered low-to-moderate foraging value. Open eucalypt woodlands, all shrublands, and remnant woodland/shrubland over paddock received a very low habitat quality score of 2/10, and the remaining habitat types have negligible foraging value receiving a habitat quality score of 1/10 (**Table 5-5**).

The vast majority of both the Study Area and Development Envelope is considered to have negligible foraging value for Carnaby’s Cockatoo (87.9% and 97.2% respectively). A small patch (11.9 ha; 0.9%) of low-to-moderate *Banksia* woodland habitat occurs within the Development Envelope, adjacent to the export pipeline to the south of the CPF (**Figure 5-3**). The remaining habitat within the Development Envelope (25.5 ha; 1.9%) is considered to have very low foraging value and generally occurs as small fragmented patches separated by large areas of cleared farmland (**Table 5-6**).

Table 5-5: Foraging Habitat Quality Scoring

Habitat type/ Foraging Value	Vegetation (/6)	Context (/3)	Density (/1)	Total score (/10)
Degraded				
Cleared	1	0	0	1
Plantation	1	0	0	1
Remnant woodland/shrubland over paddock	1	1	0	2
Woodlands				
Open Banksia woodland	3	1	0	4
Open eucalypt woodland	1	1	0	2
Shrublands				
Sheoak and <i>Acacia</i> shrubland	1	1	0	2
Low to mid shrubland/grassland	1	1	0	2
Shrubland on lateritic breakaway	1	1	0	2
Tall closed shrubland	1	1	0	2
Drainage lines				
Creek line	1	0	0	1

Source: (Bamford 2026; Phoenix 2025)

Table 5-6: Black Cockatoo Foraging Value

Foraging Value	Study Area (ha) (%)		Development Envelope (ha) (%)	
	(ha)	%	(ha)	%
Low-to-moderate	132.8	3.6%	11.9	0.9%
Very low	318.8	8.5%	25.5*	1.9%
Negligible	3,279	87.9%	1,289.4*	97.2%
Total Area	3,731.2	100%	1,326.9	100%

*The Phoenix (2025) Study Area did not fully encompass the Development Envelope. Areas that were not surveyed have been extrapolated from aerial imagery and comprise of cleared agricultural land (137.2 ha) and a small portion comprising Creek line habitat (3.5 ha) with negligible foraging value, and a small portion of remnant woodland (1.8 ha) with a low foraging value.

Breeding Habitat

Breeding habitat for Carnaby’s Cockatoo consists of woodland or forest, however they will also breed in areas of former woodland or forest habitats which now consist of fragmented patches and/or isolated trees (Phoenix 2025; **Appendix C2**). Breeding habitat is defined in the EPBC Act Referral Guideline as “*habitat that contains known, suitable or potential nesting trees*” (DAWE 2022).

A tree with a suitable hollow, diameter at breast height (DBH), and evidence of black cockatoo use (i.e. chewed hollow entrance, feeding debris, chewed seeds) is classified as a known nesting tree (DAWE 2022).

No known or suitable Black Cockatoo nesting trees occur within the Study Area. While a total of 12 potential nesting trees (suitable species with a DBH of at least 500 mm) were recorded during the fauna survey, none of these were located within the Development Envelope (Phoenix 2025; **Figure 5-3**). Furthermore, no hollows or evidence of black cockatoo use was recorded, and many of the potential nesting trees exhibited a multi-stemmed growth habit that is unlikely to ever develop suitable hollows (Phoenix 2025; **Appendix C2**).

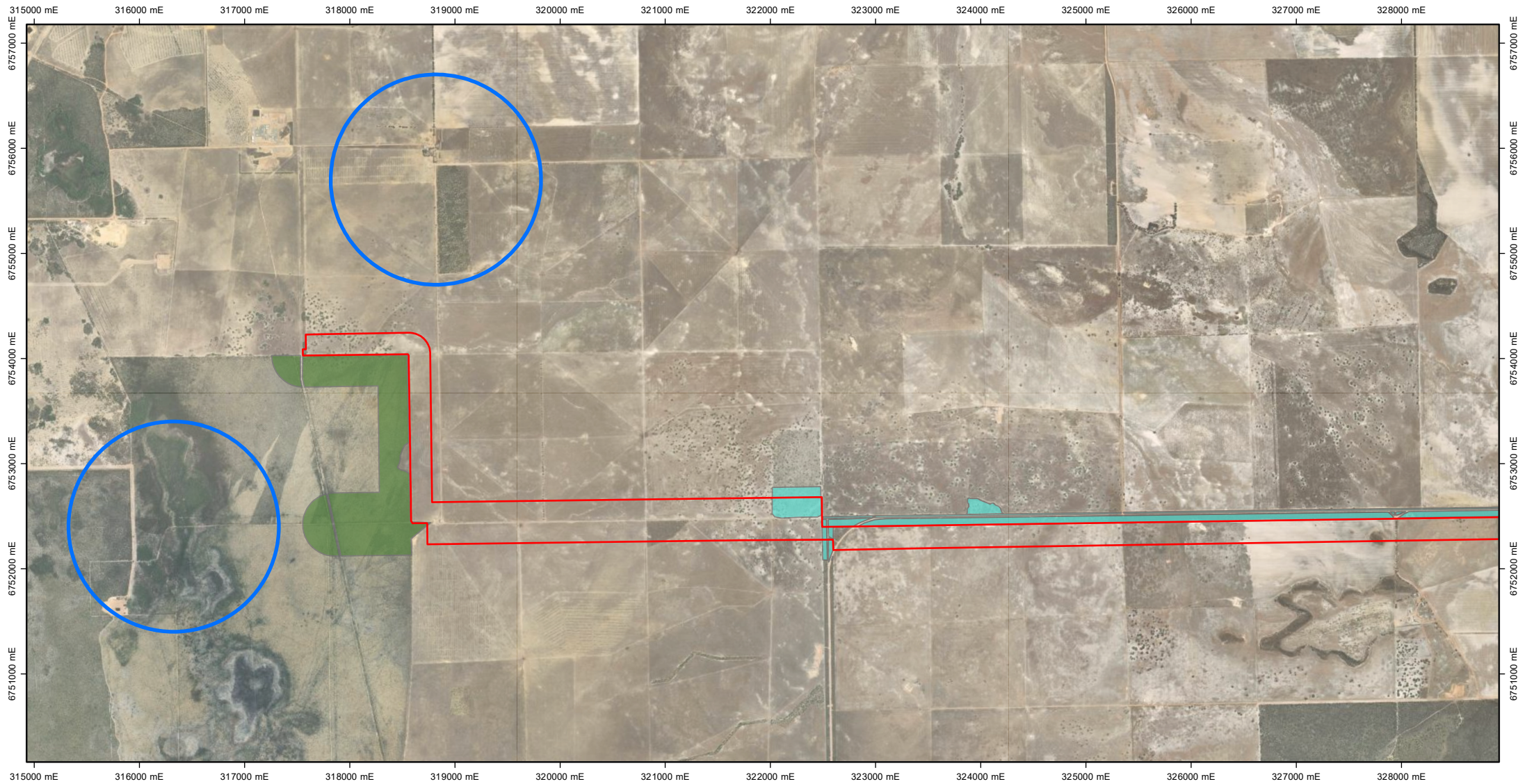
Roosting Habitat

No evidence of roosting was recorded during the survey. Two known black cockatoo roosting sites occur within proximity of the Development Envelope. The closest occurs approximately 1.4 km north of the western extent of the export pipeline, while the other occurs approximately 2 km south-west of the western extent of the export pipeline, within the Yandanogo Nature Reserve (Bamford 2026; DBCA 2019; **Figure 5-3**).

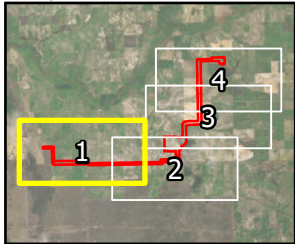
Given that suitable water sources (farm dams) are likely to be available nearby and previous roosting areas are known within 2 km of the Study Area (Phoenix 2025; **Appendix C2**), all potential nesting trees in the Study Area are considered likely to represent suitable roosting habitat for the species based on the EPBC Act Referral Guideline (DAWE 2022). However, given the absence of potential nesting trees within the Development Envelope, and the relative scarcity of tall trees in the area, it is unlikely that any habitat types within the Development Envelope would be utilised for roosting.

Likelihood and Nature of Occurrence within the Development Envelope

Based on the information in the previous sub-sections, Carnaby's Cockatoo is likely to be an irregular visitor to the Development Envelope. The species may visit the area during transit to nearby roosting sites or more continuous higher quality vegetation within the region (such as the nearby Yandanogo Nature Reserve or along the Irwin River), but are unlikely to remain or breed within the area (Bamford 2026; Phoenix 2025).



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LEGEND:

Development Envelope

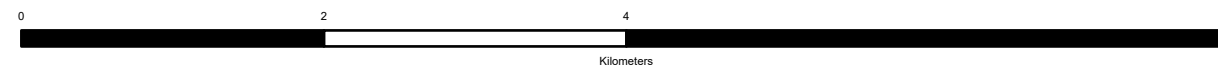
Carnaby's Cockatoo habitat values

Low-to-moderate quality foraging habitat (Phoenix 2025)

Very low quality foraging habitat (Phoenix 2025)

Black Cockatoo Known Roosting Sites

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-3: Carnaby's Cockatoo Records and Habitat within and surrounding the Development Envelope

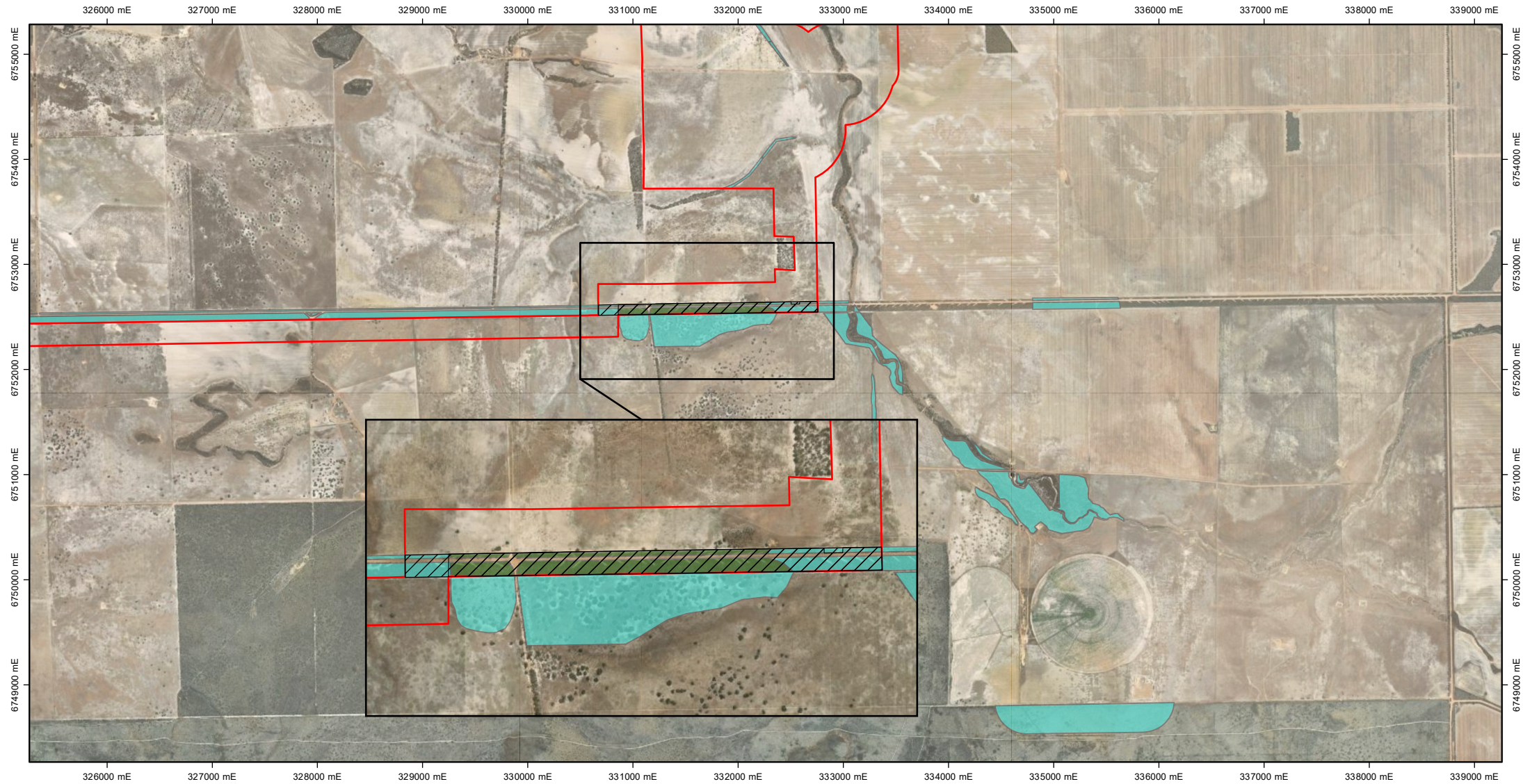
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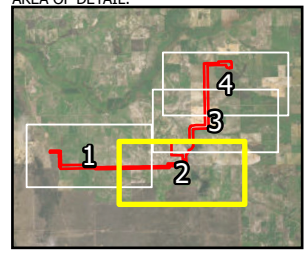
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Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026



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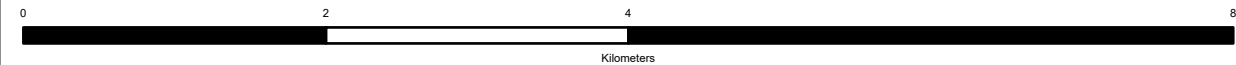
LEGEND:

- Development Envelope
- Clearing Exclusion Zone

Carnaby's Cockatoo habitat values

- Low-to-moderate quality foraging habitat (Phoenix 2025)
- Very low quality foraging habitat (Phoenix 2025)

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-3: Carnaby's Cockatoo Records and Habitat within and surrounding the Development Envelope

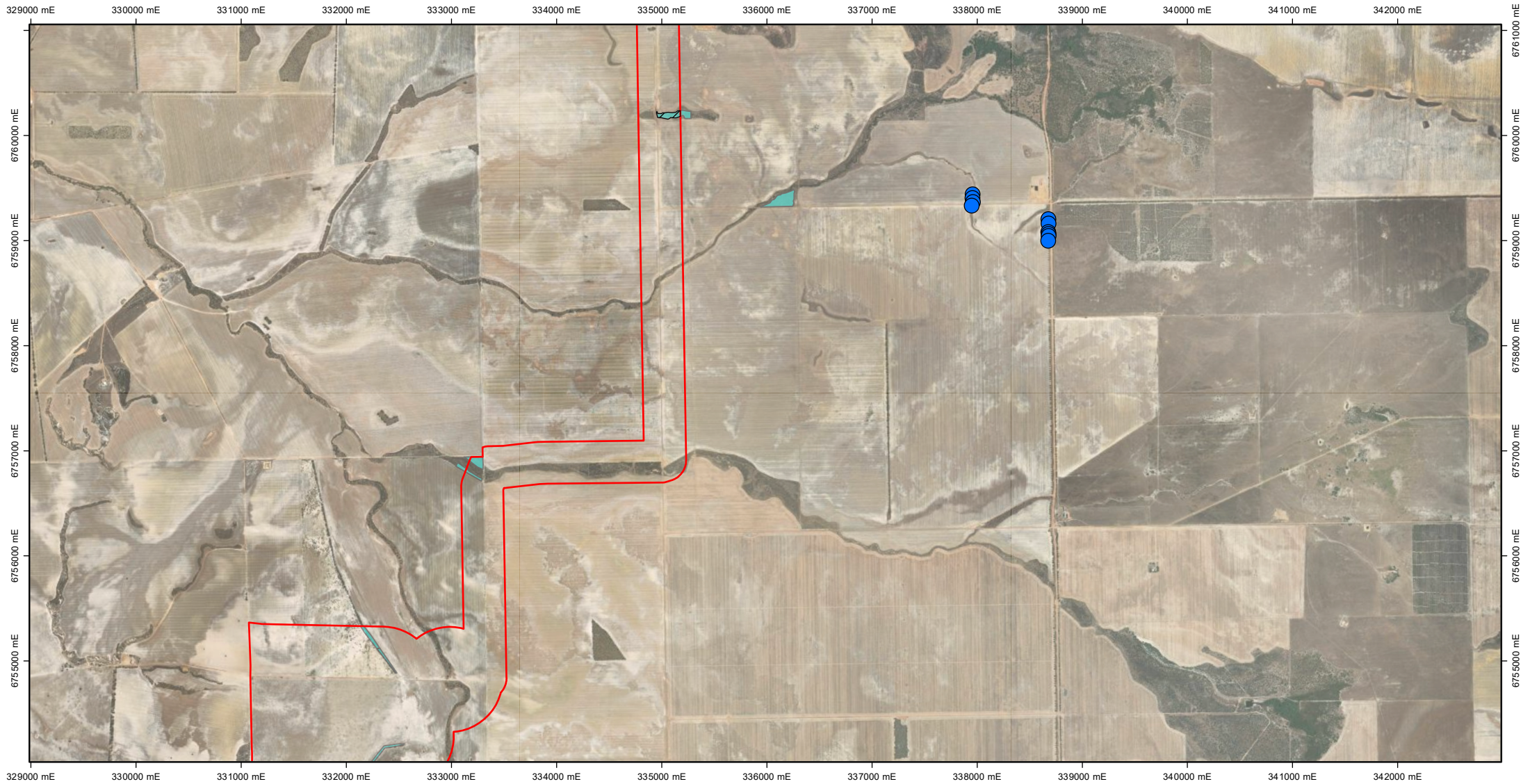
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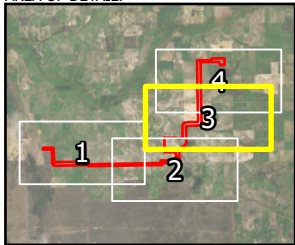
DATA SOURCE:
 Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
0					CR	21/01/2026



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LEGEND:

Development Envelope

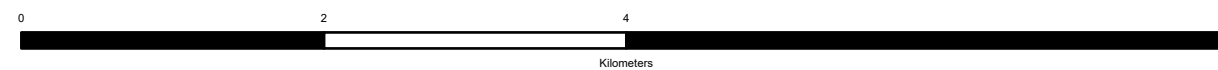
Clearing Exclusion Zone

Carnaby's Cockatoo habitat values

Very low quality foraging habitat (Phoenix 2025)

Potential Breeding Trees (Phoenix 2025)

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-3: Carnaby's Cockatoo Records and Habitat within and surrounding the Development Envelope

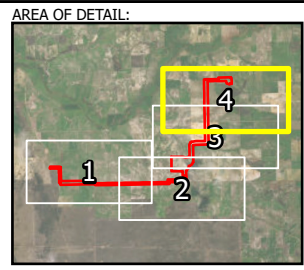
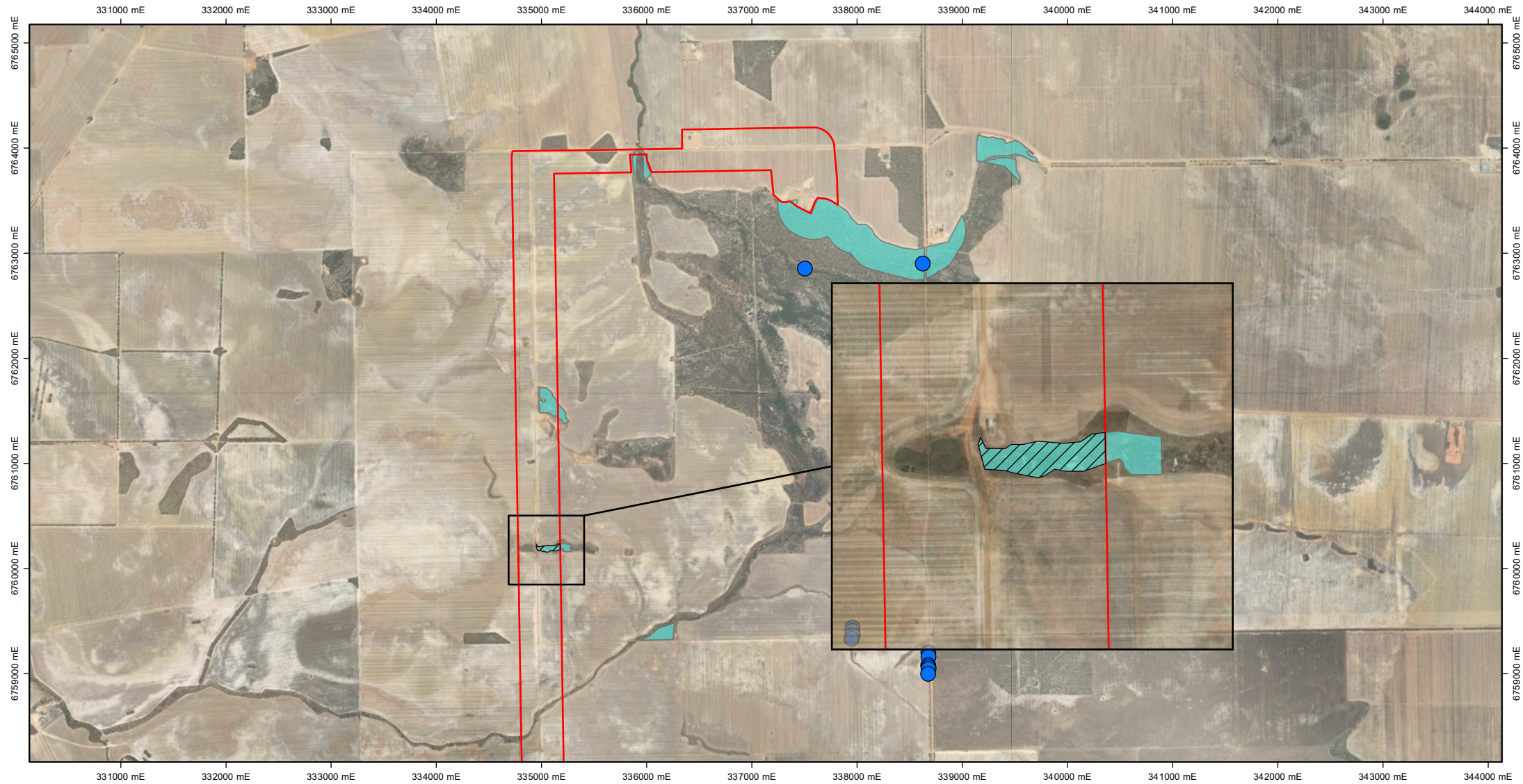
SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026



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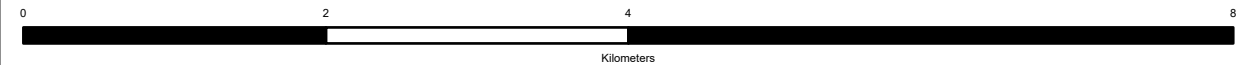


LEGEND:

- Development Envelope
- Clearing Exclusion Zone
- Very low quality foraging habitat (Phoenix 2025)
- Potential Breeding Trees (Phoenix 2025)

Carnaby's Cockatoo habitat values

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-3: Carnaby's Cockatoo Records and Habitat within and surrounding the Development Envelope

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
 Service Layer Credits: Vantor, Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date
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5.3.5. Short Range Endemic Invertebrates

SRE invertebrate fauna are invertebrates that, due to evolutionary isolation, have naturally small distributions (below 10,000 km²) and are often characterised by low fecundity, confinement to disjunct habitats and poor dispersal capabilities (Harvey 2002). Due to this lack of knowledge or paucity of data, most SRE species have not been listed under State or Commonwealth legislation.

5.3.5.1. SRE Habitat

Due to high levels of clearing and low levels of vegetation complexity, the Development Envelope contains either very limited or no suitable SRE habitat (Phoenix 2025; **Appendix C2**). One habitat type within the Development Envelope, Shrubland on lateritic breakaway (1.2 ha; 0.1%), received a high SRE habitat rating. The habitat is characterised by a south-facing rocky slope that is highly valued by SREs.

Although it was noted that creek lines in the Study Area have the potential to be of high value for SREs, Creek line habitat in the Development Envelope (29.3 ha; 2.2%) intersects cleared paddocks, resulting in a heavily degraded understorey dominated by weeds or invasive grasses. Phoenix downgraded these degraded habitats to low potential for SREs.

Other habitat types present within the Development Envelope were found to lack the complexity or isolation that gives rise to restricted species (Phoenix 2025; **Appendix C2**) or were too heavily disturbed from historical clearing and livestock grazing.

The SRE habitat ratings for each fauna habitat type are summarised in **Table 5-7**.

Table 5-7: SRE Habitat Ratings within the Development Envelope

SRE habitat suitability	Fauna habitat type
None	<ul style="list-style-type: none"> Cleared
Low	<ul style="list-style-type: none"> Plantation Remnant woodland/ shrubland over paddock Open <i>Banksia</i> woodland Open eucalypt woodland Sheoak and <i>Acacia</i> shrubland Low to mid shrubland/ grassland Creek line
High	<ul style="list-style-type: none"> Shrubland on lateritic breakaway

Source: (Phoenix 2025)

5.3.5.2. SRE Records

There is no accepted system to determine the likelihood that a species is an SRE. For the purpose of the Proposal Phoenix applied five categories based on the WA Museum criteria (**Table 5-8**; Phoenix 2025).

Based on the desktop assessment, 10 confirmed, 18 likely, 88 potential, and 74 uncertain SRE taxa have been recorded within a 40 km buffer from the Development Envelope (Phoenix 2025). Of these 116 confirmed, likely, or potential SRE taxa, 23 are named species. Of these named species (all of which are *Mygalomorph* trapdoor spiders), three have Priority classification (*Idiosoma dandaragan* [P2], *Idiosoma gardneri* [P2], and *Idiosoma gutharuka* [P1]), and one has an Endangered classification (*Idiosoma kopejtkorum* [EN]). The remaining 93 are named only to morphospecies codes as applied by the WA Museum or are not identified to confirmed species level. Notably, no SRE species have been recorded within the Study Area itself, which could be due to a lack of historic survey effort in the Study Area and/or a lack of suitable habitat (Phoenix 2025; **Appendix C2**).

Table 5-8: SRE Status Categories

SRE category	Criteria
Confirmed	Distribution < 10,000 km ² . Taxonomy of the group is well known (but not necessarily published); group is well represented in collections, in particular from the region in question; high levels of endemism.
Likely	Taxonomy cannot be resolved to species level; closely related species are known SREs.
Potential	Distribution < 10,000 km ² . Taxonomically poorly resolved group; patchy distribution, often common in certain microhabitats, but no other regional records; congeners (= species in the same genus) both widespread and restricted in distribution.
Widespread	Distribution > 10,000 km ² .
Uncertain	Taxonomy cannot be resolved to species level (i.e. indeterminate species designations due to sex, life stage or damage) and is therefore species distribution remains uncertain).

During the survey, a total of 66 specimens from known SRE groups were collected, comprising 12 taxa (Phoenix 2025). Of these taxa, one millipede is a likely SRE, three isopods are potential SREs, four are data deficient, and four are widespread and not considered SREs (**Table 5-9**).

Five of the 12 taxa showed significant divergence from their closest genetic matches, and are considered new species:

- *Buddelundia* ‘Phoenix0392’ – collected at 2 sites in low shrubland and open eucalypt woodland habitat
- *Buddelundia* ‘Phoenix0393’ – collected at one site in low shrubland habitat
- *Buddelundia* ‘Phoenix0396’ – collected at one site in Sheoak and *Acacia* shrubland
- *Philosciidae* ‘Phoenix0394’ – collected at 3 sites, all within open eucalypt woodland habitat
- *Lithobiomorpha* ‘Phoenix0395’ – collected at one site in low shrubland habitat.

All new species were recorded in low potential SRE habitat. No Threatened or Priority SRE taxa identified in the desktop assessment were recorded in the survey (Phoenix 2025; **Appendix C2**). The species recorded are

summarised in **Table 5-9** and **Figure 5-4**, and those with potential or likely SRE status are discussed in further detail below.

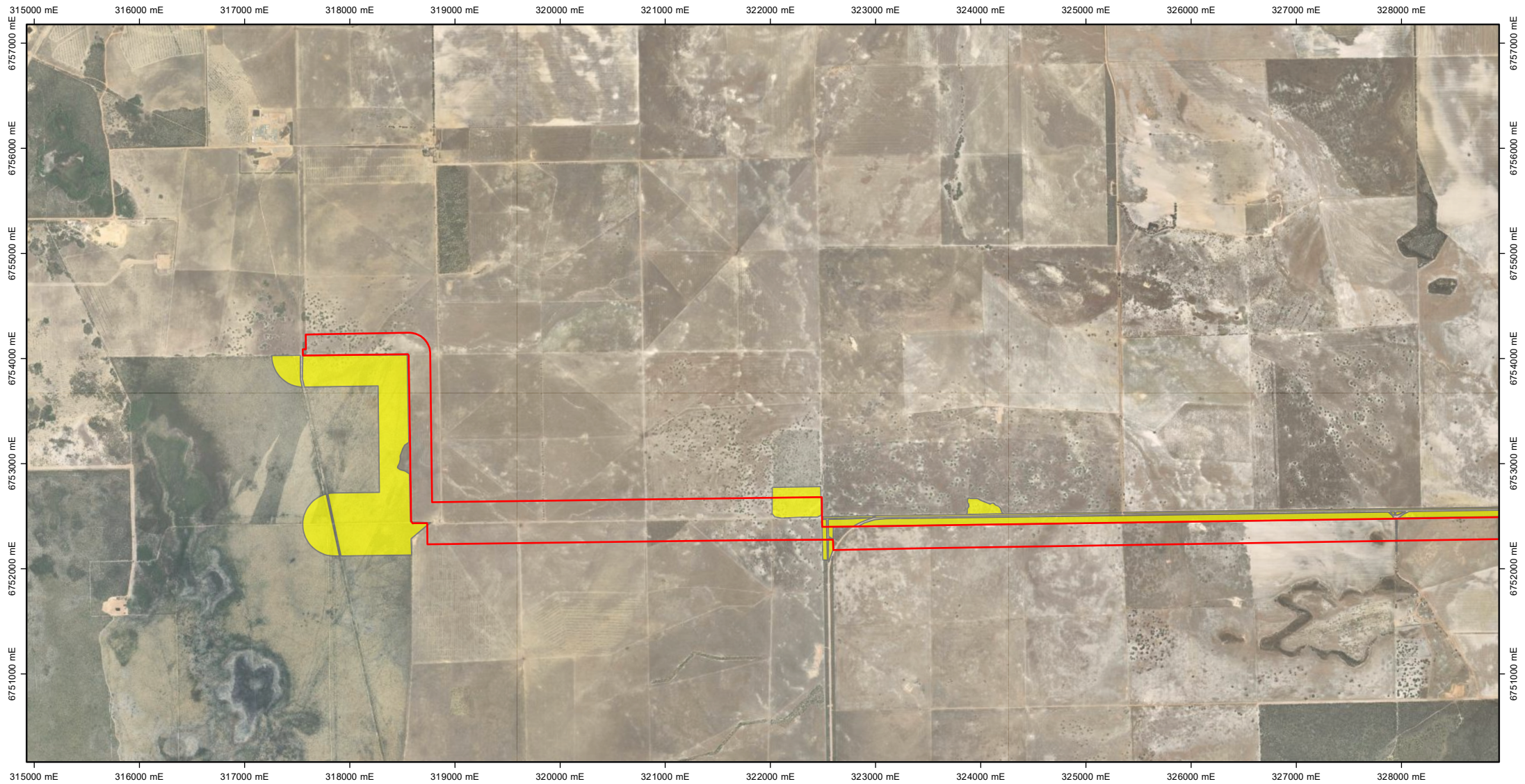
Table 5-9: Specimens from SRE Groups Recorded in the Field Survey

Higher order/family	Taxa	Site	Habitat type	No. specimens	SRE status	Comments
Chilopoda (centipedes)						
<i>Geophilomorpha</i>	<i>Geophilomorpha</i> 'sp indet.'	16, 17	Sheoak and <i>Acacia</i> shrubland Shrubland on lateritic breakaway	3	Data deficient	Genetics failed. Assigned to order level only, group known to include SRE taxa.
<i>Henicopidae</i>	<i>Henicopidae</i> 'sp. voucher NZ796_2023'	8, 15	<i>Banksia</i> woodland Open eucalypt woodland	11	Widespread	Up to 1.5% divergent from closest available match. Conspecific with taxa also known from New Zealand.
<i>Lithobiomorpha</i>	<i>Lithobiomorpha</i> 'Phoenix0395'	4	Low to mid shrubland/grassland	5	Data deficient	This specimen is a minimum of 18.1% divergent from its closest available match and is therefore considered to be a new species.
<i>Scolopendromorpha</i>	<i>Scolopendromorpha</i> 'sp indet.'	3, 14, 16	Creek line Sheoak and <i>Acacia</i> shrubland	3	Widespread	Not a target SRE group.
<i>Scutigromorpha</i>	<i>Scutigromorpha</i> 'sp indet.'	16	Sheoak and <i>Acacia</i> shrubland	2	Widespread	Not a target SRE group.
Diplopoda (millipedes)						

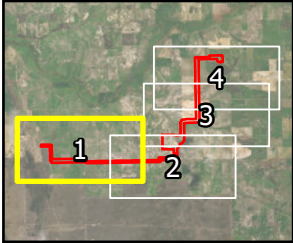
Higher order/family	Taxa	Site	Habitat type	No. specimens	SRE status	Comments
Paradoxosomatidae	<i>Antichiropus</i> 'DIP232'	14, 16, 17	Sheoak and <i>Acacia</i> shrubland Shrubland on lateritic breakaway	9	Likely	Specimens are 3.8-4.3% divergent from <i>Antichiropus</i> 'DIP232' and therefore considered conspecific. Previously recorded at the Lockyer project and not known outside of the Project area.
Isopoda (slaters)						
Armadillidae	<i>Buddelundia</i> 'Phoenix0392'	4, 15	Low to mid shrubland/grassland Open eucalypt woodland	11	Potential	This specimen is a minimum of 16.1% divergent from its closest available match and is therefore considered a new species.
Armadilidae	<i>Buddelundia</i> 'Phoenix0393'	4	Low to mid shrubland/grassland	1	Data deficient	This specimen is a minimum of 15.4% divergent from its closest available match and is therefore considered to be a new species.
Armadilidae	<i>Buddelundia</i> 'Phoenix0396'	16	Sheoak and <i>Acacia</i> shrubland	5	Potential	This specimen is a minimum of 12.8% divergent from its closest available match and is therefore considered to be a new species.
Armadilidae	<i>Buddelundia</i> 'Phoenix0150'	1, 14, 15, 19	Creek line Sheoak and <i>Acacia</i> shrubland Open eucalypt woodland	9	Potential	This specimen has a divergence of 5.7% from its closest available match and is therefore considered conspecific.
Philosciidae	Philosciidae 'Phoenix0394'	15, 19	Open eucalypt woodland	3	Data deficient	This specimen is a minimum of 17% divergent from its closest available match and is therefore considered to be a new species.

Higher order/family	Taxa	Site	Habitat type	No. specimens	SRE status	Comments
Gastropoda Eupulmonata (land snails)						
Succineidae	<i>Succineidae</i> 'sp indet.'	14, 15	Sheoak and <i>Acacia</i> shrubland Open eucalypt woodland	4	Widespread	Not a target SRE family.

Source: (Phoenix 2025)



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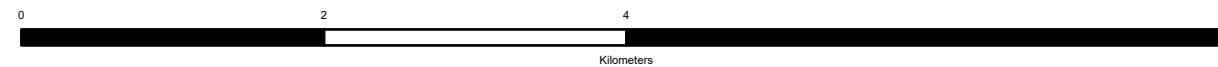
LEGEND:

Development Envelope

SRE Habitat

Low

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-4: SRE Records and Habitat within and surrounding the Development Envelope

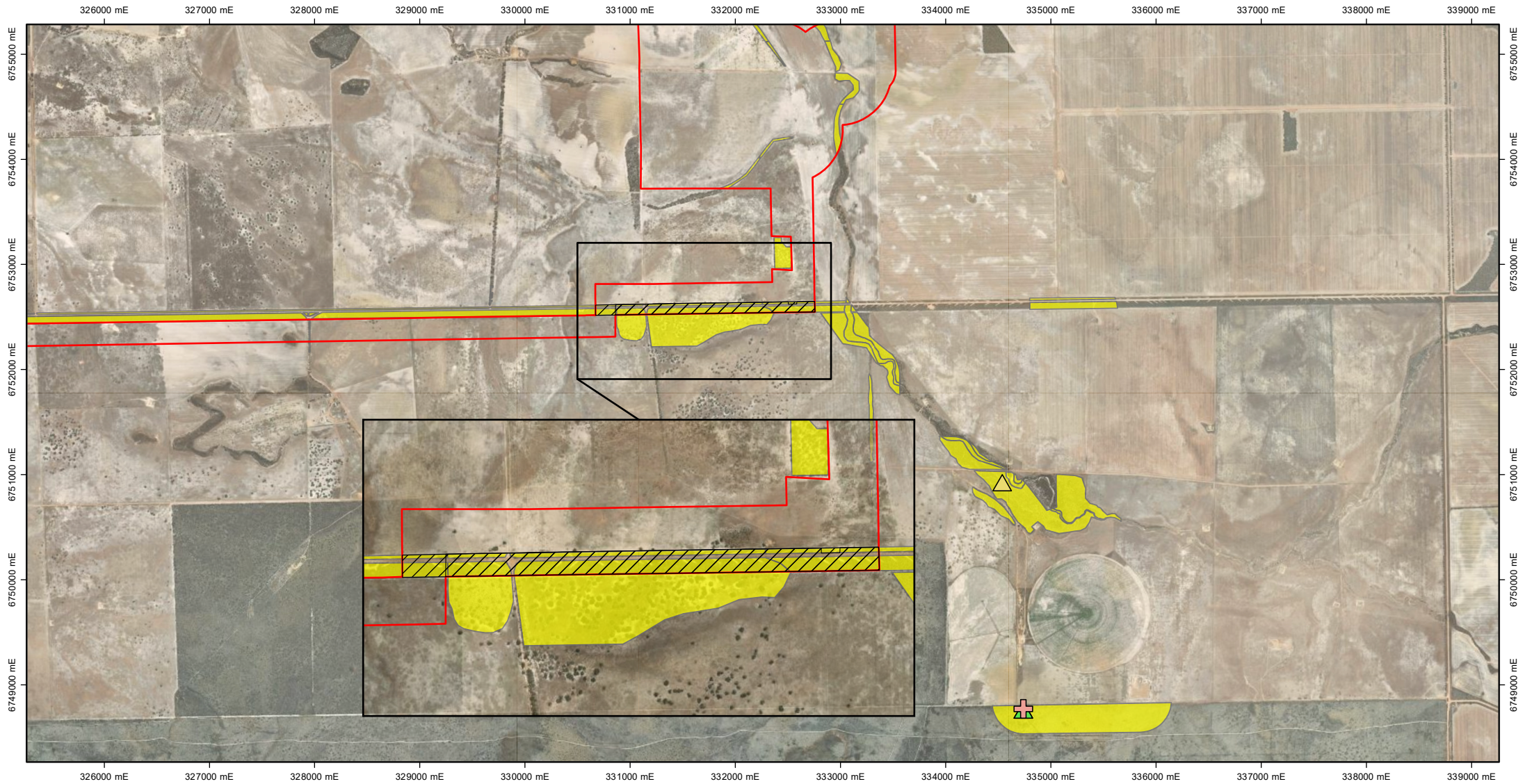
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DATE: 15/04/2026

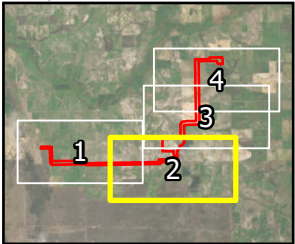
DATA SOURCE:
Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026



AREA OF DETAIL:



PREPARED BY:

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Phone: +61 8 9429 8222

LEGEND:

Development Envelope

Clearing Exclusion Zone

SRE Habitat

Low

SRE Potental

Buddelundia `Phoenix0392`

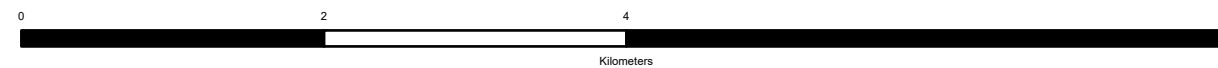
SRE Unknown

Scolopendromorpha sp. indet

Lithobiomorpha `Phoenix0395`

Buddelundia `Phoenix0393`

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-4: SRE Records and Habitat within and surrounding the Development Envelope

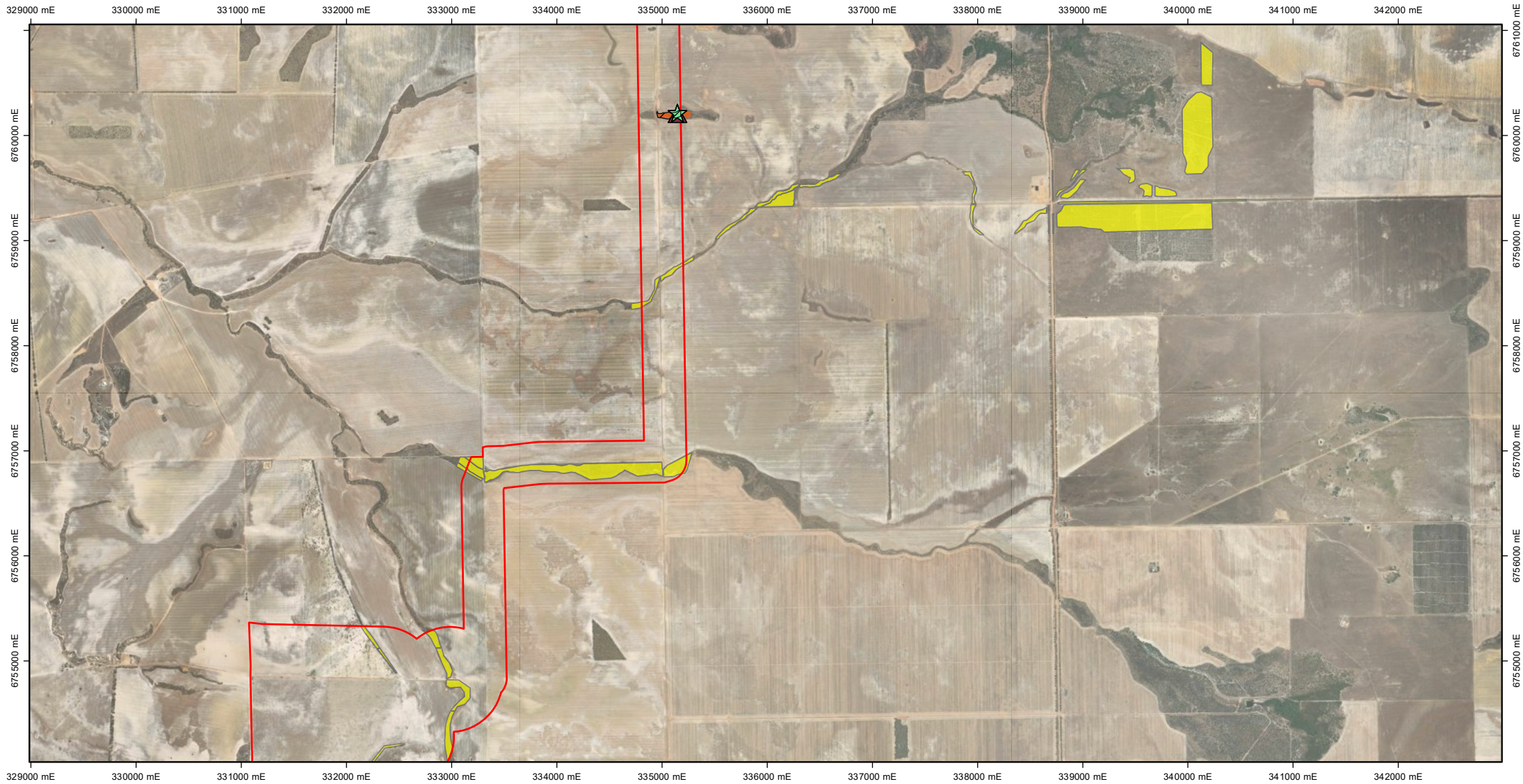
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DATE: 15/04/2026

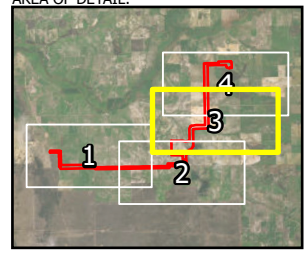
DATA SOURCE:
Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

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0					CR	21/01/2026



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LEGEND:

- Development Envelope
- Clearing Exclusion Zone
- SRE Habitat**
- High
- Low

- SRE Likely**
- ★ *Antichiropus* 'DIP232'

- SRE Unknown**
- ▲ *Geophilomorpha* sp. indet

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-4: SRE Records and Habitat within and surrounding the Development Envelope

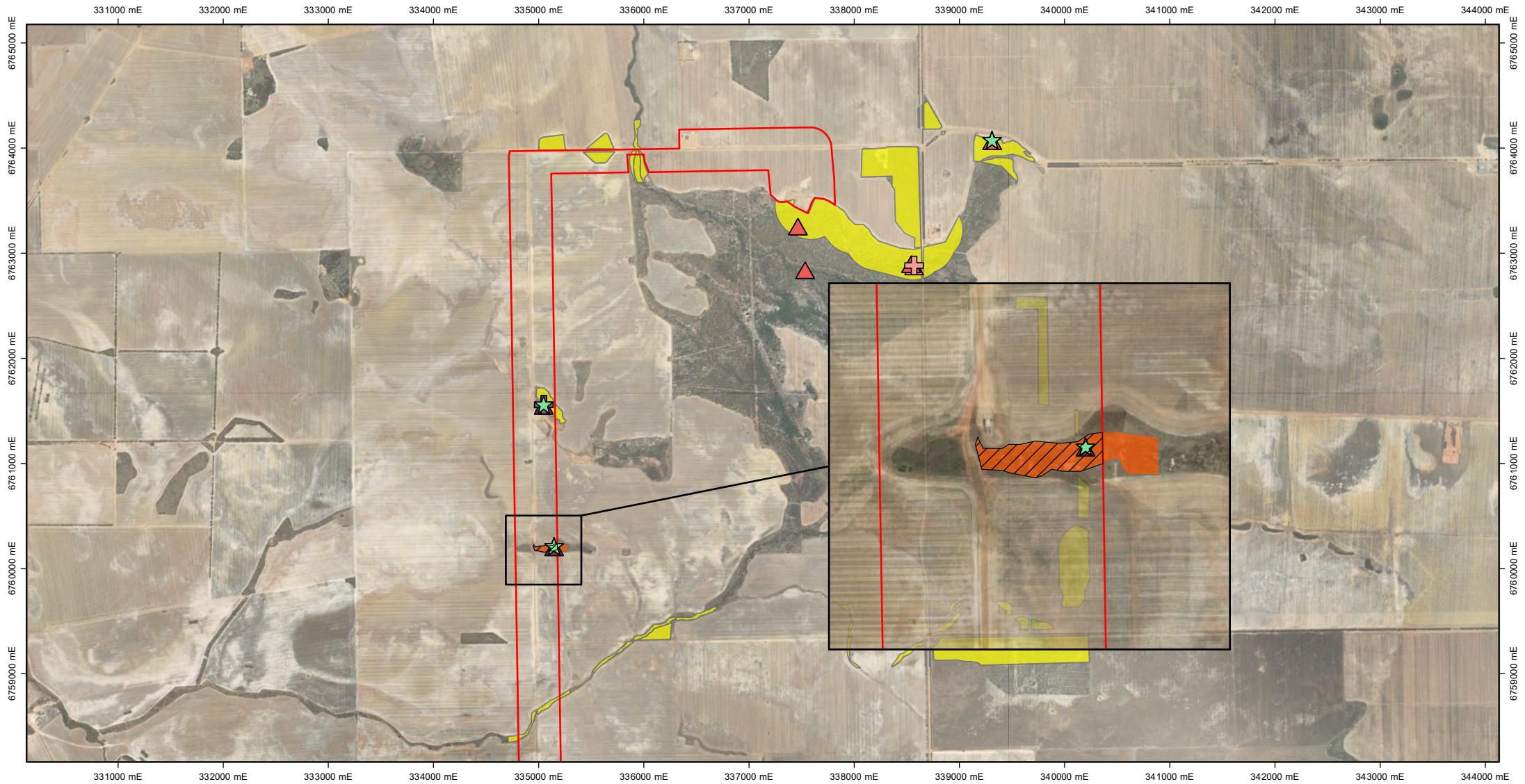
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DATE: 15/04/2026

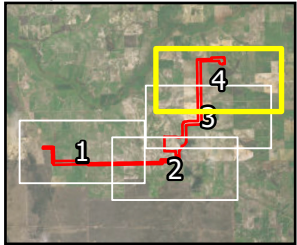
DATA SOURCE:
 Service Layer Credits: Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date
0						



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LEGEND:

- Development Envelope
- Clearing Exclusion Zone

SRE Habitat

- High
- Low

SRE Likely

- Antichiropus `DIP232`

SRE Potental

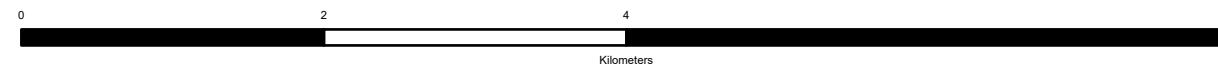
- Buddelundia `Phoenix0396`
- Buddelundia `Phoenix0392`

SRE Unknown

- Succinea sp. indet.
- Scutigermorpha sp. indet
- Scolopendromorpha sp. indet

- Philosciidae `Phoenix0394`
- Hemicloea sp. indet
- Geophilomorpha sp. indet
- Chilopoda sp. indet
- Buddelundia `Phoenix0150`

Scale: 1:50,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 5-4: SRE Records and Habitat within and surrounding the Development Envelope

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
Service Layer Credits: Vantor, Earthstar Geographics

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	Date
0						21/01/2026

5.3.5.3. Potential SREs within the Study Area

Antichiropus “DIP232”

Nine specimens of *Antichiropus “DIP232”* were collected from three sites across two habitat types within the Study Area (Sheoak and *Acacia* shrubland, and Shrubland on lateritic breakaway; **Table 5-9; Figure 5-4**). These habitats comprise 7.0 ha (0.5%) of the Development Envelope (**Table 5-3**). Many species within this genus are Confirmed SREs with five Confirmed SRE taxa known from within 40 km of the Development Envelope (Phoenix 2024). *Antichiropus “DIP232”* has been identified as a new species and is considered a Likely SRE. The only other records of this species are from a fauna survey for the Lockyer Conventional Gas Project that overlaps in small areas with this survey (Phoenix 2024).

Buddelundia ‘Phoenix0396’ and Buddelundia ‘Phoenix0392’

Five specimens of *Buddelundia ‘Phoenix0396’* were collected from one site in Sheoak and *Acacia* shrubland habitat, and 11 specimens of *Buddelundia ‘Phoenix0392’* were collected from two sites across Low to mid shrubland and Open eucalypt woodland habitats (**Table 5-9; Figure 5-4**). For *Buddelundia ‘Phoenix0396’* the single habitat comprises 5.9 ha (0.4%) of the Development Envelope, while for *Buddelundia ‘Phoenix0392’* the two habitats comprise 130.1 ha (2.2%) of the Study Area, and 5.1 ha (0.4%) of the Development Envelope (**Table 5-3**). Both are considered new species, and considered potential SREs on the basis that there were multiple specimens recorded from widespread habitat types that are patchy within the Study Area, and there are no other regional records of either species (Phoenix 2025; **Appendix C2**).

Buddelundia ‘Phoenix0150’

Nine specimens of *Buddelundia ‘Phoenix0150’* were collected from four sites across three habitat types (Creek line, Sheoak and *Acacia* shrubland, and Open eucalypt woodland; **Table 5-9; Figure 5-4**). These habitats comprise 35.4 ha (2.7%) of the Development Envelope (**Table 5-3**). *Buddelundia ‘Phoenix0150’* was also previously recorded in a fauna survey for the Lockyer Gas Project, approximately 12 km from the Proposal, as a data deficient but potential SRE species (Phoenix 2024). Nevertheless, due to the small number of samples and the fragmented distribution, Phoenix Environmental Services still considers the species to be a potential SRE.

5.4. Proposed Mitigation

The Proponent has applied the mitigation hierarchy during Proposal design to reduce the potential impacts to terrestrial fauna as far as practical. Potential impacts have been avoided or minimised through design of the CPF, central flowline, pipeline and associated infrastructure. Specific mitigation measures are summarised in **Table 5-10**.

Key avoidance measures during the Proposal’s design included the location of the CPF away from major waterways, burial of the export pipeline and central flowline to avoid creating a fauna movement barrier, and deliberate placement of the CPF, central flowline and export pipeline in areas mostly devoid of native vegetation as far as practicable. HDD will also be utilised under Sand Plain Creek, Yandanooka West Road and Mount Adams Road to avoid surface impacts to fauna habitat in these areas (**Figure 1-8**).

Within the Development Envelope, the Proponent has identified two areas of higher fauna habitat value and plans to implement a CEZ over fauna habitat in these areas. CEZ 1 is located to the south of the CPF and covers roadside vegetation along both sides (north and south) of Yandanooka West Road. Placement of this CEZ covers 17.0 ha of fauna habitat and will ensure that this vegetation corridor is not impacted by clearing for the Proposal. It includes:

- 11.7 ha of Banksia Woodland habitat
- 3.6 ha of Low to mid grassland/shrubland
- 1.6 ha of Sheoak and *Acacia* shrubland.

CEZ 2 is located approximately 5 km to the north of the CPF, alongside the central flowline. This CEZ covers 1.2 ha of Shrubland on lateritic breakaway habitat, which is considered to be of high value for SREs.

In addition to the above, management and mitigation measures used to minimise the impacts to terrestrial fauna during construction are detailed in the CEMP (**Appendix D1**) and are outlined in (**Table 5-10**).

5.4.1. Other regulatory processes

In the event of a 'Not assessed' decision by the EPA, clearing of fauna habitat represented by native vegetation will be managed under the Native Vegetation Clearing Permit Process under Part V of the EP Act. Through a combination of guiding principles set under the Act, and the ability to set conditions for the project, the NVCP process is likely to ensure outcomes are consistent with the EPA's terrestrial fauna factor objective.

Potential indirect impacts to terrestrial fauna will be assessed and managed under an approved Environment Plan, required by the PP Act and PGER Act and associated Regulations. The development and approval of an Environment Plan is guided by an objective to 'Ensure that any petroleum activity or geothermal activity carried out in the State is carried out in a manner consistent with the principles of ecologically sustainable development'. By adhering to this overarching objective, the outcomes of the Environment Plan are likely to align with the EPA's objective for terrestrial fauna.

These other regulatory processes are considered in more detailed in **Appendix A2**.

5.5. Identified Environmental Impacts

The potential direct, indirect, and cumulative impacts on terrestrial fauna from the construction and operation of the Proposal are identified below. Residual impact and specific mitigation measures are summarised in **Table 5-10**.

The Proposal is a conventional gas project and as such there will be no impacts from unconventional gas activities such as fracking.

5.5.1. Direct Impacts

The potential direct impacts of the Proposal on terrestrial fauna have been identified as:

- Loss and fragmentation of fauna and habitat

-
- Injury, mortality, or displacement of conservation significant fauna.

5.5.2. Indirect Impacts

The potential indirect impacts of the Proposal on terrestrial fauna have been identified as:

- Disturbance to native fauna from light, noise and/or vibration
- Degradation of fauna habitats as a result of:
 - Increased competition or predation by feral fauna
 - Increased risk of bushfire ignition.

Table 5-10: Proposed Mitigation Measures for Terrestrial Fauna

Risk	Avoidance	Mitigation and management	Identified impact
<p>Loss of fauna habitat due to clearing</p>	<p>Within the Development Envelope, two CEZs will be implemented, resulting in the avoidance of:</p> <ul style="list-style-type: none"> • 11.6 ha of <i>Banksia</i> Woodland habitat • 2.8 ha of Low to mid grassland/shrubland • 1.6 ha of Sheoak and <i>Acacia</i> shrubland • 1.2 ha of Shrubland on lateritic breakaway habitat • <0.1 ha of Remnant woodland/shrubland over paddock <p>The Disturbance Footprint has been designed to avoid riparian zones and large trees as far as practical.</p> <p>The flowline and export pipeline will be constructed using HDD in three locations to avoid clearing of Sand Plain Creek riparian vegetation and remnant roadside vegetation.</p> <p>Hancock Energy’s Land Access (including Ground Disturbance) Procedure and the associated GDP</p>	<ul style="list-style-type: none"> • The Development Envelope has been minimised as far as practicable to reduce the extent of clearing required • Clear demarcation of proposed native vegetation clearing areas prior to the commencement of any clearing, including but not limited to flagging and signage • All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management 	<p>Clearing of fauna habitat within the Development Envelope</p>

Risk	Avoidance	Mitigation and management	Identified impact
	will be used for all land clearing activities to avoid any clearing outside of the approved Development Envelope.		
Injury, mortality, or displacement of conservation significant fauna	The export pipeline and central flowline will be buried, preventing the formation of a barrier to fauna movements.	<ul style="list-style-type: none"> • Clearing will occur in the direction of adjacent retained vegetation (if present) to allow fauna to move to retained areas • An experienced fauna handler will be on site during vegetation clearing activities • Maintaining a low-speed environment on unsealed roads and right of way within the Development Envelope • Restrict vehicle movement to existing/authorised access tracks • Trenches will be progressively closed as the export pipeline and central flowline is laid to minimise the length of trench open at any one time • Trenches will include appropriate design to enable fauna egress • Fauna exit ramps will be installed every 500 m of trench at a minimum • Fauna shelters will be installed between exit ramps if open trench lengths exceed 500 m • Pipes will be inspected by prior to welding and observed fauna removed • Pipes will be capped to prevent night-time access by native fauna. Caps will remain on pipe until ready for use • All open trenches will be inspected within half an hour prior to backfilling and any entrapped fauna cleared by a fauna handler before backfilling can be completed • Trench inspections will be undertaken daily during construction less than three hours after sunrise to identify any trapped fauna species. Open 	Potential injury, mortality, or displacement of conservation significant fauna.

Risk	Avoidance	Mitigation and management	Identified impact
Disturbance to native fauna from light, noise and/or vibration		<p>trenches will be inspected within half an hour prior to construction or backfilling to detect any trapped fauna species</p> <ul style="list-style-type: none"> • If conservation significant species are observed, they will be given the opportunity to move from the work area. If the conservation significant species will not move away from the work area, clearing and construction activities will either be delayed or they will be relocated by a trained fauna handler, in consultation with DBCA as required • Entrapped fauna will be cleared by a fauna handler before trench backfilling can be completed • Any fauna capture, handling and relocation will be conducted in accordance with DBCA Parks and Wildlife Service Standard Operating Procedures, by a trained fauna handler 	
	Location of the CPF away from high value fauna habitats	<ul style="list-style-type: none"> • Substituting permanent flood lights for “resort style” lights at the accommodation camp. • Floodlighting at the CPF will be limited to support essential operations and maintenance tasks and where required to meet safety standards • Where possible, light emissions will be managed via the strategic placement of infrastructure and minimisation of light spill, while meeting safety standards • Night works will not normally occur, limiting the amount of task level light required and potential noise or vibration impacts 	Potential disturbance of native fauna due to the presence of excessive noise, light and/or vibrations.
Increased competition or predation by feral fauna	Location of the CPF away from high value fauna habitats	<ul style="list-style-type: none"> • Keeping the Proposal area clean and tidy by depositing litter and waste into appropriate litter or recycling bins at nominated waste collection areas • Storing food wastes in sealed bins. All personnel will undergo site inductions including waste management requirements 	Potential for increased competition or predation of feral fauna.

Risk	Avoidance	Mitigation and management	Identified impact
<p>Increased risk of bushfire ignition</p>	<p>Location of the CPF away from high value fauna habitats</p>	<ul style="list-style-type: none"> • No unfenced open water areas • All construction activities will be carried out in accordance with the requirements of regulatory and local fire authorities, including daily checks on fire danger ratings • Ensuring first response equipment is available and maintained in safe working order • The implementation of the Permit to Work System, including the requirements for Hot Work Certificates to be utilised to manage activities including vehicle movement in hazardous areas • Flammable and combustible materials to be located away from ignition sources • Hot works guards - during grinding and welding, guards are to be in place during such activities to contain sparks or embers within a safe area • Electrical equipment will be tested and tagged as per the <i>Work Health and Safety (General) Regulations 2022</i>. Ensuring the electrical equipment is maintained will reduce the risk of causing a fire from this equipment 	<p>Potential increased occurrence of accidental bushfires.</p>

5.5.3. Cumulative Impacts

The Proposal has potential to contribute to regional cumulative impacts to the fauna habitats and fauna species present within the Development Envelope. The Proposal may contribute to the following cumulative impacts at a regional scale:

- Loss of fauna habitat due to clearing
- Fragmentation of fauna habitat due to clearing.

As per EPA guidance, baseline characterisation takes into consideration the impacts of past and present activities on the receiving environment (EPA 2026b). The dataset for EPA Referred Significant Proposals (DWER-120) was utilised to determine the quantity and areas of nearby projects that may contribute as future activities to cumulative impacts to terrestrial fauna (**Table 4-8**).

Detailed fauna habitat mapping within the Mount Adams and Mount Horner Land Systems is not available; however, remnant vegetation within these land systems can be used as a surrogate for fauna habitat when assessing the cumulative impacts of projects in a region.

If the Proposal is implemented, the development of the West Erregulla Processing Plant and Pipeline Project is unlikely to be progressed, but associated impacts have been considered as a conservative measure. The downstream elements (i.e. CPF and export pipeline) of the Lockyer Conventional Gas Project will not be progressed. The Proposal is a direct replacement for the approved Lockyer CPF location and export pipeline.

Table 5-11: Future Activities that may Contribute to Cumulative Impacts to Terrestrial Fauna

Proponent	Project
Mount Adams land system	
Tronox Management	Dongara Titanium Minerals Project
Project Haber Pty Ltd	Project Haber
Strike South Pty Ltd	South Erregulla Conventional Gas Development
ERM Power	Three Springs Gas Fired Power Station
Strike Energy Limited	West Erregulla Field Development Program
AGI Operations	West Erregulla Processing Plant and Pipeline (unlikely to be progressed)
Mount Horner land system	
Energy Resources Limited (acquired by Hancock Energy)	Lockyer Conventional Gas Project <ul style="list-style-type: none"> • Lockyer Upstream Gathering System (still proposed) • Lockyer Downstream (will not be progressed)
FI Joint Venture	Yogi Magnetite Project

5.6. Assessment and Significance of Residual Impact

5.6.1. Direct Impacts

5.6.1.1. *Loss of Fauna Habitat and Fragmentation due to Clearing*

Outside of cleared agricultural land and the CEZs, a total of 51.0 ha of fauna habitat occurs within the Development Envelope. This fauna habitat comprises seven habitat types covering Creek line habitat associated with ephemeral drainage lines (29.3 ha), intact native vegetation (6.0 ha) and degraded areas of remnant trees over paddock or planted trees (15.7 ha) (**Table 5-12**).

The indicative Disturbance Footprint (likely extent of clearing) comprises a total of 7.1 ha of fauna habitat outside of cleared agricultural land, including 3.7 ha of drainage line habitats, 1.1 ha of intact native vegetation, and 2.3 ha of degraded remnant trees over paddock or planted trees (**Table 5-12**).

The Proponent is committed to ensuring that overall clearing of fauna habitat as a result of the Proposal is no higher than that within the indicative Disturbance Footprint.

In general, fauna habitat across the Development Envelope does not provide notable habitat value for conservation significant fauna species, as the majority of habitat is fragmented and highly degraded. Creek line habitat which dominates fauna habitat within the Development Envelope comprises narrow corridors of seasonal inundation with associated riparian vegetation, within otherwise cleared paddock areas. Where there are areas within the Development Envelope that retain some fauna habitat value, these are generally outside of the indicative Development Footprint and will be protected from clearing by the placement of the two CEZ's. These include:

- A narrow strip of *Banksia* woodlands and Sheoak and *Acacia* shrubland along both sides of Yandanooka West Road that may provide some suitable foraging habitat for Carnaby's Cockatoo and potential habitat for the Black-striped Snake and the Southern Whiteface (Sheoak and *Acacia* habitat only)
- The only high potential SRE habitat within the Development Envelope, shrubland on lateritic breakaway. The Proponent has altered the central flowline route to follow an established access track, in order to avoid this patch high potential SRE habitat.

The potential for exacerbating existing fragmentation is low, as the Proposal has been designed to follow cleared areas or tracks and avoids any large patches of native vegetation. HDD at Sand Plain Creek and at two road crossings will avoid fragmentation of these riparian and vegetated roadside corridors.

Intact larger remnants of *Banksia* woodland at the western terminus of the export pipeline and Sheoak and *Acacia* shrubland at the northern extent of the central flowline have been largely avoided. The Disturbance Footprint intersects peripheral vegetation of each patch, adjacent to access tracks and roadsides. Up to 0.2 ha of mapped *Banksia* woodland habitat and 0.9 ha of Sheoak and *Acacia* shrubland habitat will be cleared in these areas, however all of this habitat is degraded and consists of mostly isolated individual trees.

Overall, the loss and fragmentation of fauna habitat associated with the Proposal is not expected to be significant. This is due to the small amount of native fauna habitat proposed for clearing, the highly degraded nature of the habitats to be cleared, and presence of each habitat type beyond the Development Envelope boundary.

Table 5-12: Vegetation Clearing by Fauna Habitat Type within the Development Envelope

Habitat type	Within Study Area (ha)	Within Development Envelope (ha)	Within CEZs (ha)	Within indicative Disturbance Footprint (ha)	% of indicative Disturbance Footprint
Degraded					
Cleared	3,104.8	1,257.8	3.7	286.0	97.6
Plantation	127.1	2.3	-	1.0	0.3
Remnant woodland/ shrubland over paddock	105.3	13.4	<0.1	1.3	0.4
Woodlands					
Open <i>Banksia</i> woodlands	132.8	11.9	11.7	0.2	0.1
Open eucalypt woodlands	54.7	0.2	-	-	-
Shrublands					
Sheoak and <i>Acacia</i> shrubland	81.3	5.9	1.6	0.9	0.3
Low to mid shrubland/ grassland	75.4	4.9	3.6	0.01	<0.01
Shrubland on lateritic breakaway	1.8	1.2	1.2	-	-
Drainage lines					
Creek line	47.7	29.3	-	3.7	1.3
Total	3,730.9	1326.9	21.8	293.1	100.0

5.6.1.2. Injury, Mortality, or Displacement of Conservation Significant Fauna

Vehicle and machinery movements for clearing, construction and operation of the Proposal may result in fauna strike, causing injury or death; however, would likely only impact individuals rather than populations. Mitigation measures, including restricting vehicle movement to existing tracks and implementing speed limits, will reduce the potential for fauna strike. Vehicle movement will be minimised in dawn and dusk periods to avoid interactions with nocturnal species. Consequently, the impacts on conservation significant fauna from vehicles and machinery movement are not expected to be significant.

The central flowline and export pipeline will both be buried, avoiding fragmentation of populations and creation of a fauna movement barrier. There is a risk of individual fauna mortality from being displaced in

open trenches formed by excavation during construction of the pipeline. To mitigate this risk, open trenches will not exceed lengths capable of being practically inspected and cleared by the available fauna teams at the time of excavation. In addition, appropriate egress points and shelters will be installed along the length of the trench, with twice daily trench inspections to occur.

Overall, impacts associated with clearing, vehicle and machinery movements and trench excavation are unlikely to result in a degree of fauna injury or mortality significant enough to affect local populations, including conservation significant species.

5.6.2. Indirect Impacts

5.6.2.1. Disturbance to native fauna from light, noise and/or vibration

Light, noise and vibration may impact terrestrial fauna in the vicinity of construction and operational activities. Noise and vibration may cause temporary disturbance and avoidance behaviour during construction; however, these will be temporary. On-going changes to noise, light and vibration may occur near the CPF but these will be localised and are only expected to impact fauna occurring adjacent to the facility. Given that the CPF is located in a cleared paddock and is not adjacent to any large areas of remnant vegetation, native fauna are unlikely to be present and so impacts are expected to be minimal.

5.6.2.2. Increased competition or predation by feral fauna

Four introduced fauna species have been recorded within the Development Envelope, including Rabbit, Cat, Red Fox, and Sheep. These species are widespread in the region surrounding the Development Envelope. The Proposal will not result in increased food or water availability for these species and numbers would not be expected to increase.

5.6.2.3. Increased risk of bushfires

Construction activities, particularly clearing of native vegetation and welding, and the movement of vehicles and heavy machinery have the potential to result in a bushfire that could cause loss of fauna habitat. To minimise increased fire risk, all construction activities will be carried out in accordance with the requirements of regulatory and local fire authorities, including daily checks on fire danger ratings and local Shire notification, ensuring first response equipment is available and maintained in safe working order, and training selected personnel as specified in the CEMP. The Proponent standard protocols include requirements for Hot Work Certificates to manage these activities including vehicle movement in hazardous areas.

Increased fire frequency or intensity is unlikely to be a significant risk as a result of the Proposal.

5.6.3. Species-specific Impacts

Species specific impacts to conservation significant fauna recorded or those considered to possibly occur within the Development Envelope, including SRE invertebrates, are discussed in the sections below.

5.6.3.1. *Carnaby's Cockatoo*

The Proposal has been designed to avoid impacts to potential Carnaby's Cockatoo foraging habitat as far as possible, with the CPF being entirely located on land previously cleared for agricultural purposes. Almost all low-to-moderate quality foraging habitat (the highest quality recorded during the survey) has been excluded from the Development Envelope or will be protected through the placement of CEZ 1, with one small exception which is discussed below.

The Development Envelope contains 19.4 ha of suitable foraging habitat, of which (19.2 ha; 99%) is mapped as very low-quality habitat (**Table 5-13**).

Based on the indicative Disturbance Footprint, up to 2.4 ha of foraging habitat will be cleared as part of the Proposal, of which, 0.2 ha is mapped as low to moderate quality foraging habitat and 2.2 ha is of very low quality habitat for Carnaby's Cockatoo (**Table 5-13**).

Although 0.2 ha of mapped low-to-moderate quality *Banksia* woodland habitat intersects the Development Envelope at the western end, based on satellite imagery this mapping appears to cover an access track and paddock boundary, likely reflecting the scale at which mapping was completed rather than a true impact to vegetation equivalent to the adjacent intact *Banksia* woodland.

The 2.2 ha of very low-quality habitat comprises three Fauna Habitats:

- Remnant woodland/shrubland over paddock (1.3 ha)
- Sheoak and Acacia shrubland (0.9 ha)
- Low to mid shrubland/grassland (0.01 ha).

The remaining 290.7 ha within the indicative Development Footprint is of negligible quality for Carnaby's Cockatoo foraging (score of 1/10), comprising areas of isolated and scattered Carnaby's Cockatoo foraging plants at a very low density, in highly degraded and fragmented areas of vegetation across multiple habitat types. Given the lack of suitable foraging resources in these habitats, they are not discussed further.

Table 5-13: Black Cockatoo Foraging Value

Foraging Value	Within Development Envelope		Within CEZs		Within indicative Disturbance Footprint	
	(ha)	%	(ha)	%	(ha)	%
Low-to-moderate	11.9	0.9	11.7	53.7	0.2	<0.1
Very low	25.6	1.9	6.4	29.4	2.2	0.8
Negligible	1,289.4	97.2	3.7	16.9	290.7	99.2
Total Area	1,326.9	100	21.8	100	293.1	100

The Proponent is committed to ensuring that impacts to potential Carnaby's Cockatoo foraging habitat are no higher than those within the indicative Disturbance Footprint.

Regional records of the species include only eight scattered records within a 15 km buffer of the Study Area, with four of these clustered around a known roosting location approximately 1.5 km north of the western end of the export pipeline, and three of the remaining records occurring at least 10 km away. This indicates that the species is only an occasional visitor to the Study Area (Bamford 2026; **Appendix C3**; Phoenix 2025; **Appendix C2**).

Given the foraging habitat is likely to be utilised infrequently, and that the vegetation is highly degraded with only a few scattered foraging species present, the loss foraging habitat associated with the Proposal is not expected to represent a significant residual impact.

There is no suitable or potential breeding or roosting habitat located within the Development Envelope (Bamford 2026; **Appendix C3**; Phoenix 2025; **Appendix C2**). There is effectively no breeding habitat within or close to the project area, in part due to the limited extent and poor quality of foraging habitat to support breeding (Bamford 2026; **Appendix C3**).

Overall, impacts to Carnaby's Cockatoo as a result of the Proposal are not expected to result in a significant residual impact given that:

- The low-to-moderate quality foraging habitat to be cleared (0.2 ha) represents only 1.7% of similar quality habitat available in the Development Envelope and is degraded, comprising only a few scattered foraging items present at a low density (2-10%)
- There is no potential breeding or roosting habitat present within the Development Envelope.
- Foraging habitat present in the Development Envelope is unlikely to support breeding as it occurs on the edge of the known breeding range of the species and lacks sufficient foraging habitat to enable birds to successfully breed, therefore no impact to breeding habitat is anticipated
- The species is considered to be an occasional visitor to the area and is only present at a low density.

5.6.3.2. *Southern Whiteface*

A total of 4.3 ha of potential habitat for Southern Whiteface occurs within the Development Envelope outside of the CEZs. Based on the indicative Disturbance Footprint, the Proposal is likely to result in the loss of up to 0.9 ha of suitable shrubland habitat for the Southern Whiteface (**Table 5-12**). Due to the degraded nature of the majority of the suitable habitat present within the Development Envelope and the species' ability to utilise a variety of open woodland and shrubland habitat types, it is unlikely that the clearing of suitable habitat for the species will represent a significant residual impact.

5.6.3.3. *Blue-billed Duck*

A total of 29.3 ha of potential habitat for Blue-billed Duck (Creek line habitat) occurs within the Development Envelope. Based on the indicative Disturbance Footprint, the Proposal will result in the loss of up to 3.7 ha of Creek line habitat associated with three unnamed ephemeral tributaries, which may provide suitable habitat for the Blue-billed Duck. Impacts to Sand Plain Creek will be avoided by utilising HDD.

No large or permanent water bodies will be affected by the Proposal. Given the ephemeral and highly degraded nature of the Creek line habitat within the Development Envelope, small proportion of Creek line

habitat within the indicative Disturbance Footprint (less than 10% of the total Creek line habitat in the Study Area), and lack of recent nearby records for the species, it is unlikely that the clearing of small areas of marginal habitat for the species will represent a significant residual impact.

5.6.3.4. *Fork-tailed Swift*

A total of 29.3 ha of potential habitat for Fork-tailed Swift (Creek line habitat) occurs within the Development Envelope. The Fork-tailed Swift is a non-breeding visitor to Australia and is an aerial species, not dependent on the presence of terrestrial habitats. Due to this lack of dependence on terrestrial habitats the implementation of the Proposal is unlikely to have a significant residual impact on the species.

5.6.3.5. *Peregrine Falcon*

A total of 29.3 ha of potential habitat for Peregrine Falcon (Creek line habitat) occurs within the Development Envelope. Based on the indicative Disturbance Footprint, the Proposal will result in the loss of up to 3.7 ha of Creek line habitat suitable for the Peregrine Falcon associated with three unnamed ephemeral tributaries. Impacts to Sand Plain Creek and associated riparian vegetation will be avoided by utilising HDD. Although it is possible that the species may occur, it would likely only be vagrant in nature given the species is wide ranging and capable of utilising a variety of habitats. As such the species is not dependent on habitat impacted by the Proposal and no significant residual impact to the Peregrine Falcon is expected.

5.6.3.6. *Migratory waterbirds*

A total of 29.3 ha of potential habitat for Migratory waterbirds (Creek line habitat) occurs within the Development Envelope. Based on the indicative Disturbance Footprint, the Proposal will result in the loss of up to 3.7 ha of marginal Creek line habitat for migratory waterbirds (including the Common Sandpiper and Common Greenshank) associated with three unnamed ephemeral tributaries. Impacts to Sand Plain Creek and associated riparian vegetation will be avoided by utilising HDD.

Records of Migratory waterbirds that occur inland from the coast (such as the location of the Proposal) are generally associated with fresh or saline wetlands rather than the seasonal creeks present within the Development Envelope (DCCEEW 2025c). Additionally, these species are migratory in nature and thus whilst it is possible for them to be present, they are likely to be vagrant in nature and not dependent on habitats impacted by the Proposal. As such, no significant residual impact to Migratory waterbirds is expected.

5.6.3.7. *Black-striped Snake*

A total of 5.8 ha of potential habitat for Black-striped Snake occurs within the Development Envelope outside of the CEZs. Based on the indicative Disturbance Footprint, the Proposal will result in the loss of up to 1.1 ha of suitable habitat (i.e. shrubland and open woodlands) for the Black-striped Snake. However, the Proposal is outside of the currently known range of the species and potentially suitable habitat within the Development Envelope will either be avoided or is degraded and highly fragmented. It is therefore unlikely that this clearing will represent a significant residual impact to the species.

5.6.3.8. *Water-rat*

A total of 29.3 ha of potential habitat for Water-rat (Creek line habitat) occurs within the Development Envelope. Based on the indicative Disturbance Footprint, the Proposal will result in the loss of up to 3.7 ha of marginal Creek line habitat for the Water-rat, associated with three minor unnamed ephemeral tributaries. Impacts to Sand Plain Creek and associated riparian vegetation will be avoided by utilising HDD. Given the ephemeral and highly degraded nature of this habitat, it is very unlikely that it is able to provide the permanent inundation required by the species for creating burrows (ALA 2025) and would represent intermittent marginal habitat at best. In addition, Creek line habitat within the indicative Disturbance Footprint represents less than 10% of the total Creek line habitat in the Study Area. Therefore, it is unlikely that the clearing will represent a significant residual impact to this species.

5.6.3.9. *SRE invertebrate fauna*

No confirmed SRE individuals were recorded within the Development Envelope and surveys found that the Development Envelope contains very limited suitable SRE habitat due to high levels of disturbance and low levels of vegetation complexity. One millipede was recorded as a likely SRE (*Antichiropus* 'DIP232'), and three isopods were recorded as possible SREs (*Buddelundia* 'Phoenix 0150', *Buddelundia* 'Phoenix 0392', *Buddelundia* 'Phoenix 0396'), with three of these species considered new species.

The shrubland on lateritic breakaway habitat has the highest value for SREs and was host to the single likely SRE (millipede) species recorded during the survey. Clearing in this habitat will be completely avoided by adjusting the proposed pipeline alignment to follow the existing access track and placement of CEZ 2. Other than the millipede, all other possible SREs were recorded in low value SRE habitat, which encompasses 7.1 ha of the Disturbance Footprint. These habitats typically lack the complexity or isolation that gives rise to restricted species.

Given that habitats that will be cleared in the Development Envelope are of low value for SREs and represent 1.1% of the low value habitat within the Study Area, impacts to SRE invertebrate fauna are not expected to be significant.

5.6.4. Cumulative Impacts

To assess cumulative impacts on terrestrial fauna, native vegetation extent mapping (DPIRD-005; DPIRD 2023) has been used as a surrogate for fauna habitat mapping. The Proposal will impact native vegetation across two land systems: Mt Adams and Mt Horner systems. Future activities are the projects described in **Section 5.5.3** that were assessed by the EPA as having a significant impact to Terrestrial Fauna and intersect with either of these land systems. Cumulative impacts have been calculated based on indicative Disturbance Footprints of the Proposal and future activities (where available) (**Table 5-14**).

Table 5-14: Cumulative Clearing of Terrestrial Fauna Habitat represented by Native Vegetation

Future Activities	Mt Adams Land System		Mt Horner Land System	
	Extent of Remnant Vegetation within Disturbance Footprint (ha)	% of Total Extent of Remnant Vegetation (31,741 ha)	Extent of Remnant Vegetation within Disturbance Footprint (ha)	% of Total Extent of Remnant Vegetation (14,690 ha)
This Proposal*	1.3	<0.1%	4.4	<0.1%
Lockyer Conventional Gas Project - Upstream	-	-	3.0	<0.1%
Dongara Titanium Minerals Project	715.2	2.3%	-	-
Project Haber	1.6	<0.1%	-	-
South Erregulla Conventional Gas Development	0.3	<0.1%	-	-
Three Springs Gas Fired Power Station	0.3	<0.1%	-	-
West Erregulla Field Development Program	54.5	0.2%	-	-
West Erregulla Processing Plant and Pipeline	84.1	0.3%	-	-
Yogi Magnetite Project*	-	-	384.5	2.6%
Cumulative clearing total (ha)	857.3	2.8%	39.2	2.7%

*A disturbance footprint is not available for the Yogi Magnetite Project; an inherently conservative Development Envelope has been used instead.

Cumulatively, the Proposal and future activities will contribute to clearing of up to 2.8% and 2.7% of remnant vegetation within the Mt Adams and Mt Horner land systems respectively. As such it is considered unlikely that clearing will exceed any thresholds relevant to terrestrial fauna in the region.

In addition, the Proposal is designed as a direct replacement for the CPF and export pipeline under the approved Lockyer Conventional Gas Project proposal. Approximately 9.0 ha of fauna habitat occurs within the Lockyer Conventional Gas Project proposal CPF and export pipeline, all of which occurs in the Mt Horner Land System. As such, the cumulative outcome of implementing this Proposal is an overall reduction in the clearing of fauna habitat within Mt Horner Land System by approximately 4.6 ha and a reduction in overall clearing of fauna habitats by 3.3 ha.

5.6.4.1. Species Specific Cumulative Impacts

Of the conservation significant fauna species with potential habitat impacted by the Proposal, Blue-billed Duck, Fork-tailed Swift, Peregrine Falcon, Migratory waterbirds and Water-rat habitat is represented in the Development Envelope by relatively degraded and ephemeral drainage lines within otherwise cleared paddocks. Although these species may be present, this does not represent critical habitat for any of these species. Equivalent habitats are widespread within the region across cleared agricultural areas. As a result of the minor and incremental impact of the Proposal on habitat for these species, cumulative impacts have not been considered further.

From project impact assessment documentation, it is known that Carnaby's Cockatoo habitat could be impacted by Project Harbor, Lockyer Conventional Gas Project, West Erregulla Field Development Program, West Erregulla Processing Plant and Pipeline and Dongara Titanium Minerals Project. Southern Whiteface could be impacted by the Lockyer Conventional Gas Project.

In relation to Southern Whiteface, the 1.1 ha of potential habitat within the Belisama indicative Disturbance Footprint is smaller than the 6.3 ha contained within the previously identified and approved Lockyer CPF location, which included areas of *Acacia* shrubland and degraded or planted Eucalypt woodlands. As the Belisama project is proposed as an alternative to the Lockyer project CPF, overall, the outcome for Southern Whiteface is positive, reducing potential cumulative impacts regionally.

Approximately 9.0 ha of low quality Carnaby's Cockatoo foraging habitat intersects the CPF and export pipeline of the Lockyer Conventional Gas Project, represented by scattered patches of *Acacia* shrubland and degraded or planted Eucalypt woodlands with low densities of foraging species, equivalent to the foraging habitat within the Belisama indicative Disturbance Footprint. Given the Belisama project is proposed as an alternative, under the Proposal overall cumulative impacts to Carnaby's Cockatoo foraging habitat will reduce by approximately 6.6 ha regionally.

On this basis, the Proposal is not expected to contribute any significant cumulative impacts to any conservation significant species.

It is noted that under a future targeted scenario, where (subject to commercial agreements) West Erregulla gas is processed through the Belisama CPF, the Proposal has potential to result in the avoidance of a further 37.7 ha of Carnaby's Cockatoo foraging habitat identified for clearing under the approved West Erregulla Processing Plant and Pipeline proposal.

5.7. Environmental Outcomes

The predicted environmental outcomes of the Proposal in relation to terrestrial fauna include:

- Avoidance of high value fauna habitat through placement of the Development Envelope, placement of two CEZs, and a commitment to HDD in sensitive locations
- No clearing will be undertaken within CEZs, which cover areas of higher value habitat for fauna within the Development Envelope, including:

- A narrow strip of *Banksia* woodlands and Sheoak and *Acacia* shrubland along both sides of Yandanooka West Road that may provide a fauna movement corridor, some suitable foraging habitat for Carnaby's Cockatoo, and potential habitat for the Black-striped Snake and the Southern Whiteface (Sheoak and *Acacia* habitat only)
- The only high potential SRE habitat within the Development Envelope, shrubland on lateritic breakaway. The Proponent has altered the central flowline route to follow an established access track, in order to avoid this patch of high potential SRE habitat.
- Clearing of up to 7.1 ha of fauna habitat outside of cleared agricultural land, including 3.7 ha of drainage line habitats, 1.1 ha of intact native vegetation, and a further 2.3 ha of degraded remnant trees over paddock or planted trees. Outside of the CEZs, fauna habitats within the Development Envelope are generally degraded and occur as fragmented patches or at the periphery of larger remnants. All fauna habitat types extend beyond the boundaries of the Development Envelope, with no niche habitats being present
- The potential for fauna habitat fragmentation is minimised as the export pipeline and central flowline will generally follow cleared areas or tracks, or is located at the periphery of remnants. In addition, HDD in three locations will avoid impacts to roadside vegetation corridors and riparian corridors
- Direct impacts to Carnaby's Cockatoo are unlikely to represent a significant residual impact given that only small areas of relatively low quality habitat (up to 0.2 ha of low-to-moderate quality foraging habitat and 2.2 ha of very low quality foraging habitat) will be cleared, there is no suitable roosting or breeding habitat within the Development Envelope, and the species is considered an irregular visitor
- Direct impacts to other conservation significant species, including SREs are unlikely to be significant given that the habitats to be cleared are degraded and highly fragmented and the small amount of suitable habitat proposed for clearing
- Indirect impacts are expected to be localised and in the case of construction impacts temporary, and are therefore unlikely to significantly affect fauna
- The central flowline and export pipeline will be buried, avoiding creation of a permanent barrier to fauna movement
- Total cumulative impacts are conservatively expected to affect less than 3% of the total remnant vegetation fauna habitat remaining within both the Mount Adams and Mount Horner land systems. Relative to the approved Locker Conventional Gas Project CPF location and export pipeline, the Proposal results in an overall reduction in clearing of fauna habitat within the Mt Horner Land System by approximately 4.6 ha and a reduction in overall clearing of fauna habitats by 3.3 ha
- When considered in the context of avoided impacts to species habitat within the redundant portion of the approved Lockyer Conventional Gas Project (CPF and export pipeline), this Proposal results in an overall reduction (albeit small) in cumulative impacts to Carnaby's Cockatoo and Southern Whiteface habitat within the region.

Through the implementation of the EPA's mitigation hierarchy, the residual impacts of the Proposal are unlikely to cause significant local or regional impacts to terrestrial fauna including any of the conservation significant fauna species. As a result, the EPA's objective for the Terrestrial Fauna factor will be met and biological diversity and ecological integrity will be maintained.

6. INLAND WATERS

For the purposes of EIA, the EPA defines inland waters as ‘the occurrence, distribution, connectivity, movement, and quantity (hydrological regimes) of inland water including its chemical, physical, biological and aesthetic characteristics (quality)’ (EPA 2018).

6.1. EPA Environmental Factor Objective

The EPA’s objective for the Inland Waters factor is ‘to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected’ (EPA 2018).

6.2. Relevant Policy and Guidance

Relevant policy and guidance documents related to the Inland Waters factor and how these have been considered for this Proposal are summarised below in **Table 6-1**.

Table 6-1: Relevant Policy and Guidance for Inland Waters

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline: Inland Waters (EPA 2018)	Used to inform relevant considerations for environmental impact assessment during the development of this referral and supporting document. Used to inform the environmental values of inland waters, and their significance, for impact assessment. Used to inform links with other factors.
Water Quality Guidelines (ANZECC & ARMCANZ 2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) Australian Drinking Water Guidelines (NHMRC 2011)	Used to define potential beneficial uses and ecosystem health of existing inland waters.
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

6.3. Receiving Environment

6.3.1. Studies and Survey Effort

An Inland Waters Assessment report (HGG 2025; **Appendix C4**) was compiled for the purpose of defining baseline conditions and to assess potential impacts to inland waters associated with the construction and implementation of the Proposal. This assessment included a review of publicly available reports and datasets, Proposal specific data provided by the Proponent, and incorporated the results of a previous water assessment and monitoring undertaken for the Lockyer Conventional Gas Project.

Except where indicated, the information in the following sections relating to characteristics of the existing environment and Proposal specific risks to inland waters is taken from the Inland Waters Assessment report (HGG 2025; **Appendix C4**).

6.3.2. Surface Water

The Development Envelope is located within the Irwin River and Arrowsmith River catchments, with the catchments covering a combined surface area of approximately 7,700 km².

The primary surface water drainage in proximity to the Development Envelope, passing within approximately 400 m of the CPF site, is Sand Plain Creek, an ephemeral minor tributary of the Irwin River to the north (**Figure 6-1**). Two small unnamed ephemeral tributaries of Sand Plain Creek, and one small unnamed ephemeral tributary of the Irwin River, also intersect the Development Envelope at various points along the central flowline. The confluence of Sand Plain Creek with the Irwin River is located approximately 7 km from the north-western boundary of the CPF site. From the convergence the Irwin River drains in a general westerly direction before discharging to the Indian Ocean at Dongara. Flows in Sand Plain Creek and the unnamed tributaries is ephemeral, typically only discharging to the Irwin River during significant or prolonged rainfall events. In years with standard weather, Sand Plain Creek would remain predominantly dry from October to June.

The Development Envelope is not within any surface water proclamation areas pursuant to the *Rights in Water and Irrigation Act 1914* (RiWI Act). No Ramsar wetlands, wetlands listed in the Directory of Important Wetlands in Australia, wetlands mapped as Conservation Category or Resource Enhancement Wetlands or Wild Rivers occur within a 20 km radius of the Development Envelope.

Surface water field measurements for Sand Plain Creek were collected in 2025 for laboratory analysis. Samples were generally slightly brackish, with circumneutral pH and low concentrations of other major ions. When screened against the 95% species protection default guideline values for freshwater ecosystems that have been developed for slightly to moderately disturbed systems (ANZG 2018), no exceedances were reported.

Warradong Spring, a small rain-dependent ephemeral spring on top of a shallow perched aquifer, occurs approximately 570 m north of the Development Envelope and approximately 5.5 km west of the CPF (DoE 2005) within a cleared paddock area (**Figure 6-1**). Discharge from the spring through the connecting

ephemeral creek to the Irwin River is closely related to rainfall events (DoE 2005), and is intersected by Warradong Spring Road.

Further information on local surface water measurements is provided in **Appendix C4** (HGG 2025).

6.3.3. Groundwater

6.3.3.1. Regional Groundwater

Groundwater in the region is mainly used for stock watering and domestic supply and is regulated through the Arrowsmith Proclaimed Groundwater Area pursuant to the RiWI Act. The near surface sedimentary sequence within the Development Envelope is dominated by the Jurassic Yarragadee Formation, generally dipping eastwards. The area's major groundwater resource is the Yarragadee aquifer, with salinity increasing with depth and towards coastal zones.

Regional groundwater tables in the northern Perth Basin vary significantly and can be as deep as 181 m below ground level (bgl) (**Figure 6-2**). Elevated groundwater levels in the region are generally seen near aquifer recharge points and surface water features such as rivers and tributaries, with structural geological features such as faults acting as aquifer boundaries.

6.3.3.2. Local Groundwater

Across the Development Envelope the groundwater levels have been found to vary significantly. Lefroy's Bore, an existing stock water bore, is located adjacent to the CPF site with a groundwater level of approximately 42 mbgl, while the N1MB groundwater bore located at the north-eastern extent of the Development Envelope measured a groundwater level of approximately 69 mbgl (as measured in November 2025). Locally the Irwin River and associated tributaries such as Sand Plain Creek have been found to act as groundwater recharge zones, with the water table deepening with distance away from the waterways. Where the groundwater is closer to ground surface along local waterways, groundwater is likely to contribute to supporting of riparian ecosystems. Field measurements taken from nearby groundwater monitoring bores (approximately 2 km south-east of the CPF site) indicate that groundwater across the region is recovering at a long-term steady rate, suspected to be a result of native vegetation clearing.

The latest groundwater measurements indicate the presence of a localised groundwater flow at the CPF site in an easterly direction towards Sand Plain Creek (diverging from the regional groundwater flow towards the west indicated in historical measurements from 2011). Notably during the site visit, the Proponent observed water saturated sand above a clay layer within 3 m of the ground surface during shallow test pitting in an area south-east of the CPF (between the CPF and Sand Plain Creek). These observations combined with the indication of localised flow may indicate the presence of a shallow perched aquifer.

Further information on local groundwater levels is provided in **Appendix C4** (HGG 2025).

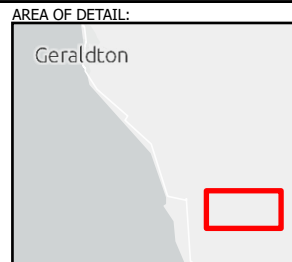
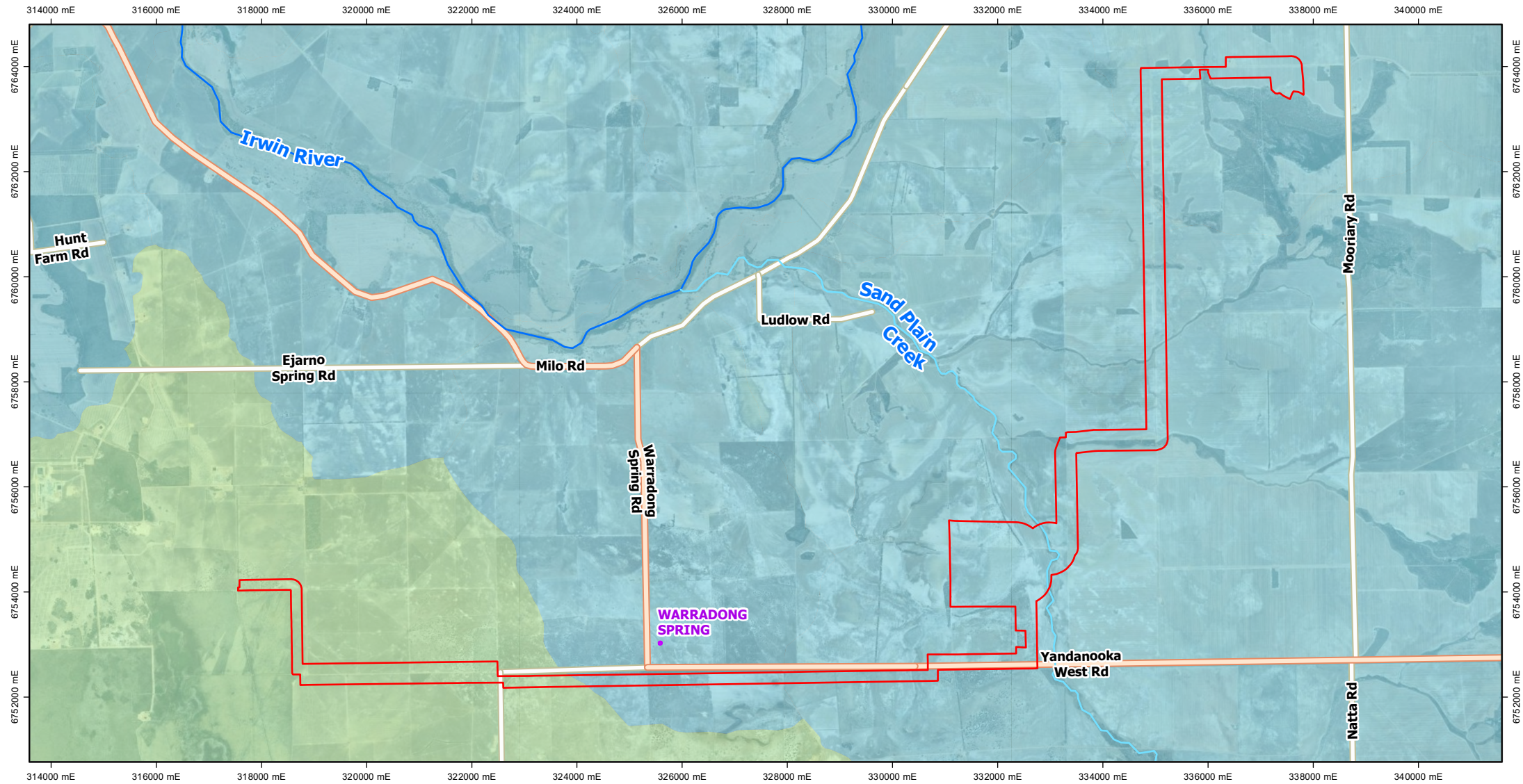
6.3.3.3. Groundwater Quality

Groundwater samples were generally slightly brackish with circumneutral pH. Given the identified groundwater use, collated groundwater chemistry data from laboratory analysis was screened against the livestock drinking water guidelines (ANZECC & ARMCANZ 2000), the Australian Drinking Water Guidelines (NHMRC 2011), and the Australian and New Zealand freshwater toxicant guidelines (ANZG 2018). An exceedance of the Drinking Water Guidelines was recorded for lead at the closest groundwater bore (PB1) in June 2025, with historical exceedances for copper and zinc recorded in 2015 and 2022 respectively. Several historical exceedances of the livestock drinking water guidelines 1,200 mg/L limit for total dissolved solids, and the ANZG Freshwater Toxicant 95th Percentile default guideline values for various heavy metals, at the West Erregulla groundwater bores (WE PB1 and EMB) were observed in 2020.

6.3.3.4. Groundwater Dependent Ecosystems

The Bureau of Meteorology groundwater dependent ecosystem (GDE) atlas (BoM 2025) identifies a number of low to medium potential terrestrial GDE within the Development Envelope and surrounds, including riparian vegetation bordering Sand Plain Creek and the other unnamed tributaries. Although *Eucalyptus camaldulensis* (a known facultative phreatophyte) was found to be present within one non-planted vegetation type within the Development Envelope (VT13), due to the degraded condition this vegetation is not considered locally or regionally significant (Biologic 2026a). The remaining drainage line vegetation types were considered likely to have low or negligible dependence on groundwater, based on the absence of phreatophytic tree species (Biologic 2026a).

The closest mapped aquatic GDE, Warradong Spring, is approximately 5.5 km to the west of the CPF (**Figure 6-1**). The spring is fed by a local perched shallow aquifer, with discharge closely related to rainfall events (DoE 2005). Groundwater dependent vegetation appears to be absent, with the spring occurring within a cleared and actively farmed paddock area.



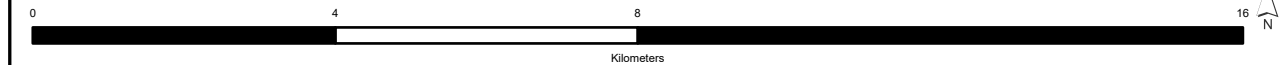
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LEGEND:

- Development Envelope
- Arrowsmith River
- Irwin River
- Major Watercourse
- Minor Watercourse
- Access Road
- Local Distributor

Scale: 1:100,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 6-1: Local Surface Water Hydrology

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
 Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date

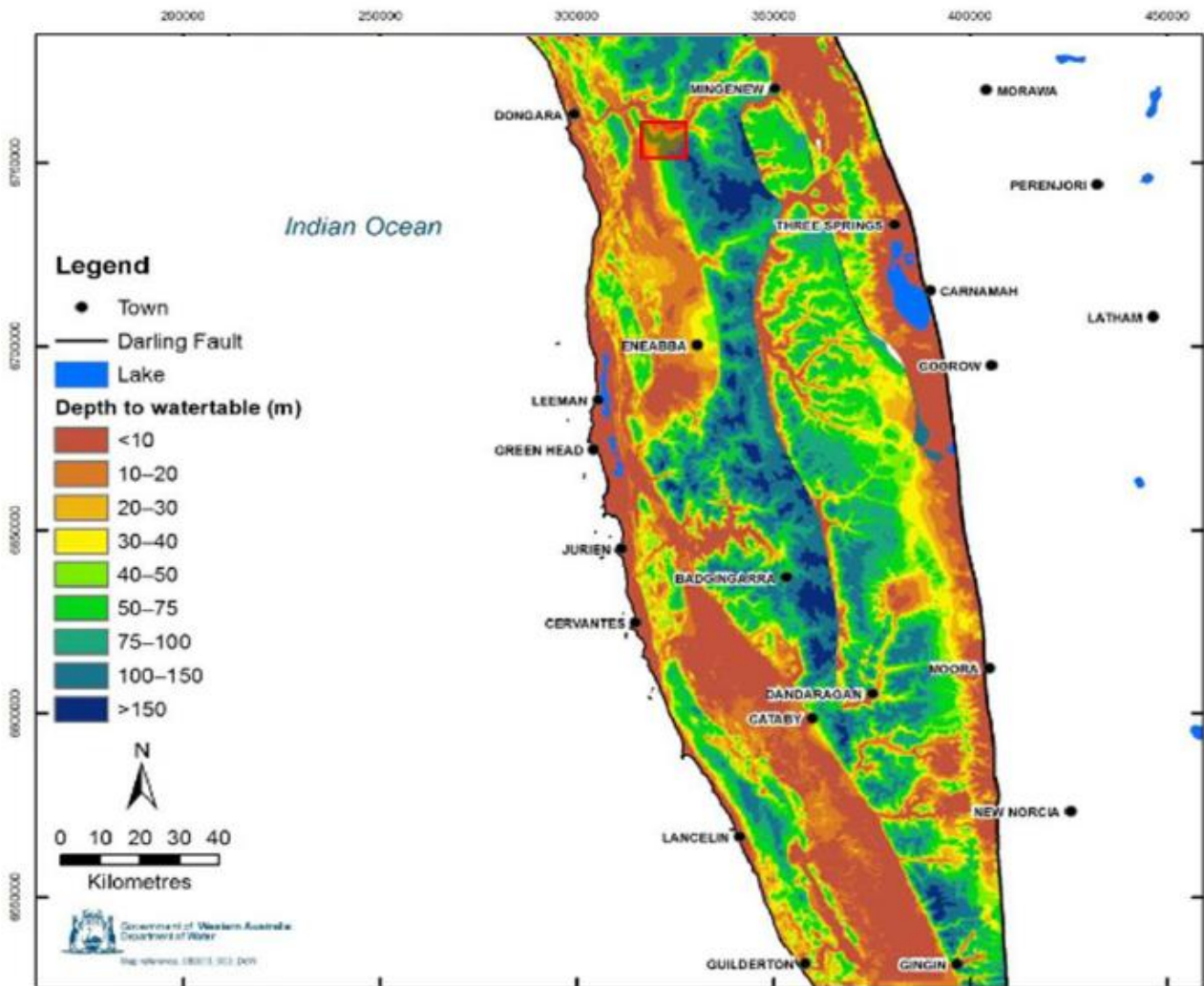


Figure 6-2: Representative Depth to Water Table based on Department of Water 2017 data (HGG 2025)

6.4. Proposed Mitigation

During Proposal design, the mitigation hierarchy (avoid, minimise and rehabilitate) has been applied to avoid and minimise any potential impacts to inland waters as far as practicable. Key avoidance measures include the location of the CPF away from major waterways and limited interaction of the central flowline / export pipeline with waterways, including installation of the central flowline beneath Sand Plain Creek using HDD.

Sand Plain Creek is approximately 400 m from the boundary of the CPF site, and a minimum of 500 m from any CPF gas processing facilities. Where the central flowline intersects Sand Plain Creek, it will be installed approximately 20 m below the level of the creek bed via HDD to avoid any impact to water flows or riparian vegetation.

Stormwater runoff will be segregated from the gas plant processing facilities drains system as specified in the Stormwater Management Plan (HGG 2026b; **Appendix D2**). Evaporation ponds and wastewater treatment infrastructure will be sited and designed to minimise the risk of leakage to groundwater or surface water and will be managed to reduce the likelihood of accidental losses.

Two evaporation ponds will be installed to accommodate all produced water from the facilities, as well as hydrostatic testing water (used during construction and pre-commissioning), treated water from the open drains system and brine from the potable water makers. The ponds will be designed to avoid spill of produced water over the side during periods of high winds or the 1 in 100-year rainfall event. Freeboard will be routinely monitored, with contingency measures identified and communicated, should the water level in the ponds approach the maximum allowable freeboard level. As produced water and condensate production rates are expected to vary substantially across individual wells, the overall produced water rate can be adjusted if required by varying which wells are producing.

An appropriate geomembrane liner will be selected compatible with the expected produced water chemical composition and design life to prevent vertical migration of water into the subsurface. Pond liners will be selected to comply with WA Department of Water (DoW) Water Quality Protection Note (WQPN) 26 – Liners for Containing Pollutants (DoW 2013). The ponds will be installed with dual liners with an intermembrane leak detection system as the primary control for identifying a leak from the evaporation ponds.

If shallow groundwater is shown to be present within the CPF site following further investigation, infrastructure and drainage will be designed to manage risks associated with a shallow groundwater pathway.

Key management and mitigation measures relating to construction of the Proposal and management of the potential shallow perched aquifer have been detailed in the CEMP (Hancock Energy 2026; **Appendix D1**). Ongoing groundwater and surface water monitoring, as detailed in the *Belisama Gas Project Technical Monitoring Guideline: Groundwater and Surface Water* (HGG 2026a; **Appendix D3**), is proposed to allow early detection and management in the unlikely event of any contamination that could affect inland waters.

6.4.1. Other Regulatory Processes

Construction, commissioning and operation of the Proposal will be implemented in accordance with a Works Approval and Environmental Licence issued under Part V of the EP Act.

The Proposal will trigger the following category thresholds for a Prescribed Premises:

- Oil or gas production from wells – 5,000 tonnes or more per year
- Sewage facility – 100 m³ or more per day.

The Works Approval and Environmental Licence are expected to outline controls which apply to proposed CPF infrastructure to prevent or minimise discharges to land and water which could result in contamination, including evaporation ponds, stormwater drainage system and sewage facility.

The Works Approval and Environmental Licence are expected to include detailed water quality thresholds, monitoring and reporting requirements during the construction and operation phases respectively.

In addition, mitigation and management measures will be regulated by DMPE in an approved Environment Plan. Environment Plans are required to meet the form and content requirements of the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012. The objectives of the Regulations are to ensure that any petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with the approved Environment Plan. The Environment Plan must show that the environmental risks and impacts will be reduced to ALARP and include appropriate environmental performance objectives and standards and appropriate measurement criteria for determining whether those objectives and standards have been met. An associated OSCP is required as part of the Environment Plan to demonstrate the preparations, emergency response and recovery arrangements are on hand for the possibility of a liquid hydrocarbon spill that may have the potential to affect inland water values.

The Proposal is subject to water licensing requirements under the RiWI Act. Licences under the RiWI Act are issued in accordance with the capacity and availability of the resource. Matters considered in issue of a licence include ecological sustainability and environmental acceptability. It is expected that groundwater requirements will be met through an existing groundwater licence (GWL 156102), with an amendment to provide for change of use and licence application for installation of new bores. The existing licence requires abstraction bores to be metered and routinely monitored and reported to DWER as per licence conditions.

These other regulatory processes are considered in more detail in **Appendix A2**.

6.5. Identified Environmental Impacts

The potential direct and indirect impacts to inland waters associated with the Proposal include:

- Increased drawdown from groundwater abstraction impacting surrounding groundwater users and potential GDEs outside of the Development Envelope
- Alteration of surface water flows due to site earthworks and layout
- Reduction of quality of surface water in Sand Plain Creek due to site construction works and earthworks exposing underlying soil followed by increased erosion and sediment load
- Adverse changes to the quality of surface water in Sand Plain Creek and other unnamed tributaries or groundwater in the Development Envelope due to leaks and spills of fuel and other hazardous chemicals used during construction and operational activities

-
- Adverse changes to the quality of surface water in Sand Plain Creek or groundwater in the Development Envelope due to leaks and spills of hydrocarbon condensate, effluent or greywater from above ground infrastructure
 - Adverse changes to the quality of groundwater in the Development Envelope and to potential GDEs outside of the Development Envelope, where hydraulic connectivity exists, due to leaks from buried central flowline and export pipeline infrastructure
 - Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope due to evaporation pond leakage
 - Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope due to the unplanned discharge or leakage of hydrostatic testing water.

The Proposal is a conventional gas project and as such there will be no impacts from unconventional gas activities such as fracking.

The mitigation actions to address the potential impacts and the predicted outcomes for inland waters are presented in **Table 6-2**.

Table 6-2: Identified Environmental Impacts for Inland Waters factor

Risk	Avoidance	Mitigation and management	Identified impacts
Drawdown from groundwater abstraction impacting surrounding groundwater users and/or potential GDEs		<p>Groundwater abstraction will be undertaken in accordance with conditions set out in an existing 5C licence, with no additional allocation required.</p> <p>Abstraction bores will be applied for under a 26D licence and metered and routinely monitored, with abstraction volumes to be reported to DWER as per the 5C licence conditions.</p> <p>Local monitoring bores to be routinely monitored for groundwater levels and reported against site specific trigger levels.</p>	No detrimental impacts to ecosystem health values or other users anticipated
Alteration of surface water flows	HDD of the central flowline under Sand Plain Creek crossing	<p>Design stockpiled material, earthworks, and excavations to reduce alterations to natural stormwater runoff as set out in the Stormwater Management Plan (Appendix D2).</p> <p>Hydrostatic testing water will be discharged to evaporation ponds.</p>	Minor changes to surface flow pathways
Increased sediment load and reduction of quality of surface water in Sand Plain Creek	<p>Location of CPF more than 400 m from waterways</p> <p>HDD of the central flowline at Sand Plain Creek crossing</p>	<p>Incorporate erosion and sediment controls during construction activities, including but not limited to:</p> <ul style="list-style-type: none"> • Use of crushed rock less than 26.5mm, considered as a gravel surface, as a suitable material for minimising sediment runoff, as well as an erosion control measure to stabilise soil • Use of non-woven geotextiles to be placed over the CPF gravel surface as a filter to reduce sediment runoff • During earthworks, conduct routine inspections of stormwater pathways for sediment load 	No residual impact anticipated
Adverse changes to the quality of surface water in Sand Plain Creek and other unnamed tributaries or groundwater in the	Location of CPF more than 400 m from waterways	<p>Construction and operation</p> <p>Standard Operating Procedures will be implemented for handling and use of hazardous materials. Risks associated with the storage and handling of chemicals and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and</p>	Low risk of relatively small-scale accidental spills

Risk	Avoidance	Mitigation and management	Identified impacts
<p>Development Envelope due to leaks or spills of fuel and other hazardous chemicals used during construction and operational activities</p>		<p>Handling of Non-explosives) Regulations 2007. An Emergency Response Plan ERP and an OSCP will be prepared, approved by DMPE and implemented. Key provisions will include:</p> <ul style="list-style-type: none"> • All tanks storing hydrocarbon liquids or chemicals will be appropriately bunded to prevent any spills being discharged to the environment • Bunds will be regularly inspected to determine integrity and maintenance of capacity • Storage containers will be labelled with the technical product name as per the relevant SDS • Storage containers will be closed when not in use • Spill response equipment will be readily available at the site of hazardous material storage or use, including absorbent material • All spills are to be recorded and immediately cleaned up in accordance with the OSCP • Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas) • Any contaminated material will be removed and disposed offsite to a licensed facility using an appropriately licensed contractor <p>Within the CPF plant area separate drain systems will segregate potentially contaminated drains from clean stormwater run-off.</p> <p>Waste Management measures will include:</p> <ul style="list-style-type: none"> • Specific waste segregation systems utilised on-site • Waste stations to be located and designed to limit the potential for surface water and groundwater contamination • Covered waste receptacles utilised on-site 	

Risk	Avoidance	Mitigation and management	Identified impacts
<p>Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope due to leaks or spills of hydrocarbon condensate, effluent or greywater from above ground infrastructure</p>	<p>Location of CPF facilities more than 400 m from waterways</p>	<ul style="list-style-type: none"> • Waste hydrocarbon products will be stored in areas where spill containment is in use (i.e. bunded areas) prior to off-site disposal • Off-site disposal of waste will be undertaken via appropriately licensed contractors • All personnel will undergo site inductions related to waste management requirements <p>Routine visual inspections will be conducted of above-ground pipelines for leaks. Buried pipeline pressures will be monitored for signs of dropping pressure caused by potential leaks in the system and an internal inspection program (pipeline pigging) will be executed throughout the life of the facilities to meet the requirements of AS2885.</p> <p>Routine monitoring and sampling of surface water and groundwater in the Development Envelope will be conducted, in-line with the <i>Technical Monitoring Guideline: Groundwater and Surface Water</i> (HGG 2026a; Appendix D3), to allow detection of any contamination (including microorganisms in the vicinity of the camp) arising from the Proposal.</p> <p>Collection of runoff water within the CPF in accordance with the Stormwater Management Plan (Hancock Energy 2026; Appendix D2).</p>	<p>Low risk of relatively small-scale accidental spills or leaks.</p>
<p>Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope through inappropriate design or management of evaporation ponds</p>	<p>Ponds located away from natural flow paths</p> <p>Location of CPF evaporation ponds more than 400 m from waterways</p>	<p>Two evaporation ponds will be installed to accommodate process water inflow from the CPF, accounting for normal rainfall and evaporation data appropriate for the site location. The ponds will be designed with a freeboard of 0.5 m to avoid spill of produced water during periods of high winds. The design volume of the ponds accounts for a 1 in 100-year rainfall event over a 24-hour period.</p> <p>Ponds will be installed with appropriate dual liners with an intermembrane leak detection system.</p> <p>Inspection of liner prior to commissioning of ponds.</p> <p>Produced water will be treated to target less than 20 mg/L free hydrocarbons.</p>	<p>Low risk of localised leakage or overspilling from ponds</p>

Risk	Avoidance	Mitigation and management	Identified impacts
		Groundwater monitoring bores will be installed proximal to the evaporation ponds and the stormwater basin, in-line with the <i>Technical Monitoring Guideline: Groundwater and Surface Water</i> (HGG 2026a; Appendix D3), to allow early detection of contamination.	
Adverse changes to the quality of surface water in Sand Plain Creek and groundwater in the Development Envelope through the leaking or unplanned discharge of hydrostatic testing water	Hydrostatic testing water will be discharged to the evaporation ponds rather than directly into the environment	As above. At least one evaporation pond will be available for use prior to hydrotesting of the pipelines.	Low risk of localised leakage or unplanned discharge

6.6. Predicted Environmental Impacts and their Significance

This assessment considers the quantum and significance of direct and indirect impacts following mitigation described in **Section 6.4**. Cumulative impacts to the Yarragadee Aquifer are also discussed.

6.6.1. Hydrogeological Processes

6.6.1.1. *Increased drawdown from groundwater abstraction*

Construction water supply requirements will be up to 0.3 GL from groundwater bores over a maximum period of three years. Operational water supply requirement is a maximum of 0.03 GL per annum from groundwater bores for the life of the Proposal. Groundwater abstraction for water supply during the construction and operational phase of the Proposal could lead to localised groundwater drawdown, impacting surrounding groundwater users and potential terrestrial or aquatic GDEs outside of the Development Envelope. There is also potential for cumulative impact to the regional Yarragadee Aquifer.

The Proponent has an existing groundwater licence (GWL 156102) for the property issued under the RiWi Act with an allocation of 1.69 GL per annum for the purposes of irrigation and firefighting. Groundwater requirements will be met through this existing groundwater licence, with an amendment to provide for change of use and an application under section 26D of the RiWi Act for installation of two new bores.

The RiWi Act regulatory framework is expected to adequately manage any potential impacts associated with localised groundwater drawdown and cumulative groundwater abstraction in the region. As such, impacts are not expected to be significant.

6.6.1.2. *Alteration of surface water flows*

Due to the relatively small disturbance areas required for the project, limited interaction with existing surface water flow lines due to the use of HDD, and commitment to minimise alterations to natural stormwater runoff in engineering design, no significant residual impact is anticipated. In the event that hydrostatic testing water is incorrectly discharged or overflows the capacity of the evaporation ponds, any flows not contained by the Stormwater Management System are likely to be temporary in nature and not cause any lasting alteration to local or regional surface water flows.

6.6.2. Water Quality

6.6.2.1. *Increased sediment load*

The construction phase for the Proposal has potential to increase the volume of sediment available to be mobilised during high rainfall events. Increased sediment load and reduction of quality of surface water in Sand Plain Creek could occur due to sediment transport from disturbed areas via surface water runoff.

Due to the relatively small scale of earthworks and limited construction timeframe, it is anticipated that with implementation of standard management measures for erosion control outlined in the CEMP (**Appendix D1**), residual impacts to inland waters will not be significant.

6.6.2.2. Spills or leaks

Risks associated with the storage and handling of chemical and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. Standard operating procedures will be implemented for handling and for the use of hazardous material and storage areas will be fully bunded. All hazardous materials (including chemicals and hydrocarbons) will be managed in accordance with the procedures, with key mitigation commitments documented in the CEMP (**Appendix D1**) and to be included in the Environment Plan.

Potential remains for contamination of inland waters due to accidental spills or leaks. The highest risk activities for potential spills include:

- Accidental loss of hydrocarbons (i.e. diesel) at the CPF site during refuelling or condensate load-out, causing a release to the environment
- Accidental loss of chemicals at pipelines or the CPF site during construction or operations causing a release to the environment
- Leaks from operational infrastructure, including the central flowline connecting the central hub (external the Proposal) to the CPF, evaporation ponds, condensate storage, CPF process infrastructure and wastewater treatment infrastructure.

Appropriate design has been specified to reduce the likelihood of leakage or spills from Proposal infrastructure. A Stormwater Management Plan (**Appendix D2**) has been developed to contain potentially contaminated stormwater within the CPF and direct it to a collection area for later disposal. All spills will be recorded and immediately cleaned up in accordance with the OSCP. Furthermore, any contaminated material will be removed and disposed offsite to a licensed facility using an appropriately licensed contractor. Regular monitoring will also be in place to ensure all procedures are being followed and onsite storage is in good working order. On-going environmental monitoring will inform containment and remediation of any identified contamination prior to impacts to ecosystem health values or other beneficial uses. If the volume of hydrostatic testing water to be discharged will exceed the capacity of the evaporation ponds, the excess will be diverted to the wellhead turkey's nest for evaporation.

Although the suspected presence of a shallow perched aquifer in proximity to the CPF provides a potential transport pathway for contaminants to inland waters, due to the scale and nature of potential unplanned spill events, distance of key infrastructure to waterways, substantial depth to regional groundwater and the provision for appropriate containment and clean-up in the event of a spill, accidental spills are unlikely to result in significant residual impacts to inland waters. No significant residual impacts on inland waters resulting from contamination events are anticipated as a result of the Proposal.

6.7. Environmental Outcomes

No significant residual impacts to inland waters associated with the Proposal are anticipated due to the following:

-
- Existence of other regulatory processes to assess and regulate environmental risks including a 26D licence application and a 5C licence amendment for groundwater use under the RiWI Act, Environment Plan and OSCP required under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012, and a Well Management Plan under the Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2015
 - Characteristics of the Proposal design including location of the CPF away from major waterways and limited interaction of flowlines/pipelines with waterways including installation of flowlines beneath Sand Plain Creek using HDD
 - The low likelihood and relatively small scale and nature of potential impacts from an accidental loss or spill during construction and operational activities for the Proposal due to the proposed design, management and spill procedures
 - Development and implementation of a CEMP, including measures to reduce erosion risk
 - Proposed development and implementation of both infrastructure and environmental monitoring, including assessment of surface water and groundwater against baseline conditions.

The Proponent considers that due to the proposed management measures described, as well as assessment, mitigation and monitoring requirements under various other statutory decision-making processes, that the EPA's objective for the Inland Waters factor can be met.

7. AIR QUALITY

For the purposes of EIA, the EPA defines air quality as ‘the chemical, physical, biological and aesthetic characteristics of air’ (EPA 2020a).

‘Air’ refers to all the air above the ground up to and including the stratosphere.

7.1. EPA Environmental Factor Objective

The EPA’s objective for the Air Quality factor is ‘to maintain air quality and minimise emissions so that environmental values are protected’ (EPA 2020a).

7.2. Relevant Policy and Guidance

The relevant policy and guidance documents for Air Quality and how they have been considered for this Proposal are summarised below in **Table 7-1**.

Table 7-1: Relevant Policy and Guidance for Air Quality

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline - Air Quality (EPA 2020a)	Used to inform relevant considerations for environmental impact assessment during the development of this referral and supporting document. Used to inform links with other factors. Used to inform the environmental values of Air Quality, and its significance. Used to inform the relevant considerations for environmental impact assessment.
National Environment Protection (Ambient Air Quality) Measure (NEPC 2021)	Used to inform scoping of the air quality modelling assessment undertaken for the Proposal. Provides air quality guideline values to assess the level of risk associated with emissions to air, against which the Proposal has been assessed.
National Environmental Protection (Air Toxics) Measure (NEPC 2011)	Provides air quality guideline values for a number of compounds of interest, against which the Proposal has been assessed.
Guideline: Air Emissions (DWER 2019)	Used to inform scoping of the air quality modelling assessment undertaken for the Proposal. Provides air quality guideline values for a number of compounds of interest, against which the Proposal has been assessed.
Draft Guideline: Dust Emissions (DWER 2021b)	Informed the assessment of potential impacts relating to dust emissions as a result of the Proposal.

Policy / Guidance	Consideration
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

7.3. Receiving Environment

7.3.1. Studies and Survey Effort

The Proponent commissioned MRP Technical Consulting Pty Ltd (MRP) to undertake an air quality assessment for the Proposal (MRP 2025a; **Appendix C5**). The objective of this study was to assess the potential air quality impacts of atmospheric emissions from the Proposal, including cumulative emissions from other regional sources in the surrounding area, using the CALPUFF modelling system. Modelling assumed a CPF capacity of 210 TJ/day. Regional sources included were nearby gas projects Mondarra, West Erregulla, Hovea, Waitsia and Xyris.

The assessment compared ground level concentrations (GLCs) of the following emissions of concern against the relevant ambient air quality criteria:

- Carbon monoxide (CO)
- Oxides of nitrogen (NO_x)
- Sulfur dioxide (SO₂)
- Fine particles (PM_{2.5})
- Hydrogen sulfide (H₂S)
- Formaldehyde (CH₂O)
- VOCs including BTEX.

Five emission scenarios were assessed for the Proposal cumulatively with normal operations for surrounding gas projects including:

- Scenario 1 – the Proposal under normal operations with background concentrations
- Scenario 2 – the Proposal under normal operations with Thermal Oxidiser (TOX) emissions rerouted to the LP Flare with background concentrations
- Scenario 3 – the Proposal under upset/emergency conditions with background concentrations (occurrence of these conditions is likely to be infrequent and of short duration; typically, peak rates occur for under 10 minutes)
- Scenario 4 – the Proposal under normal operations in isolation
- Scenario 5 – background concentrations – existing and future regional sources (Xyris, Hovea, Mondarra, Mitsui, West Erregulla) including non-industry background concentrations, but excluding Proposal emissions (MRP 2025a).

Fugitive dust from motor vehicle traffic and nearby exposed surfaces can be difficult to quantify accurately and model and therefore was not included in this assessment (MRP 2025a).

The assessment report is provided in **Appendix C5**, with the findings of this assessment described in further detail in the sections below.

7.3.2. Sensitive Receptors

The closest sensitive receptors comprise nearby residences (farmhouses; **Table 7-2**). The closest population centres (townships) are Mingenew (approximately 25 km north-east), and Port Denison and Dongara (approximately 35 km north-west) – the townships were not included in this assessment as they are not located in close proximity to the emission sources. The GLCs and averaging periods were modelled for six sensitive receptors, all consisting of residences within 6 km of the Proposal. Details of these are provided in **Table 7-2** and shown in **Figure 7-1**.

It is also noted that a number of local unsealed roads occur in proximity to the Proposal (**Figure 7-1**). Although these were not included as specific receptors in the air quality assessment, the Proponent notes that these roads should be considered in the management of any dust-related impacts that could reduce visibility.

Table 7-2: Sensitive Receptors in Proximity to the Proposal

Receptor ID	Receptors	Receptor type	Distance and orientation from the Proposal
R1	Homestead 1	Occupied residence	6.8 km W
R2	Homestead 2	Occupied residence	4.2 km NW
R3	Homestead 3	Occupied residence	7.6 km E
R4	Homestead 4	Occupied residence	9.6 km E
R5	Homestead 5	Occupied residence	9.0 km NW
R6	Homestead 6	Occupied residence	7.2 km NW
R7	Homestead 7 (Hancock Energy owned)	Occupied residence	5.3 km SW
R8	Homestead 8 (Hancock Energy owned)	Occupied residence	3.9 km S

7.3.3. Air Quality Criteria

Air quality criteria relevant to this assessment were obtained from a number of relevant sources including:

- National Environment Protection (Ambient Air Quality) Measure (NEPM) (NEPC 2021)
- NEPM (Air Toxics) (NEPC 2011)
- Air Emissions Guideline (DWER 2019)
- Workplace exposure limits for airborne contaminants (SWA 2024).

A summary of the standards applied for this assessment are summarised in **Table 7-3** below. Standards relevant to human health have been adopted as criteria for this assessment.

Table 7-3: Ambient Air Quality Standards Applicable to the Proposal

Pollutant	Averaging Period	Ambient Air conc. ($\mu\text{g}/\text{m}^3$)	Reference
NO ₂	1-hour	150	(NEPC 2021)
	Annual	28	(NEPC 2021)
SO ₂	1-hour	196	(NEPC 2021)
	1-day	52	(NEPC 2021)
Mercury	1-hour	0.55	(DWER 2019)
	Annual	0.18	(DWER 2019)
Benzene	1-hour	29	(DWER 2019)
	Annual	9.6	(NEPC 2011) and (DWER 2019)
Toluene	24-hour	3,770	(NEPC 2011) and (DWER 2019)
	Annual	377	(NEPC 2011) and (DWER 2019)
Ethylbenzene	1-hour	8,000	(DWER 2019)
	Annual	270	(DWER 2019)
Xylenes	24-hour	1,080	(NEPC 2011) and (DWER 2019)
	Annual	870	(NEPC 2011) and (DWER 2019)
Hydrogen Sulphide	1-day	2,565	(DWER 2019)
	24-hour	137	(DWER 2019)
	Annual	1.8	(DWER 2019)
PM _{2.5}	1-day	18	(NEPC 2021)
	Annual	6.4	(NEPC 2021)
CO	1-hour	30,000	(DWER 2019)
	8-hour	10,000	(DWER 2019)and (NEPC 2021)
Formaldehyde	1-hour	20	(DWER 2019)

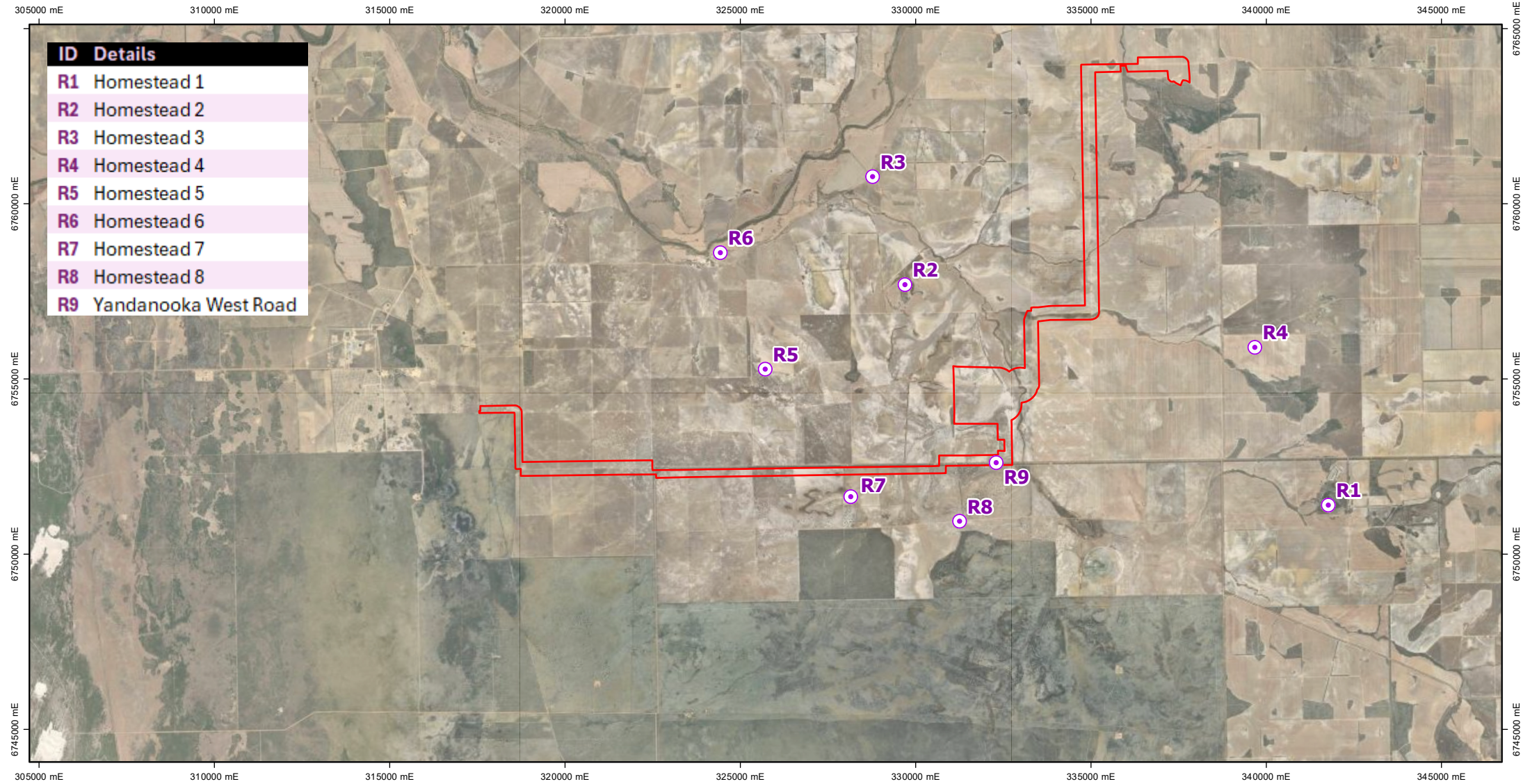
7.3.4. Regional Sources

Regional sources included in the air quality assessment were nearby gas projects Mondarra, West Erregulla, Hovea, Waitsia and Xyris. These projects and their emission sources are summarised in **Table 7-4** with locations shown in **Figure 7-2**.

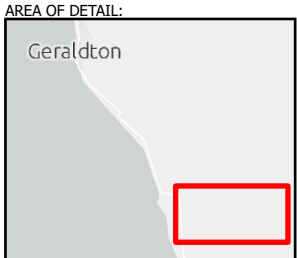
Table 7-4: Regional Sources included in the Air Quality Assessment

Proponent and facility	Status	Distance	Emission sources
APA Group Mondarra Gas storage and Processing Facility	Operational	14 km W	<ul style="list-style-type: none"> • Flare • Vent • Power generation and compressor
Australian Gas Infrastructure Group (AGIG) West Erregulla Gas Project	In planning	10 km S	<ul style="list-style-type: none"> • Gas engine alternators (GEA) (x3) • Hot oil heater/Thermal oxidiser stack • Diesel engine alternator • Storage/Evaporation pond • Gas chromatograph vents • Maintenance vents (x2)
Mitsui E&P Australia (MEPAU) Hovea Production Facility	Decommissioned	22 km W	<ul style="list-style-type: none"> • Evaporation ponds • Sump
MEPAU Waitsia Gas Project	Operational	18 km W	<ul style="list-style-type: none"> • Compressor gas engines • GEA • Heating medium boiler • Incinerator • Flare • Evaporation pond • Vehicular combustion sources • Fugitive dust from motor vehicle traffic and exposed surfaces

Proponent and facility	Status	Distance	Emission sources
MEPAU Xyris Gas Plant	Operational	18 km W	<ul style="list-style-type: none"> • Compressor gas engine • GEAs • Vents • Two process water ponds including an evaporation pond and a turkey nest • Vehicular combustion sources • Fugitive dust from motor vehicle traffic and exposed surfaces



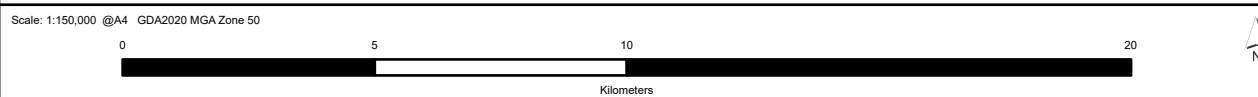
ID	Details
R1	Homestead 1
R2	Homestead 2
R3	Homestead 3
R4	Homestead 4
R5	Homestead 5
R6	Homestead 6
R7	Homestead 7
R8	Homestead 8
R9	Yandanooka West Road



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- LEGEND:**
- Development Envelope
 - ⊙ Sensitive Receptors



PROJECT: Hancock Belisama Approvals

TITLE: Figure 7-1: Sensitive Receptors within 10 km of the Development Envelope

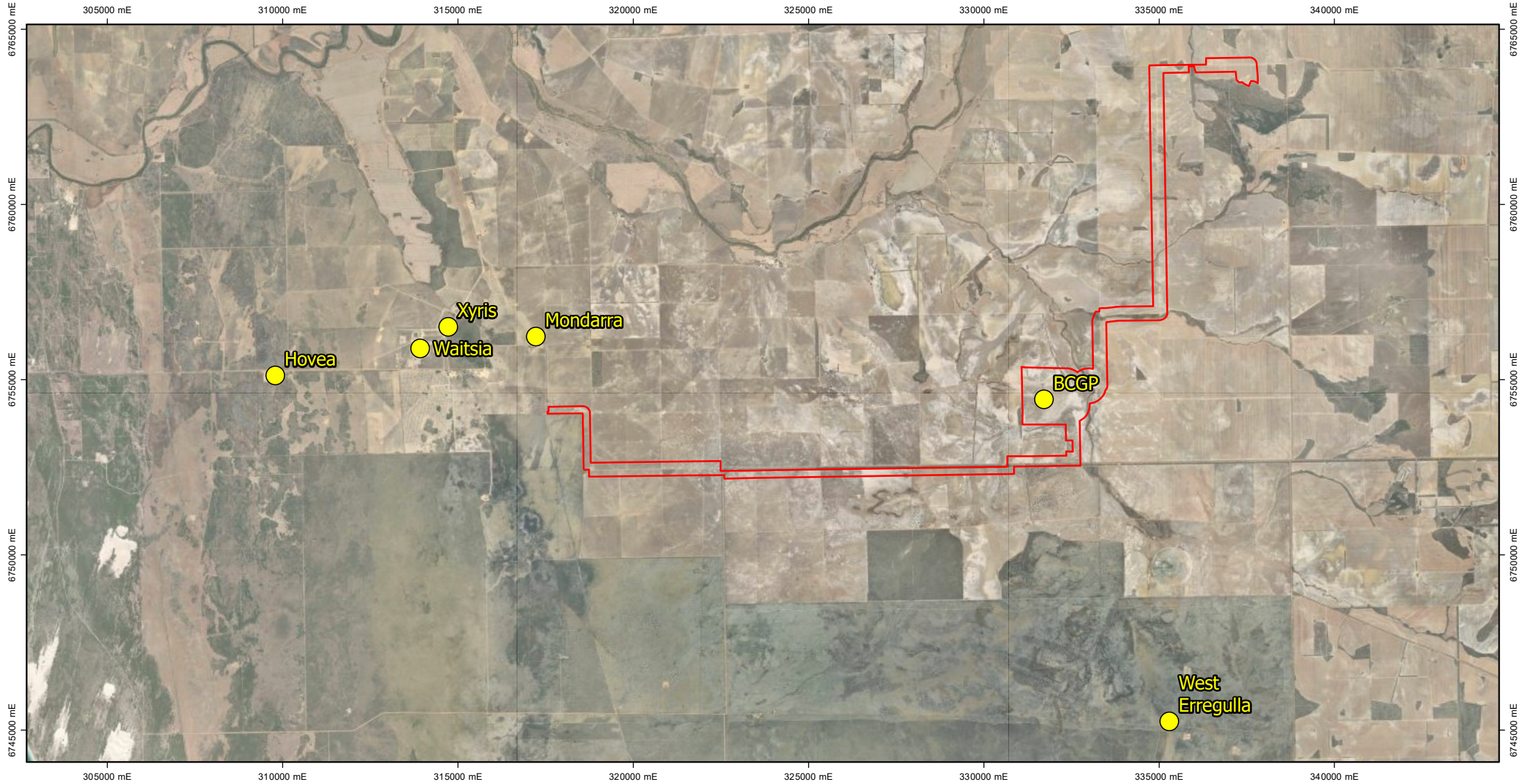
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DATE: 1/04/2026

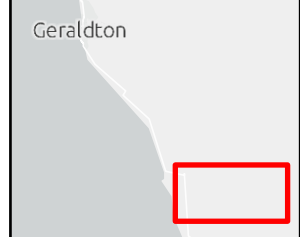
DATA SOURCE:
 Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	SP Author	Reviewer	QC	CR Approved	21/01/2026 Date
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AREA OF DETAIL:



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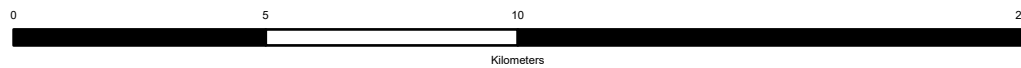
Phone: +61 8 9429 8222



LEGEND:

- Development Envelope
- Regional Emission Sources (MRP 2025)

Scale: 1:150,000 @A4 GDA2020 MGA Zone 50



PROJECT: Hancock Belisama Approvals

TITLE: Figure 7-2: Regional emission sources in the vicinity of the Proposal

SUBTITLE:

DATE: 20/03/2026

DATA SOURCE:
Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
0					CR	21/01/2026

7.4. Proposed Mitigation

During the Proposal design, the mitigation hierarchy (avoid, minimise and rehabilitate) has been applied to avoid and minimise any potential impacts to air quality as far as practicable. Whilst complete avoidance of emissions is not possible, the Proposal has been designed to avoid towns or urbanised areas and has been located away from dwellings and residences as far as practical. In addition, a number of technologies and equipment considerations have been incorporated into the Proposal design for the specific purpose of minimising impacts to air quality including absorption technology for mercury and H₂S removal from the process gas stream, and a thermal oxidiser unit to ensure highly efficient destruction of the BTEX volatile organic compound components extracted during well stream gas conditioning.

7.4.1. Technology Selection to Optimise Air Quality

7.4.1.1. Absorption Guard Beds

The inclusion of absorption technology for mercury and H₂S removal from the process gas stream removes the potential for these contaminants (which are harmful to human health and the environment) to be discharged to the atmosphere. Mercury has not been detected in the well stream fluids sampled during the exploration and appraisal phase, but mercury guard beds are included as a protective preventative measure. Low concentrations of H₂S were detected in the well stream fluids. Permanent absorption of all H₂S substantially reduces the discharge of SO₂ to the environment via combusted fuel gas, vented exhaust gas from the thermal oxidiser or via the flare system.

7.4.1.2. Thermal Oxidation of Waste Gas

The inclusion of a Thermal Oxidiser unit for the AGRU waste stream ensures highly efficient destruction of the BTEX VOC components which are extracted during well stream gas conditioning in the AGRU system. The alternative AGRU waste gas disposal method of routing this stream to the flare system was not selected as this would result in higher levels of BTEX being discharged to the atmosphere as combustion is less efficient.

7.4.2. Dust Management

Management and mitigation measures used to minimise the impacts to air quality during construction are detailed in the CEMP (**Appendix D1**) and include (but are not limited to):

- Ensuring vehicles importing material to site with potentially dust emitting loads are covered (except when loading and unloading)
- Minimising time between clearing and grading and backfill/reinstatement
- Application of water or stabilisers via water trucks and sprayers to dampen down soil as required
- Limiting topsoil stockpile heights to less than 2 m
- Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles
- Appropriate inductions for all personnel

- Visual monitoring of dust during construction, including maintenance of a complaints register.

Dust emission sources associated with potential increased vehicle movements on unsealed roads during construction and operation will be addressed through adherence to speed limits, road maintenance and dust suppression (if required).

7.4.3. Other Regulatory Processes

The Proposal operation and construction activities will be implemented in accordance with a Works Approval and Environmental Licence issued under Part V of the EP Act. The Works Approval and Environmental Licence are expected to outline controls which apply to proposed CPF infrastructure to prevent or minimise emissions to air, as well as detailed thresholds, monitoring and reporting requirements for air emissions during the construction (including commissioning) and operational phases respectively.

The Proposal will trigger the following category thresholds for a Prescribed Premises:

- Oil or gas production from wells – 5,000 tonnes or more per year
- Sewage facility – 100 m³ or more per day.

In addition, mitigation and management measures will be regulated by DMPE in an approved Environment Plan. Environment Plans are required to meet the form and content requirements of the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012. The objectives of the Regulations are to ensure that any petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with the Environment Plan. The Environment Plan must show that the environmental impacts and risks will be reduced to ALARP and include appropriate environmental performance objectives and standards and appropriate measurement criteria for determining whether those objectives and standards have been met.

These other regulatory processes are considered in more detail in **Appendix A2**.

Air quality emissions will also be reported in accordance with other relevant reporting mechanisms such as the National Pollutant Inventory.

7.5. Identified Environmental Impacts

Particulate emissions during construction will be generated through vegetation clearing and earthwork activities, including vehicle and machinery movements. These activities are temporary and will generally be short-term.

Particulate emissions during operation will mostly be generated through venting of combusted gases and/or flaring and have the potential to impact local air quality.

Emission sources associated with the Proposal will include:

- Thermal oxidiser (TOX) – Overhead vapours from the Amine regeneration unit will be directed to the TOX or the Low-Pressure Flare if the TOX is unavailable, with emissions of concern being BTEX

- One diesel generator (backup power and black start) – Emergency use only, with primary emissions of concern being NO_x
- Firewater diesel pumps – Emergency use only, with primary emissions of concern being SO₂
- Four gas generators – Primary emissions of concern being NO_x
- Continuous flares (High Pressure and Low Pressure) – will operate with a pilot light under normal operations, with emissions of concern being NO_x
- Emergency flare (High Pressure) – Emergency use only. Emissions of concern being NO_x and PM_{2.5}.

Emissions from the evaporation ponds are expected to be negligible as the produced water stream is treated prior to disposal (MRP 2025a), as such they are not considered an emissions source. Compressor drivers do not represent an emission source for the Proposal due to the selection of electric drive motor compression.

Further information on emission rates for this Proposal is provided in **Appendix C5** (MRP 2025a).

7.5.1. Direct Impacts

Potential direct impacts to air quality associated with the Proposal include:

- A reduction in local air quality due to an exceedance in emissions of concern above guidance levels
- Increased dust emissions.

7.5.2. Indirect Impacts

Potential indirect impacts associated with a reduction in air quality from the Proposal include impacts to amenity and biodiversity including:

- Health effects from inhalation of dust particles or emissions of concern, including cardiovascular and lung diseases
- Reduced visual amenity
- Safety impacts such as reduced visibility when driving or operating machinery
- Nuisance build-up of dust on clothing, vehicles and outdoor areas
- Degradation in vegetation condition or fauna habitats.

The potential indirect impacts of increased air emissions from the Proposal relate to other environmental factors such as Flora and Vegetation, Terrestrial Fauna and Social Surroundings and are discussed in the relevant **Sections 4, 5, and 10** respectively.

The mitigation actions to address the potential impacts and predicted outcomes for Air Quality are presented in **Table 7-5**.

Table 7-5: Identified Environmental Impacts for Air Quality

Risk	Avoidance, mitigation and management	Identified impacts
Reduction in air quality	<p>Design measures to minimise impacts associated with increased air emissions include:</p> <ul style="list-style-type: none"> • Incorporation of absorption technologies designed to reduce air emissions: <ul style="list-style-type: none"> – Mercury absorption beds are included in the gas stream near the inlet to the CPF. These remove all mercury from the gas used for power generation, thermal oxidation or flared, avoiding mercury emission in combusted gas discharges – Hydrogen sulfide absorption beds in the gas treatment system. This will remove H₂S from the gas stream and reduce SO₂ emissions from the thermal oxidiser, heating medium system, gas generators and flare • Inclusion of a continuous pilot flame within the CPF flare system to ensure the flare flame is always lit, avoiding cold venting • Use of a high temperature, high efficiency thermal oxidiser within the CPF to ensure all volatile organic compounds are fully combusted prior to discharge 	Localised increase in GLC's of some air pollutant compounds, below accepted air quality criteria
Increased dust emissions	<p>Management measures to minimise impacts associated with increased dust levels include (but are not limited to):</p> <ul style="list-style-type: none"> • Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading) • Minimising time between clearing and grading or trenching and backfill/reinstatement • Application of water or stabilisers via water trucks and sprayers to dampen down soil as required • Limiting topsoil stockpile height to less than 2 m in height • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles • Adherence to speed limits on public roads and implementation of speed limits on private access tracks and within the CPF site 	Localised increase in fugitive dust, primarily during construction

7.6. Predicted Environmental Impacts and their Significance

The following assessment of direct and indirect impacts associated with the Proposal following mitigation includes consideration of cumulative impacts from regional sources as described in **Section 7.3.4**.

7.6.1. Reduction in Air Quality

Emissions during operation of the Proposal will be generated from venting and/or flaring and have the potential to reduce the local air quality. Modelling of Proposal emissions predicted GLCs for all compounds would be below the relevant ambient air quality standard criteria at all sensitive receptor locations during both normal and emergency operations under all scenarios (MRP 2025a). The predicted cumulative GLCs for the Proposal and regional sources operating under normal conditions, and for the Proposal under the emergency scenario are provided in **Appendix C5** (MRP 2025a).

No exceedances of the 1-hour, 24-hour or annual criteria were predicted at any sensitive receptors for any pollutants modelled across all scenarios and predicted GLCs for most pollutants in isolation and cumulatively were well below the corresponding ambient air quality criteria at the nominated sensitive receptor locations (MRP 2025a; **Appendix C5**).

The pollutant that most closely approached the guideline was the hourly criteria NO₂ concentrations at Homestead 5 (R5), reaching 87.3% of the criteria for scenarios 1, 2, and 3. Scenario 4, which considered normal operations from the Proposal in isolation, predicted NO₂ concentrations significantly under the criteria at 6.2% (MRP 2025a; **Appendix C5**).

Under Scenario 3, PM_{2.5} approached 76.8% of the annual criteria and 37.1% of the hourly criteria at Homestead 2 (R2). MRP noted that these values are heavily influenced by non-industry background concentrations, and that the concentrations from the Proposal in isolation were considerably lower (<11%; MRP 2025a; **Appendix C5**).

Scenario 4 (the Proposal under normal operations in isolation) predicted the highest off-site impact to be from formaldehyde, with cumulative 99.9th percentile offsite concentrations reaching 49.6% of the hourly criteria.

Concentrations of all pollutants of concern were significantly below the relevant workplace exposure standards across the entire modelling domain for workers who both work and reside at the facility (MRP 2025b).

Given that GLCs for all compounds would be below the relevant ambient air quality criteria, as well as the proposed management measures described in **Section 7.4**, impacts associated with a reduction in air quality from increased emissions of concern are not expected to be significant.

7.6.2. Increased Dust Emissions

There is the potential for increased dust emissions, particularly during construction of the Proposal. This is mostly associated with pipeline installation excavation and trenching activities. Given the Proposal's short

construction phase, impacts that may occur would be relatively short in duration. In addition, the Proposal is located in a sparsely populated area, and as such the consequence of any associated air quality impacts would be expected to be low due to low numbers of sensitive receptors.

During the operational phase, dust generation will mostly be associated with increased traffic utilising local unsealed roads such as Yandanooka West Road and Mount Adams Road, particularly trucks transporting liquid condensate product. A Traffic Impact Statement (Shawmac 2025) predicts that the daily traffic volume for Mount Adams Road to the year 2035 is 42 vehicles (accounting for standard growth without the Proposal). The Proposal is predicted to generate the following additional traffic over the course of its operation:

- Condensate loadout will be four B-double size trucks per day, with one during peak hour
- Light vehicles to site will average 12 per day, including 12-seater buses, six of which are assumed to be during peak hour
- Chemical and general resupply logistics will average two semi-trailer trucks per week (less than one vehicle per day) outside of peak hour
- Small trucks to site will average two per week (less than one vehicle per day) outside of peak hour.

Standard industry management and mitigation measures will be adopted to minimise the generation of dust, as described in **Section 7.4**. As such, impacts associated with increased dust emissions are expected to be localised and temporary in nature, and unlikely to be significant.

7.7. Environmental Outcomes

The air quality impact assessment concludes that there will be no significant impacts from the Proposal associated with a reduction in air quality or increased dust emissions due to the following:

- Predicted concentrations for all pollutants are expected to be below the relevant ambient air quality guideline criteria at all locations, including sensitive receptor locations
- Increased dust emissions during construction will be short-term, highly localised and can be effectively managed
- Standard dust suppression measures proposed to be implemented will be managed through a Part V EP Act Environmental Licence
- Air quality throughout the life of the Proposal will be monitored and reported through Part V EP Act Environmental Licence conditions.

The Proponent considers that due to the proposed management measures described above, as well as regulations under Part V of the EP Act, the PGER Act and the PP Act, that the EPA's objective for the Air Quality factor can be met.

8. GREENHOUSE GASES

Greenhouse gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs) and nitrogen trifluoride (NF₃) (EPA 2024).

8.1. EPA Environmental Factor Objective

The EPA’s objective for the Greenhouse Gas (GHG) Emissions factor is ‘*To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable*’ (EPA 2024).

8.2. Relevant Policy and Guidance

In recognition of the established link between cumulative sources of GHG emissions and the risk of climate change, GHG emissions from a Proposal are generally considered under the EP Act when they are likely to exceed 100,000 tonnes of CO₂ equivalent (tCO₂-e) of Scope 1 or Scope 2 emissions in any year (EPA 2024).

Other relevant policy and guidance documents for the GHG Emissions factor and how these have been considered as part of the Proposal, are summarised below in **Table 8-1**.

Table 8-1: Relevant Policy and Guidance for Greenhouse Gases

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline: Greenhouse Gas Emissions (EPA 2024)	Informs relevant considerations for this referral and impact assessment including activities that may be considered, information requirements and EPA expectations.
Greenhouse Gas Emissions Policy for Major Projects (GoWA 2024)	Informs regulatory and assessment processes.
National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015	Considered in the preparation of this supporting document.
Western Australia Climate Policy (GoWA 2020)	The Proposal includes interim and long-term emission reduction targets consistent with the State’s net zero aspiration by 2050.
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

The Proponent intends to invest capital on emissions reducing technologies up-front, to reduce the baseline greenhouse gas emissions associated with the Proposal. This will result in operational phase tCO₂-e Scope 1 emissions well below the 100,000 tCO₂-e per year threshold. Irrespective, the Proponent has provided detail on GHG emissions estimates and mitigation for the Proposal to demonstrate that impacts are not significant.

8.3. Receiving Environment

8.3.1. GHG Emissions

GHG emissions are a key contributor to climate change, with the effects of a changing climate predicted to be significant in Western Australia (EPA 2024). Australia has committed to reducing GHG emissions to 43% below 2005 levels by 2030. Alongside this, Western Australia is committed to achieving net-zero emissions by 2050 as outlined in the Western Australian Climate Policy (GoWA 2020).

GHG emissions are classified as follows (EPA 2024):

- Scope 1: emissions generated as a direct result of an activity e.g. diesel combustion by vehicles or gas consumption for on-site power generation
- Scope 2: emissions generated from the consumption of an energy commodity
- Scope 3: indirect emissions, other than Scope 2 emissions, that are generated in the wider community.

The Proponent reports its annual energy and Scope 1 GHG emissions data to the Clean Energy Regulator (CER) through the Australian Government's National Greenhouse and Energy Reporting (NGER) Scheme.

8.3.2. Proposal Emissions Scenarios and Estimates

A GHG assessment for the Proposal (Greenbase 2025a, 2025b; **Appendix C6, Appendix C7**) was undertaken according to the requirements outlined in the EPA's Environmental Factor Guideline for Greenhouse Gas Emissions (EPA 2024). The estimated GHG emissions from the Proposal (based on a maximum throughput for a 210 TJ/day processing plant), and their likely contribution to regional, state, and national emissions have been calculated in this assessment and are estimated to be well below 100,000 tonnes of CO₂ equivalent (tCO₂-e) of Scope 1 or Scope 2 emissions in any year. This is being achieved through substantial investment in mitigation (detailed in **Section 8.4**), and low reservoir CO₂ concentrations within the Lockyer gas field confirmed via sampling. An independent peer review of the GHG technical reports was conducted to validate the GHG estimates and methodologies (Evolveable 2025; **Appendix C8**).

The Belisama foundation project comprises development of the Lockyer gas field. However, the relocation of the CPF to the Belisama site supports the Proponent's intention to develop a facility that can also sustain processing of other gas in the vicinity. Whilst tie-back of West Erregulla to the Belisama CPF is not within the current Proposal scope, the proximity of the West Erregulla gas field (the West Erregulla upstream gathering system is ~10-15 km south of the Belisama CPF location), and the Proponent's 50% ownership share in that resource means that the Belisama CPF has been designed to accommodate (with some modifications) co-processing of West Erregulla gas, if required in future.

GHG emissions were calculated for two different operating scenarios to account for the different blends of gas that may be processed through the facilities during their operational life.

- Case 1 – Gas from Lockyer gas field only at 210 TJ/d
- Case 2 (maximum emissions case) – Lockyer gas at 125 TJ/d and West Erregulla gas at 85 TJ/d (210 TJ/d).

Case 1 presents the base case for the Belisama Gas Project. Case 2 presents a future targeted scenario, subject to commercial arrangements, and is included to ensure transparency and to demonstrate how the thermodynamic properties achieved through blending gases from the Lockyer gas field with low CO₂ and high heat value; and West Erregulla gas field with high CO₂ and low heat value achieves a significant reduction in CO₂ emissions when compared to processing West Erregulla gas through a stand-alone facility.

Pending commercial arrangements, a blend of gases from the Lockyer and West Erregulla gas fields is the preferred scenario, due to overall environmental benefits relative to processing West Erregulla gas separately. This is explained further in **Section 8.4.1**. Ultimate emissions from the Proposal will depend on final arrangements for co-processing. In the event that only Hancock Energy's 50% share of the West Erregulla gas is processed through the Belisama Gas Project CPF, the GHG emissions will be higher than Case 1 and lower than Case 2.

Key inputs used to calculate GHG emissions associated with the Proposal for the purpose of the assessment are outlined in **Table 8-2**.

Table 8-2: Key Project Inputs for GHG Emissions

Input	Value	
	Case 1 (Lockyer gas only)	Case 2 (Lockyer / West Erregulla blend)
Total product produced	Unprocessed gas extracted: 229 MMSCFD Natural gas produced: 74.55 PJ/year (210 TJ/day) Condensate produced: 10.1 Sm ³ /h	Unprocessed gas extracted: 229 MMSCFD Natural gas produced: 74.55 PJ/year (210 TJ/day with 125 TJ/day of Lockyer gas and 85 TJ/day of West Erregulla gas) Condensate produced: 5.7 Sm ³ /h
Operating days per year	355 days	
Location	1906 Yandanooka West Road (Lot 441 on Plan 2981)	
Area cleared	Not included - majority of land is already cleared for agricultural purposes	
Total gas flared	235,365 Sm ³ /year	260,606 Sm ³ /year
Total gas vented	Gas treatment process: 31 tCO ₂ -e/year Reservoir CO ₂ via AGRU: 22,410 tCO ₂ -e/year	Gas treatment process: 31 tCO ₂ -e/year Reservoir CO ₂ via AGRU: 31,730 tCO ₂ -e/year
Power source (Electricity generation)	On-site gas generators	
Total gas consumption	Gas power generation: 66,110 Sm ³ /day	Gas power generation: 71,070 Sm ³ /day
Total diesel consumption	Diesel for construction: 4,290,120 L over 22 months	

Input	Value	
	Case 1 (Lockyer gas only)	Case 2 (Lockyer / West Erregulla blend)
Gas composition	Lockyer gas: CH ₄ mol%: 87.8 % CO ₂ mol%: 3.6 %	Lockyer gas: CH ₄ mol%: 87.8 % CO ₂ mol%: 3.6 % West Erregulla gas: CH ₄ mol%: 92.1 % CO ₂ mol%: 5.9 %
Fugitive emissions inputs		
Wellheads	7 wellheads, 2 metering installation and associated piping and 1 dehydrator, all operating 8,350 hours per year. It is noted that these wellheads are pre-existing and are not considered part of the proposal.	
Gathering system pipelines	Assume 44 km of protected steel pipe	
Produced water	Produced water produced: 1,200 Bp/day Salinity: 30,000 mg/L Pressure: <345 kPa	
Natural gas processing	2x inlet compressors, 2x recycle compressors and 2x export compressors, with only one of the two parallel compressors operational at any time, operating 8350 hours per year. All compressors are electric motor driven.	
Natural gas transmission pipeline	19 km	

Source: (Greenbase 2025a, 2025b)

Scope 1 GHG estimates from all sources of the Proposal were prepared using methods and emissions factors from the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Determination), as applicable to 2024-25 financial year (FY2025) reporting (Greenbase 2025a, 2025b). The assessment calculated Scope 1 emissions for the Proposal both when processing only from the Lockyer gas resource (Case 1), and when co-processing a blended mixture of gas from the Lockyer and West Erregulla gas resources (Case 2). Scope 3 GHG emissions were calculated in accordance with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) and the GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (2013).

A detailed description of the GHG emissions inventory, emission sources, exclusions and limitations, results and benchmarking are provided in **Appendix C6** and **Appendix C7** (Greenbase 2025a, 2025b) and is summarised in the sections below.

8.4. Proposed Mitigation

The Proponent intends to invest capital on emissions reducing technologies up-front, reducing the baseline greenhouse gas emissions associated with the Proposal. A peer review of the greenhouse gas emissions calculations for the project found that ‘the emission control technologies and design measures proposed for the Project align with both local and national industry best practices’ and that ‘these technologies demonstrate emissions minimisation through the mitigation hierarchy, prioritising avoidance and reduction in design’ (Evolveable 2025; **Appendix C8**).

Key design and technology choices affecting greenhouse gas emissions are detailed in the following sections.

8.4.1. Blended Gas Processing

A key rationale underpinning the Proposal is the reduction in environmental impact and total greenhouse gas emissions that may be achieved under a targeted future scenario by utilising a single CPF to co-process gas from several fields, specifically Lockyer and West Erregulla.

The West Erregulla gas resources are located approximately 10-15 km south of the Proposal. This gas resource varies in composition to the Lockyer gas. West Erregulla gas is considered a lean gas with a low energy density, typical of the Perth Basin, with a CO₂ level of approximately 6% and very low concentrations of C₅₊ hydrocarbons (92.1% CH₄, 5.9% CO₂ and 1.7% C₂₊ fraction). This results in a low heating value when the gas is treated to DBNGP pipeline specification, and if processed independently, requires removal of additional CO₂ to meet the minimum heating value for sale into the DBNGP. The CO₂ content of the West Erregulla gas must be reduced from 5.9 mol% to 2.3 mol%. If this gas had sufficient heating value, CO₂ removal would only be required down to 4 mol%, the entry specification for the DBNGP. The removed CO₂ is released into the atmosphere resulting in relatively higher emissions for West Erregulla processing due to the low heating value.

In contrast, Lockyer gas has high levels of C₃₊ hydrocarbons for a Perth Basin gas (87.8% CH₄, 3.6% CO₂ and 7.9% C₂₊ fraction) and meets DBNGP specifications (heating value and CO₂ content limits) with minimal processing. The composition delivers high energy per unit volume relative to other Perth Basin gas fields (Evolveable 2025; **Appendix C8**). Under the targeted future scenario when Lockyer gas is blended with West Erregulla gas (125 TJ/day and 85 TJ/day for Lockyer and West Erregulla gas respectively), the blended gas heating value remains sufficient to meet the DBNGP heating value at the pipeline maximum CO₂ level. Blending West Erregulla gas with Lockyer gas therefore reduces the amount of CO₂ required to be removed from the West Erregulla gas and substantially reduces the total emissions, relative to individual processing of each gas. Due to this blending effect, the Belisama gas plant processing a blend of Lockyer and West Erregulla gases will have emissions below those of the previously approved standalone West Erregulla processing facility at 87 TJ/day.

8.4.2. Acid Gas Removal Technology Selection

A sales gas composition of less than 4 mol% of CO₂ is required to meet the specification for export to the DBNGP. The Proposal utilises a non-selective amine solution for the removal of excess CO₂ paired with a standalone H₂S guard bed, rather than a conventional combined CO₂ /H₂S removal amine system.

For the processing of Lockyer gas only (Case 1) it was found that application of proprietary amine in a combined CO₂ /H₂S AGRU unit would result in over-extraction of CO₂ to ensure that sufficient H₂S was removed to meet the DBNGP H₂S specification. By using non-selective amine and incorporating a standalone H₂S guard bed (i.e. the selected configuration), the CO₂ removed by the AGRU system is optimised to the level required to meet the pipeline CO₂ specification, whilst H₂S is fully removed.

This design configuration reduces overall CO₂ emissions by approximately 22,000 tpa of CO₂ assuming a conservative assumption of 0.5 mol% of CO₂ removed. It is expected that similar over-extraction of CO₂ would result in the case of blended West Erregulla gas (Case 2) with the combined CO₂/H₂S AGRU removing twice the CO₂ when compared with the AGRU designed to target only CO₂ removal.

Furthermore, selection of a non-selective amine unit and stand-alone H₂S removal enables the AGRU to be used only when required, depending on the reservoir gas source, therefore providing further opportunity to minimise CO₂ emissions during operations, whilst adhering to the pipeline sales gas specification. Reduced CO₂ removal requirements also lower overall power requirements for pumps and air coolers.

8.4.3. Heat Integration

Heat integration using a gas-gas exchanger is included in the plant design to reduce CO₂-e emissions. Heat integration results in a duty reduction equivalent to reducing the emissions from the Heating Medium package by 20%.

8.4.4. Recycle Compressor

A recycle compressor has been designed to return low pressure vapours from the condensate stabilisation system for reprocessing in the gas plant facility. The inclusion of recycle compression reduces flaring emissions by more than 95%, equivalent to a reduction of more than 100,000 tCO₂-e per year for a 210 TJ/day facility.

8.4.5. Power Generation Technology Selection

On-site power generation commonly uses either gas reciprocating engines or gas turbines, either of which would be suitable for the Proposal. A comparison was conducted between suitably sized gas reciprocating engines and gas turbines to evaluate their total CO₂-e emissions under the loads expected for the Proposal facilities. Gas engines in preference to an equivalent gas turbine option resulted in an estimated 23% reduction of the baseline emissions associated with CPF power generation due to the inherently higher thermal efficiency of gas engines.

8.4.6. Export Gas Recycle

The CPF has been designed to allow off-specification gas from the export compressor to be recycled back to the gas treatment train for reprocessing. This will avoid flaring of the export gas or the export of gas that does not meet the DBNGP quality requirements. The export gas recycle will be used infrequently, typically only when the plant is restarted after a shutdown or other process interruption.

8.5. Identified Environmental Impacts

Potential impacts from GHG emissions associated with the Proposal relate to the contribution to global GHG concentrations from Scope 1 and Scope 3 emissions. The main GHG emissions associated with the Project are CO₂, CH₄ and N₂O. As all electricity required for the Proposal will be generated from the onsite power station there are no Scope 2 emissions within the scope of the Proposal (Evolvable 2025; **Appendix C8**).

Additionally, as the Proposal is a conventional gas project there will be no impacts from unconventional gas activities such as fracking.

Scope 1 GHG emissions are direct emissions from sources within the boundary of the facility or organisation. Specifically, Scope 1 GHG emissions associated with the Proposal will derive from:

- Gas venting
- Gas flaring
- Gas consumption by the reciprocating gas engines for power generation
- Fugitive emissions from extraction, gathering, processing and transmission of natural gas and handling of produced water
- Diesel consumption by the support equipment and other vehicles for construction (non-transport purposes).

Scope 3 GHG emissions are all other indirect emissions that are a consequence of an organisation's activities but are not from sources owned or controlled by the organisation, e.g. the emissions associated with the extraction, refinement, and delivery of diesel to site. The following Scope 3 emissions categories as defined by the GHG Protocol (2011) are relevant to the Proposal (Greenbase 2025b; **Appendix C7**):

- Category 9: Downstream transportation and distribution
- Category 10: Processing of sold products
- Category 11: Use of sold products.

The following emissions and energy sources were excluded from the assessment as they were deemed either minor sources or no use was identified:

- Oils and greases
- Sulphur Hexafluoride (SF₆)
- HFCs and PFCs
- Other minor fuel sources (e.g. unleaded petrol [ULP])

-
- Wastewater treatment plant (WWTP)
 - Land clearing (lost carbon sink) and the diesel consumption by land clearing equipment and associated vehicles
 - Scope 3 emission categories considered not material in relation to the Proposal (e.g. purchased goods and services, employee commuting).

The mitigation actions to address the potential impacts and predicted outcomes for GHG emissions are presented in **Table 8-3**.

Table 8-3: Identified Environmental Impacts for GHG Emissions

Risk	Avoidance, mitigation and management	Identified impacts
GHG emissions	<p>Management measures to avoid Scope 1 emission impacts include (but are not necessarily limited to):</p> <ul style="list-style-type: none"> • Selection of a reciprocating gas engine for on-site electricity generation resulting in a ~23% reduction in carbon emissions compared to selection of a gas turbine • Incorporation of a gas-gas exchanger utilising heat from the inlet well stream gas to pre-heat the mercury guard bed inlet stream, reducing the heating demand • Selection of a non-selective amine solution that targets CO₂ removal alongside a standalone H₂S guard bed, resulting in a 50% emissions reduction when compared with an amine solution designed for combined CO₂/H₂S removal • Incorporation of a recycle compressor to reduce carbon emissions from flaring by up to 98%; the design returns low pressure vapours from the condensate stabilisation system for reprocessing in the gas plant • Recycle of off specification export gas for reprocessing in lieu of flaring. 	Scope 1 and Scope 3 emissions

8.6. Assessment and Significance of Residual Impacts

GHG emissions have been calculated for two different cases to account for different blends of gas from upstream sources (Greenbase 2025a, 2025b); **Appendix C6, Appendix C7**). Ultimate emissions from the Proposal will depend on final arrangements for co-processing, but are expected to be within the range of these two scenarios:

- Case 1 – Gas from Lockyer only at 210 TJ/d. This case assumes both AGRU and Waste Heat Recovery is included into the facilities. The AGRU CO₂ extraction assume a reduction of CO₂ by 0.5 mol%
- Case 2 (maximum emissions case) – Lockyer gas at 125 TJ/d and West Erregulla gas at 85 TJ/d. This case assumes AGRU removing sufficient CO₂ to reach 3.8 mol% CO₂ in the overall sales gas. Waste Heat Recovery is included into the facilities.

8.6.1. Scope 1 emissions

The emissions calculated from fuel consumption, fugitive emissions, gas flaring and gas venting have been combined to provide an overall estimate of Scope 1 GHG emissions associated with the Proposal. The estimated total Scope 1 GHG emissions is 11,625 tCO₂-e from construction activities for both scenarios, and 72,938 tCO₂-e per year and 85,917 tCO₂-e per year for Case 1 and Case 2 respectively during the operational phase (Greenbase 2025b). Both emissions scenarios fall below the EPA assessment threshold of 100,000 tCO₂-e per year for Scope 1 emissions (EPA 2024a) and impacts associated with GHG emissions from the Proposal are therefore not considered to be significant.

A summary of total Scope 1 GHG emissions for the Proposal broken down by source is provided in **Table 8-4**.

Table 8-4: Estimated Total Scope 1 Emissions for the Project

Phase	Category	Annual Emissions (tCO ₂ -e/year)	
		Case 1	Case 2
Operational	Fugitive Emissions from Onshore Natural Gas Production	33	34
	Fugitive Emissions from Natural Gas Gathering and Boosting	91	93
	Fugitive Emissions from Produced Water	53	54
	Fugitive Emissions from Natural Gas Processing	1,947	1,986
	Fugitive Emissions from Natural Gas Transmission	221	221
	Emissions from Flaring - Gas Treatment Processed	624	675
	Emissions from Venting	22,441	31,761
	Emissions from Gas Combustion (Electricity)	47,528	51,094
	Total	72,938	85,917

Phase	Category	Total Emissions (tCO ₂ -e)	
		Case 1	Case 2
Construction	Diesel Combustion – Construction	11,625	11,625
	Diesel Combustion – Land Clearing*	-	-
	Land Clearing (lost carbon sink)*	-	-
	Total	11,625	11,625

*Not included due to works being undertaken largely on previously cleared agricultural land

8.6.2. Scope 3 emissions

Scope 3 emissions for the Proposal have been estimated from the inputs detailed in **Table 8-4**. It is estimated that the Proposal will create a total of 4,356,015 tCO₂-e and 4,275,616 tCO₂-e of Scope 3 GHG emissions for Case 1 and Case 2 respectively during the operational stage. A summary of key Scope 3 GHG emissions sources and estimates for the Proposal is outlined in **Table 8-5**.

Table 8-5: Estimated Scope 3 Emissions for the Project

Category	Annual Emissions (tCO ₂ -e/year)	
	Case 1	Case 2
Category 9 Downstream Transportation and Distribution	331,836	330,993
Category 10 Processing of Sold Products	31,284	17,655
Category 11 Use of Sold Products	3,992,894	3,926,967
Total	4,356,015	4,275,616

8.6.3. Project Emissions Intensity

Based on the emissions profile, the Proposal has a projected emissions intensity of 0.9784 tCO₂-e/GJ of natural gas produced for Case 1, and 1.1525 tCO₂-e/GJ for Case 2. This includes all processing, reservoir and other emissions but does not include fugitive gas emissions from the pipeline as this makes comparison (benchmarking) difficult, given it is based on distance of pipeline and not efficient plant design and operations.

8.6.4. Benchmarking Against Comparable Proposals

When compared to similar existing and proposed gas plants within Western Australia, the projected Scope 1 and 2 emissions intensity of the Proposal at the maximum emission case (Case 2; 1.1525 tCO₂-e/GJ gas produced) is generally lower than other equivalent projects (**Table 8-6**). This reflects efforts by the Proponent to reduce the emissions profile of the operation using best available technology, low reservoir CO₂

concentrations within the Lockyer gas reserve, and blending of different gas CO₂ concentrations to minimise emissions relative to processing the gases individually.

Table 8-6: GHG Emission Intensities Benchmark

Project	Natural Gas Production (PJ/year)	Total Scope 1 + 2 Emissions (tCO ₂ -e /year)	Scope 1 + 2 Emissions Intensity (tCO ₂ /TJ gas)	Source
Belisama Gas Project (Case 1)	74.55	72,938	0.9784	(Greenbase 2025b)
Belisama Gas Project (Case 2)	74.55	85,917	1.1525	(Greenbase 2025b)
Other Projects				
AGIO West Erregulla Processing Plant and Pipeline	31.76	96,319 ^a	3.0332	West Erregulla Processing Plant and Pipeline Greenhouse Gas Management Plan (AGIG 2023)
MEPAU Waitisia Gas Project Stage 2	91.25	300,000	3.2877	Waitisia Gas Project Stage 2 Greenhouse Gas Management Plan (Mitsui 2020)
BHP Macedon Gas Development	76.65	115,000	1.5003 ^b	Macedon Gas Development - Report and recommendations of the EPA (EPA 2010)
AGIT Tubridgi Gas Field Development	25.55	11,724	0.4600 ^c	Tubridgi Gas Field Development – Inquiry of the EPA (EPA 2023b)
Apache Energy Ltd Devil Creek Gas Development Project	80.30	125,000	1.5567	Apache Energy Ltd Devil Creek Gas Development Project – Report and recommendations of the EPA (EPA 2009)
Strike South Erregulla Conventional Gas Development	29.20	63,040	2.16	South Erregulla Conventional Gas Development – Referral Document for EPA Part IV Section 38 (Strike 2023)
Imperial Oil Carpentaria Pilot Project	9.00	36,078	4.01	Carpentaria Pilot Project Environmental Management Plan EP187 IMP 5-3 (Greenbase 2025b)

A. Year 1 and 2 are estimated to be 105,951 tCO₂-e per annum as for the initial setup

B. Estimated based on average annual GHG emissions of 115,000 tCO₂-e, gas production rate of 200 million standard cubic feet per day and operations 365 days per year

C. Estimated based on its Scope 1 emissions reported in FY2022 NGER report, proposed annual gas production rate of 70 TJ/day and operations 365 days per year.

8.6.5. Cumulative Impacts

Total estimated emissions of Australia for the year to December 2024 were 446.4 million tCO₂-e (DCCEEW 2025c). For the 2023-2024 year, corporations required to report under the NGER Act reported a total of 303 million tCO₂-e of Scope 1 GHG emissions and 74 million tCO₂-e of Scope 2 GHG emissions (CER 2025). Western Australian projects contributed approximately 23% of Scope 1 GHG emissions (CER 2025).

Based on these figures, the Scope 1 operational emissions for the Proposal would represent approximately 0.02% of the national Scope 1 emissions and 0.12% of Western Australian Scope 1 emissions.

8.7. Environmental Outcomes

The Proposal will contribute to GHG emissions, primarily from the consumption of fuel, fugitive emissions, gas flaring and gas venting.

The Proposal has adopted a range of these GHG emission reducing technologies within the initial design and as a result has a relatively low emissions intensity when benchmarked against other comparative projects. Pending final arrangements for co-processing, the Proposal also has the potential to deliver emissions reduction benefits when compared with processing of West Erregulla gas through a stand-alone facility.

The combined Scope 1 and 2 GHG emissions from the Project are estimated to total 11,625 tCO₂-e from land clearing and construction activities, and 85,917 tCO₂-e per year for the operational phase in the higher emissions case, representing a targeted future scenario of Lockyer and West Erregulla gas blend (Case 2) (Greenbase 2025b; **Appendix C7**). This is below the EPA assessment threshold of 100,000 tCO₂-e per year (EPA 2024a) and impacts associated with GHG emissions from the Proposal are therefore not considered to be significant.

The emission control technologies implemented in the Proposal align with best industry practice and represent best available technology for the Proposal scale and gas composition characteristics. Through the implementation of these avoidance and mitigation technologies, GHG emissions have been reduced to as low as is reasonably practicable and the Proponent considers that the EPA's objective for this environmental factor can be met.

9. TERRESTRIAL ENVIRONMENTAL QUALITY

For the purposes of EIA, the EPA defines terrestrial environmental quality as ‘the chemical, physical, biological and aesthetic characteristics of soil’ (EPA 2016e).

‘Soils’ refer to the layer of organic and inorganic weathered material that accumulates at the Earth’s surface.

9.1. EPA Environmental Factor Objective

The EPA’s objective for Terrestrial Environmental Quality factor is ‘To maintain the quality of land and soils so that environmental values are protected’ (EPA 2016e).

9.2. Relevant Policy and Guidance

Relevant policy and guidance documents for the Terrestrial Environmental Quality factor and how they have been considered for this Proposal are summarised below in **Table 9-1**.

Table 9-1: Relevant Policy and Guidance for Terrestrial Environmental Quality

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Environmental Factor Guideline – Terrestrial Environmental Quality (EPA 2016e)	Used to inform relevant considerations for environmental impact assessment during the development of this referral and supporting document. Used to inform requirements for baseline survey work. Used to determine the environmental values of terrestrial environmental quality, and their significance. Used to inform links with other factors.
Assessment and Management of Contaminated Sites (DWER 2021a)	Used to determine the need for assessment and management of potential existing contamination within the Development Envelope.
Guideline: Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes (DER 2015a)	Used to determine the need for assessment and management of potential acid sulfate soils (ASS) within the Development Envelope.
Treatment and Management of Soils and Water in Acid Sulfate Soil Landscapes (DER 2015b)	Used to inform relevant considerations for environmental impact assessment during the development of this referral and supporting document.
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

9.3. Receiving Environment

9.3.1. Site-specific Studies

Publicly available datasets have been accessed to inform an understanding of soil characteristics in the Development Envelope, including soil landscape and soil risk mapping (DPIRD 2025a, 2025b; DWER 2017).

In addition a geotechnical investigation and site classification was undertaken for the CPF site, including 11 test pit excavation locations, with the objective of assessing the soil composition and geology of the site (FCE 2025). The assessment report is provided in **Appendix C9**, with the findings of this assessment incorporated in the sections below.

9.3.2. Soil Landscape and Characteristics

The Development Envelope falls within the Arrowsmith soil landscape zone, comprising dissected lateritic sandplain on Cretaceous and Jurassic sediments. Soils are generally sandy and gravelly, formed in colluvium and rock weathered in-situ.

DPIRD has mapped and described the soil landscapes of Western Australia. The Development Envelope intersects two soil-landscape units (**Table 9-2; Figure 9-1**; DPIRD 2025a). The soil land system mapped across the western portion of the Development Envelope, including the CPF site, is the Mount Adams System (224Ma; 54.4%), described as gently undulating sandplain with low gravel ridges and occasional laterite breakaways. With Sand Plain Creek as an approximate border, the Mount Horner System (224Mh; 45.6%) is mapped over the eastern portion of the Development Envelope, described as long gentle slopes broken by low gravel ridges and broad open depressions. The area also features lateritic breakaways with spillway sands.

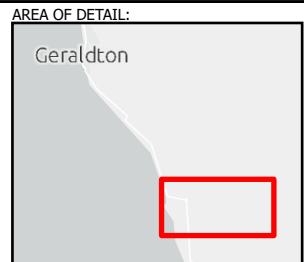
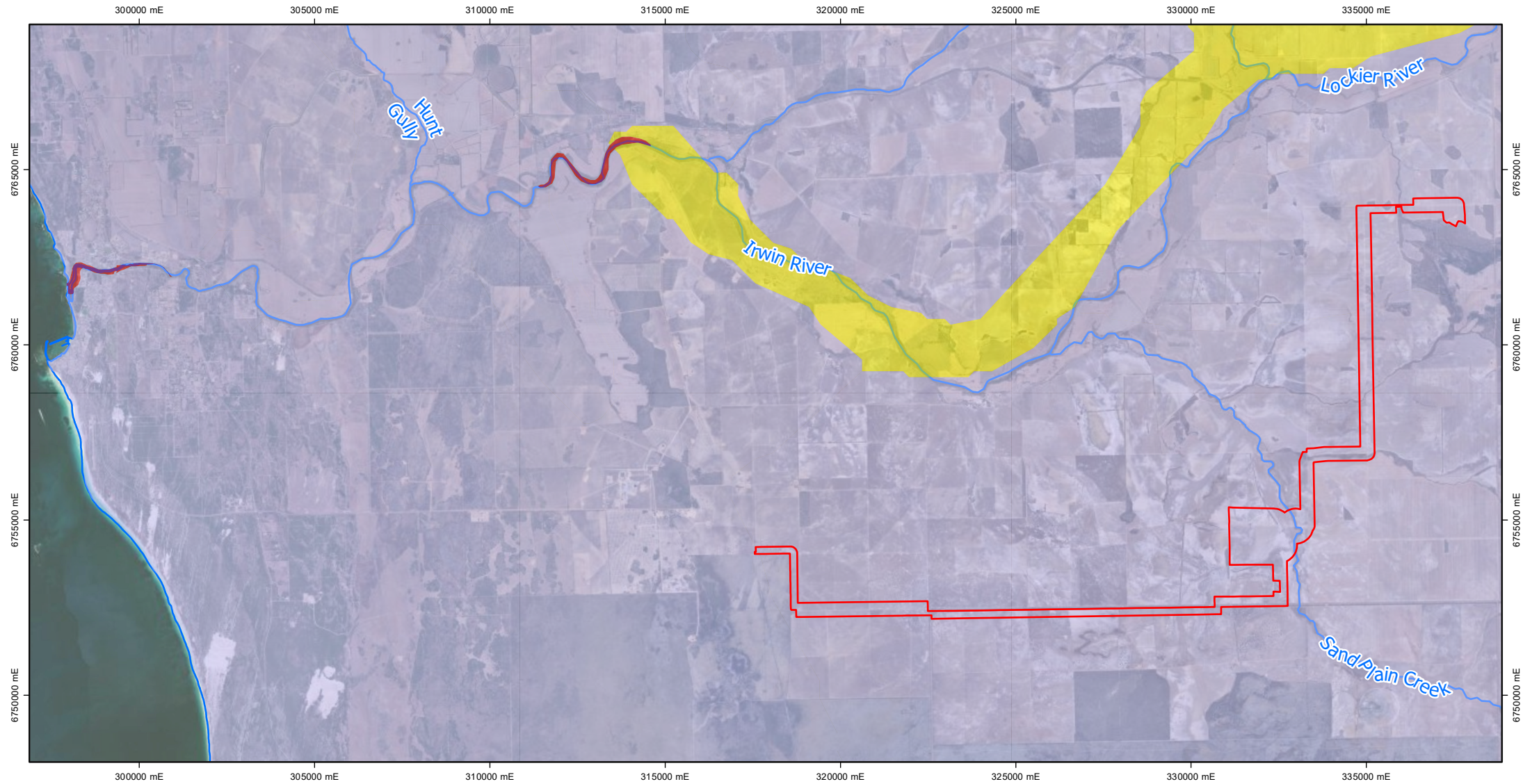
Table 9-2: Soil Landscapes within the Development Envelope

Soil Landscape	Soil landscape description	Total extent (ha)	Total extent within the Development Envelope (ha)	% of Development Envelope (%)
Mount Horner System (224Mh)	Long gentle slopes broken by low gravel ridges and broad open depressions. Some lateritic breakaways with spillway sands.	44,346	605.5	45.6%
Mount Adams System (224Ma)	Gently undulating sandplain with low gravel ridges and occasional laterite breakaways.	86,963	721.4	54.4%
Total			1,326.9	100.0%

Within the CPF site, most of the site was found to comprise of grey/cream/yellow quartzose sand with silt overlying clayey sands and gravel to a depth of 2.5 m. This is consistent with the general descriptions for the Mount Adams system, which identifies the soils of the long gentle slopes as mainly pale and yellow deep sands, with areas of ironstone gravel (FCE 2025; **Appendix C9**).

ASS risk mapping shows the Development Envelope as having an extremely low probability of occurrence of ASS (Fitzpatrick et al. 2011; **Figure 9-2**). The geotechnical assessment for the CPF site found the geology and soil types to be consistent with low ASS risk and below threshold levels for which DWER would require the development of an acid sulfate management plan (FCE 2025; **Appendix C9**).

Given the rural location of the Development Envelope and surrounding broadacre agricultural land use, the potential for existing contamination is low. The geotechnical assessment for the CPF site did not identify any evidence of asbestos, hydrocarbon contamination or uncontrolled fill materials at this location.



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LEGEND:

- Development Envelope
- Watercourses

Acid Sulfate Soils Risk

- High Probability of occurrence
- Low Probability of occurrence
- Extremely Low Probability of occurrence

Scale: 1:150,000 @A4 GDA2020 MGA Zone 50

Kilometers

PROJECT: Hancock Belisama Approvals

TITLE: Figure 9-2: Acid Sulfate Soils Risk

SUBTITLE:

DATE: 15/04/2026

DATA SOURCE:
 Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

Revision	Description	Author	Reviewer	QC	Approved	Date
0						21/01/2026

9.4. Proposed Mitigation

During the Proposal design, the mitigation hierarchy (avoid, minimise and rehabilitate) has been applied to avoid and minimise any potential impacts to terrestrial environmental quality as far as practicable.

As far as possible the CPF has been located away from areas of environmental value that could be affected by changes to terrestrial environmental quality, including native vegetation remnants and drainage lines. Lined evaporation ponds receiving produced water from the gas plant and reject brine flow from potable water treatment have been sited and designed, and will be managed, to minimise the risk of potential contamination to surrounding soils. Stormwater runoff will be segregated from the gas plant processing facilities drains system as specified in the Stormwater Management Plan (**Appendix D2**). Where the central flowline intersects Sand Plain Creek, HDD will be employed under the watercourse, avoiding disturbance to the soil surface and riverbanks, and exposure of sub-surface materials.

Groundwater monitoring is proposed to allow early detection of any contamination that could affect terrestrial environmental quality.

Key management and mitigation measures relating to construction of the Proposal have been detailed in the CEMP (**Appendix D1**).

9.4.1. Other Regulatory Processes

Mitigation and management measures will be regulated by DMPE in an approved Environment Plan. Environment Plans are required to meet the form and content requirements of the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012. The objectives of the Regulations are to ensure that any petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with the Environment Plan. The Environment Plan must show that the environmental impacts and risks will be reduced to as low as reasonably practicable and include appropriate environmental performance objectives and standards and appropriate measurement criteria for determining whether those objectives and standards have been met. An OSCP is required as part of the Environment Plan.

In addition, Proposal construction and operation will be implemented in accordance with a Works Approval and Environmental Licence issued under Part V of the EP Act. The Proposal will trigger the following category thresholds for a Prescribed Premises:

- Oil or gas production from wells – 5,000 tonnes or more per year
- Sewage facility – 100 m³ or more per day.

The Works Approval and Environmental Licence are expected to outline controls which apply to proposed infrastructure to prevent or minimise discharges to land, as well as detailed monitoring and reporting requirements for potential contamination, including groundwater monitoring, during the construction and operation phases respectively.

These other regulatory processes are considered in more detail in **Appendix A2**.

9.5. Identified Environmental Impacts

Potential impacts associated with construction of the Proposal include:

- Soil contamination as a result of the storage and handling of chemicals and hazardous materials required during the construction phase
- Disturbance of ASS which may impact upon the basic natural assets of soil, water and biota
- Erosion impacting soil quality. The area mainly comprises of sands that have been deposited by wind action; the area does experience high winds and is therefore susceptible to wind erosion risks.

Potential impacts associated with the operational phase of the Proposal relate to the use and storage of hazardous substances including hydrocarbons and other potentially contaminating chemicals, and inappropriate management of waste leading to contamination of soils.

Changes to terrestrial environmental quality have potential to impact on other environmental factors including Flora and Vegetation, Terrestrial Fauna and Inland Waters (discussed in **Sections 4, 5 and 6**, respectively).

The Proposal is a conventional gas project and as such there will be no impacts from unconventional gas activities such as fracking.

The mitigation actions to address the potential impacts and the predicted outcomes for terrestrial environmental quality are presented in **Table 9-3**.

Table 9-3: Identified Environmental Impacts for Terrestrial Environmental Quality

Risk	Avoidance	Mitigation and management	Identified impacts
<p>ASS disturbance leading to soil acidification</p>	<p>Proposal located in an area of low ASS risk. HDD under Sand Plain Creek.</p>	<p>N/A</p>	<p>No residual impact anticipated</p>
<p>Soil contamination as a result of the storage and handling of chemicals and hazardous materials during construction and operation of the proposal</p>		<p>Standard operating procedures will be implemented for handling and use of hazardous materials. Risks associated with the storage and handling of chemicals and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. An ERP and an OSCP will be prepared, approved by DMPE and implemented. Key provision will include:</p> <ul style="list-style-type: none"> • All chemicals used will be stored within a designated, bunded chemical storage area • Hydrocarbon or chemical storage tanks will be bunded and constructed in accordance with <i>Australian Standard AS1940:2004 the storage and handling of flammable and combustible liquids</i> • Bunds will be inspected regularly to determine integrity and maintenance of capacity • Storage containers will be closed when not in use • Storage containers will be labelled with the technical product name as per the relevant SDS • Spill response equipment will be readily available at the site of hazardous material storage or use. All spills are to be recorded and immediately cleaned up in accordance with the OSCP • Equipment, machinery, and vehicles will be restricted to designated roads, access tracks and cleared areas (except when undertaking minor clearing 	<p>Low risk of relatively small-scale accidental spills</p>

		<p>activities) and will be maintained, refuelled, and serviced only where spill containment is in use (i.e. bunded areas)</p> <ul style="list-style-type: none"> • Any contaminated material will be removed and disposed offsite to a licensed facility using an appropriately licensed contractor • All personnel will be inducted on the appropriate storage and disposal of hydrocarbons and hazardous substances, use of spill kits and potential impacts associated with contamination • Within the CPF plant area, separate drains systems will segregate potentially contaminated drains from clean stormwater run-off, as specified in the Stormwater Management Plan (Appendix D2) <p>Waste Management measures will include:</p> <ul style="list-style-type: none"> • Specific waste segregation systems utilised on-site • Covered waste receptacles utilised on-site • Waste hydrocarbon products will be stored in areas where spill containment is in use (i.e. bunded areas) prior to off-site disposal • Off-site disposal of controlled waste will be undertaken via appropriately licensed contractors • All personnel will undergo site inductions related to waste management requirements 	
<p>Erosion</p>		<p>Management practices will be followed to minimise impacts associated with wind erosion during construction including:</p> <ul style="list-style-type: none"> • Trenches will be progressively closed as the pipeline is laid to avoid stockpiling of surface materials for extended periods. • Within the CPF site, provision will be taken during construction to stop airborne silt and sand during windy periods by water suppression, until the sandy soils in the work area can be stabilised either by capping or seeding with ground cover. Any seeding activity will be compatible with the surrounding land use 	<p>Short term, localised risk of wind erosion during construction</p>

<p>Soil contamination through inappropriate design or management of evaporation ponds</p>	<p>Located away from natural flow paths</p>	<p>An appropriate liner will be selected compatible with the expected produced water chemical composition and design life to prevent vertical migration of water into the subsurface. The ponds will be installed with dual membranes with an intermembrane leak detection system installed.</p> <p>Evaporation ponds will be designed to accommodate process water inflow from the CPF, accounting for normal rainfall and evaporation data appropriate for the site location. The ponds will be designed with a freeboard of 0.5 m to avoid spill of produced water over the side during periods of high winds. The design volume of the ponds accounts for a 1 in 100-year rainfall event over a 24-hour period.</p> <p>Inspection of liner prior to commissioning of ponds.</p> <p>Produced water will be treated to target less than 20 mg/L free hydrocarbons.</p> <p>Groundwater monitoring bores will be installed proximal to the evaporation ponds and the stormwater basin to allow early detection of contamination.</p>	<p>Low risk of localised leakage from ponds</p>
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9.6. Assessment and Significance of Residual Impacts

This assessment considers direct and indirect impacts following mitigation described in **Section 9.4**. Due to the existing rural landscape within which the Proposal is located and localised nature of potential impacts to terrestrial environmental quality, consideration of cumulative impacts is not considered relevant for this factor.

9.6.1. Contamination

Risks associated with the storage and handling of chemical and hazardous materials will be regulated and managed under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. Standard operating procedures will be implemented for handling and for the use of hazardous material and storage areas will be fully bunded. All hazardous materials (including chemicals and hydrocarbons) will be managed in accordance with the procedures, with key mitigation commitments documented in the CEMP (**Appendix D1**) and included in the Environment Plan.

Potential remains for contamination of soil impacting terrestrial environment quality due to accidental spills. The highest risk activities for potential spills include:

- Accidental loss of hydrocarbons (i.e. diesel or methanol) at the CPF site during refuelling or refilling causing a release to the environment
- Accidental loss of hydrocarbons (i.e. condensate) at the CPF site during truck loading causing a release to the environment
- Accidental loss of chemicals at the CPF site during operations causing a release to the environment.

All spills will be recorded and immediately cleaned up in accordance with the OSCP. Furthermore, any contaminated material will be removed and disposed offsite to an appropriately licensed facility using a licensed contractor. Regular monitoring will also be in place to ensure all procedures are being followed and onsite storage is in good working order.

Due to the scale and nature of potential unplanned spill events, and the provision for appropriate containment and clean-up in the event of a spill, accidental spills are unlikely to result in significant residual impacts to terrestrial environmental quality. No significant residual impacts on terrestrial environmental quality resulting from contamination events are anticipated as a result of the Proposal.

9.6.2. Disturbance of ASS

Disturbance of ASS through excavation or lowering of the water table can result in impacts to terrestrial environmental quality through soil acidification and mobilisation of heavy metals. This can impact on other environmental factors through degradation of habitats, water quality and visual amenity, as well as impacting on infrastructure.

The Development Envelope is not within a known ASS risk area. The geology and soil types noted at the CPF site during the geotechnical investigation were consistent with low ASS risk. In addition, open excavation in proximity of Sand Plain Creek, where a shallow water table may be expected will be avoided through

horizontal directional drilling. Hence no residual impacts to terrestrial environmental quality are anticipated as a result of ASS disturbance.

9.6.3. Erosion

Soils within the Development Envelope are generally susceptible to strong winds, with fine particles easily transported by wind action. Within the CPF site, provision to stop airborne silt and sand will be taken during windy periods during construction by the application of water, stabilisers and/or hydro-mulch, until the sandy soils in the work area can be stabilised with by either capping with stable soils or seeding with ground cover. Any seeding activity will be compatible with the surrounding land use.

Progressive backfilling of trenches will avoid stockpiling of surface materials for extended periods during pipeline construction.

Whilst some wind erosion may occur during construction the extent is likely to be localised and will be time limited. With the implementation of the stated mitigation, significant residual impacts to terrestrial environmental quality from wind erosion are not anticipated.

9.6.4. Evaporation Ponds

Evaporation ponds have been located away from natural flow lines. Design of the ponds includes allowance for a 1 in 100-year rainfall event over a 24-hour period as well as freeboard of 500 mm to ensure that the evaporation ponds will not overflow. Surface water run-off will be directed away from the evaporation ponds. The processing facility has been designed to treat oil in process water to a target less than 20 mg/L free hydrocarbons prior to disposal, and operation of the evaporation ponds will be controlled under an EP Act Part V licence. With these controls in place, the likelihood of a major contamination event associated with the evaporation ponds that could affect terrestrial environmental quality is low. In addition, the ponds will not be located in close proximity to other key environmental values and as such any impacts to terrestrial environmental quality are unlikely to result in flow on impacts to other factors. With the identified design and management controls, significant residual impacts to terrestrial environmental quality from the evaporation ponds are not anticipated.

9.7. Environmental Outcomes

No significant residual impacts to terrestrial environmental quality associated with the Proposal are anticipated due to the following:

- The Development Envelope is not within a known ASS risk area and soils within the CPF site were found to have low ASS risk
- Design, management and spill procedures will minimise the likelihood and extent of spills during construction and operational activities for the Proposal
- The relatively small scale and nature of potential impacts from an accidental loss or spill
- Although the area is prone to wind erosion risks, management practices will be in place to reduce erosion risk associated with construction of the Proposal.

The Proponent considers that due to the proposed management measures described above, as well as assessment, mitigation and monitoring requirements under various other statutory decision-making processes, that the EPA's objective for the Terrestrial Environmental Quality factor can be met.

10. SOCIAL SURROUNDINGS

For the purposes of EIA, social surroundings are a part of the environment and are considered where there is a ‘clear direct link between a proposal or scheme’s impact on the physical or biological surroundings and the subsequent effect on a person’s aesthetic, cultural, economic or other social surroundings’ (EPA 2023d).

10.1. EPA Environmental Factor Objective

The EPA’s objective for the Social Surroundings factor is ‘to protect social surroundings from significant harm’ (EPA 2023d).

10.2. Relevant Policy and Guidance

Relevant policy and guidance documents for the Social Surroundings factor and how they have been considered for this Proposal are summarised below in **Table 10-1**.

Table 10-1: Relevant Policy and Guidance for Inland Waters

Policy / Guidance	Consideration
Statement of Environmental Principles, Factors, Objectives (EPA 2023a)	Used to inform the development of this referral and supporting document.
Aboriginal Heritage Act 1972	Considered during development of this referral and supporting document.
Environmental Protection (Noise) Regulations 1997	Informed the scope and conclusions of the environmental noise assessment undertaken for the Proposal.
Environmental Factor Guideline: Social Surroundings (EPA 2023d)	The information provided in this chapter addresses the ‘considerations for environmental impact assessment’ listed in this document.
State Planning Policy No. 2: Environment and Natural Resource Policy for Western Australia (WAPC 2003)	Informed the assessment of impacts to visual amenity undertaken for the Proposal.
Technical Guidance Environmental impact assessment of Social Surroundings – Aboriginal cultural heritage (EPA 2023c)	Used to inform the requirements of impact assessment for Aboriginal cultural heritage including information requirements and EPA expectations.
Visual Landscape Planning in Western Australia: A manual for evaluation, assessment, siting and design (WAPC 2007)	Used to inform the Visual Impact Assessment undertaken for the Proposal.
Guideline for Cumulative Impact Assessment (EPA 2026a)	Used to inform the assessment of cumulative environmental impact of this referral and supporting document.

10.3. Receiving Environment

10.3.1. Aboriginal Cultural Heritage

The Proposal is located within the Yamatji Nation Determination Area, with native title existing in selected parcels of land within the Determination Area. After the settlement agreement in 2020, the Yamatji Southern Regional Corporation Ltd (YSRC) was established, acting as the Regional Entity to implement a best practice governance structure to manage benefits of the Agreement on behalf of the native title holders. The Bundi Yamatji Aboriginal Corporation (BYAC), also established in 2020, is the Registered Native Title Body Corporate for the area. The YSRC represents the interests of the Southern Yamatji, Hutt River, Mullewa Wadjari and Widi Mob People who together are the Traditional Custodians of the Yamatji Nation. YSRC provided a letter of support for the Proposal on 13 April 2026 (YSRC 2026; **Appendix E**).

The Proposal site is located on freehold land where native title does not exist; however Aboriginal cultural heritage remains a relevant consideration under the AH Act. A desktop assessment revealed one DPLH registered Aboriginal Cultural Heritage (ACH) site within 10 km of the Development Envelope. The Irwin River (Registered Site 18907) travels approximately 9.5 km north-west of the CPF site, and 4 km north of the northern extent of the central flowline. No other lodged ACH sites, National or State heritage sites are located within 10 km of the Development Envelope.

A targeted Due Diligence Assessment employing a Site Avoidance level heritage methodology inclusive of a field survey of the Development Envelope was undertaken by Everick Heritage archaeologists and contracting Human Terrains anthropologist in collaboration with YSRC in February 2026 which included:

- A desktop survey of the Project Area and its regional context
- A targeted field survey of the Project Area in accordance with the AH Act, its associated Guidelines and Consultation Policy
- Recording any newly identified Aboriginal objects, heritage values or culturally sensitive areas located within or in proximity to the Project Area to Site Avoidance level
- Consultation with Yamatji representatives regarding the significance of the Project Area or specific sites, heritage management strategies and recommendations for the avoidance of harm to any ACH.

The assessment aims and objectives were to aid YSRC in their considerations of the Proposal and for the Proponent in understanding the feasibility of the project from a heritage perspective. The preliminary findings and advice from the heritage assessment include:

- Twelve (12) previous Aboriginal Cultural Heritage Inquiry System (ACHIS) survey reports were identified intersecting with the Proposal area
- No previously identified ACHIS lodged, registered or historic sites are present intersecting with the Proposal area
- Sand Plain Creek and other unnamed tributaries are tied to Aboriginal waterway mythology
- Further consultations will occur, especially for waterway crossings, to ensure works are understood and completed in a manner that avoids damage or disturbance to ACH
- Monitors are requested along the entire route, with archaeologists also present at some priority points

-
- The project is feasible from a heritage perspective and should progress, with any future survey model to be agreed with YSRC to ensure that expressed statutory project deadlines can be met.

The Proponent continues to work closely with the YSRC with a commitment to ongoing consultation, engagement, survey clearances and monitoring for future ground disturbing works. The commitment includes progressing any further heritage assessments identified and ensure any locations meeting the criteria for sites under the AH Act will be avoided.

10.3.2. Local Sensitive Receptors

The proposed CPF site is located within a rural setting. Local residents are considered the primary stakeholders in relation to potential amenity impacts, given their ongoing interaction with the surrounding landscape. Key sensitive receptors have been identified as nearby rural residences, with eight homesteads situated within approximately 10 km of the CPF. The closest residence to the CPF is located 3.9 km south of the CPF facilities and is owned by the Proponent. Yandanooka West Road (located approximately 2 km south of the CPF at its closest point) has also been identified as a sensitive receptor due to the potential for visual amenity impacts, particularly where CPF infrastructure may be visible to motorists. Sensitive receptors have been further discussed in **Section 7.3.2**.

10.3.3. Visual Impact Assessment

A Visual Impact Assessment (VIA) (ELA 2025; **Appendix C10**) was undertaken to determine, review and assess the likely impact of the Proposal's infrastructure on visual amenity. The evaluation of landscape and visual impacts considered sensitive receptors and key viewing locations identified by Hancock through stakeholder consultation and a desktop assessment. The scope of the VIA included:

- Mapping of key infrastructure within the CPF site
- Identifying the pre-development visual landscape characteristics of the site and surrounds
- Conducting viewshed and viewpoint analyses to assess the visual impact of the proposed development from key locations.

The VIA focused on the CPF facility, due to the height and bulk of the proposed infrastructure and its potential to impact the visual amenity of the surrounding rural landscape. Other infrastructure located outside the CPF (i.e. pipeline and tie-in infrastructure) is either proposed to be buried or is of small scale relative to the surrounding landscape. As such, the potential for impacts to visual amenity associated with this infrastructure is considered to be negligible and therefore was not considered in the VIA.

10.3.4. Noise Assessment

An environmental noise assessment (Lloyd George Acoustics 2025, **Appendix C11**) was undertaken for the Proposal to predict and assess the impact of Proposal generated noise at sensitive receptor locations. The modelling included the influence of meteorological conditions and assumes that all plant equipment is operated simultaneously. Data used for the modelling included:

- Meteorological information
- Topographical data
- Ground absorption
- Source sound power levels.

The modelling enabled the prediction for two scenarios, with the first scenario representing normal operations and the second reflective of noise during a gas flare discharge.

Noise standards used for the assessment are those specified in regulation 8 (3) of the Environmental Protection (Noise) Regulations 1997. A summary of the applicable standards is summarised in **Table 10-2** below. Definitions of the terms used in the noise assessment are provided below:

- L_{Amax} : An L_{Amax} level is the maximum A-weighted noise level during a particular measurement
- L_{A1} : The A-weighted noise level exceeded for 1 percent of the measurement period and is considered to represent the average of the maximum noise levels measured
- L_{A10} : The A-weighted noise level exceeded for 10 percent of the measurement period and is considered to represent the 'intrusive' noise level.

Table 10-2: Baseline Assigned Noise Levels

Premises receiving noise	Time of Day	L_{A10} (dB)	L_{A1} (dB)	L_{Amax} (dB)
Noise sensitive premises: highly sensitive area ¹	0700 to 1900 hours Mondays to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80

¹Highly sensitive area means that area (if any) of noise sensitive premises comprising:

- A building, or part of a building, on the premises that is used for a noise sensitive purpose
- Any other part of the premises within 15 m of that building or part of the building

10.4. Proposed Mitigation

The selection of the final CPF site was informed by consideration of appropriate separation distances from key heritage features, including inland waterways, as well as sufficient distances to sensitive receptors and public roads, and by the minimisation of visual impacts on the surrounding landscape. Specific avoidance and mitigation relevant to Aboriginal cultural heritage values and amenity is discussed in the following sections and presented in **Table 10-3**.

10.4.1. Aboriginal Cultural Heritage

The Proponent has undertaken engagement with YSRC during the Proposal design phase to identify, avoid and mitigate potential impacts to ACH. Additional findings beyond those presented in the preliminary advice

will be incorporated into project design as they become available. A Cultural Heritage Management Plan will be implemented for the Proposal in consultation with YSRC.

Where the central flowline intersects Sand Plain Creek, it will be installed using HDD up to 25 m below the level of the creek bed, to avoid any impacts to potential surface or subsurface ACH or to water flows that could affect downstream ACH values associated with the Irwin River. Based on previous advice received in relation to the Lockyer project, the Proponent anticipates that this mitigation will be adequate to ensure impacts to cultural heritage values associated with the waterway are not adversely impacted. The Proponent is continuing to engage with YSRC and Traditional Owners to ensure works are understood and completed in a manner that avoids damage or disturbance to Aboriginal heritage.

Heritage monitors will be engaged for ground disturbing works along the entire Disturbance Footprint during construction.

10.4.2. Amenity

To minimise impacts to visual amenity, the CPF has been located away from sensitive receptors in a position where infrastructure is largely obscured from view behind surrounding ridgelines and existing vegetation.

The siting of the CPF away from roads and sensitive receptors minimises the potential for impacts associated with noise, dust and light. To further reduce noise emissions, relevant plant infrastructure (such as compressors and reciprocating engines) will be housed within acoustic enclosures. This engineering control is expected to significantly attenuate noise levels. Modelling based on typical vendor data indicates that the acoustic enclosures will achieve noise reductions of approximately 22 dB(A) for compressors and 20 dB(A) for reciprocating engines, based on L10 noise levels.

Management and mitigation measures used to minimise the impacts on amenity associated with dust and light emissions during construction are detailed in the CEMP (**Appendix D1**) and include (but are not limited to):

- Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading)
- Minimising time between clearing and grading or trenching and backfill/reinstatement
- Application of water or stabilisers via water trucks and sprayers to dampen down soil as required
- Limiting topsoil stockpile height to less than 2 m in height
- Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed compatible with the surrounding land use) to suppress dust from stockpiles
- Night works will not normally occur, limiting the amount of light required for construction works.

During operations, flood lights will be substituted for “resort style” lights at the accommodation camp and floodlighting will be limited to essential operations and maintenance tasks and where required to meet safety standards. Night works will not normally occur, limiting the amount of task level light required.

10.4.3. Other Regulatory Processes

Mitigation and management of Aboriginal sites is regulated under the AH Act through approvals required to enter, excavate, examine or remove items from an Aboriginal site (Section 16), impact an Aboriginal site (Section 18 and Regulation 10) and bring plant and equipment onto an Aboriginal site (Regulation 7).

Construction, commissioning and operation of the Proposal will be implemented in accordance with a Works Approval and Environmental Licence issued under Part V of the EP Act. The Proposal will trigger the following category thresholds for a Prescribed Premises:

- 10: Oil or gas production from wells – 5,000 tonnes or more per year
- 85: Sewage facility – 100 m³ or more per day.

The Works Approval and Environmental Licence are expected to outline controls which apply to the proposed CPF infrastructure to prevent or minimise discharges to air which could impact on amenity, including light, noise and dust during construction and operations.

Mitigation and management measures will also be regulated by DMPE in an approved Environment Plan under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 and Petroleum Pipelines (Environment) Regulations 2012. The Environment Plan must show that the environmental impacts and risks will be reduced to as low as reasonably practicable and include appropriate environmental performance objectives and standards and appropriate measurement criteria for determining whether those objectives and standards have been met.

A Development Approval is required for the CPF under the *Planning and Development Act 2005*. The Proponent referred a development application to the State Referral Coordination Unit on 10 December 2025, for coordinated State Government agency referral advice. The project is currently being assessed and is expected to be approved with conditions. Recommended conditions from the Significant Development Assessment Unit include the requirement for a Noise Assessment and Compliance Report certified by a qualified acoustic consultant during operations, to ensure ongoing compliance with the approved Environmental Noise Assessment and/or the Environmental Protection (Noise) Regulations 1997. The Development Approval also considers impacts of the CPF on visual amenity, though no conditions are expected in relation to this due to lack of nearby sensitive receptors.

These other regulatory processes are considered in more detail in **Appendix A2**.

10.5. Identified Environmental Impacts

Potential impacts to social surroundings associated with the Proposal include:

- Potential for damage to ACH as a result of construction activities
- CPF infrastructure may be visible from sensitive receptors and public roads
- Reduced amenity on the surrounding landscape during construction from dust, noise, and light
- Reduced amenity within the surrounding landscape by noise and light from the CPF during operation.

Table 10-3: Identified Environmental Impacts for Social Surroundings

Risk	Avoidance	Mitigation and management	Identified impacts
<p>Potential damage to ACH as a result of construction activities</p>	<p>Waterways have been avoided wherever practicable through the configuration of the central flowline.</p> <p>Known ACH locations will be clearly delineated through test pits.</p> <p>Heritage monitors will be present during ground disturbance activities.</p>	<p>Heritage survey has confirmed no impacts to registered ACH, but confirmed locations that will require appropriate management:</p> <ul style="list-style-type: none"> • Sand Plain Creek and an unnamed tributary as culturally sensitive waterways <p>A Cultural Heritage Management Plan will be co-developed by Hancock Energy and YSRC and shall address the following:</p> <ul style="list-style-type: none"> • Management of culturally significant waterways, including HDD • Procedure for discovery of subsurface ACH during construction activities • Traditional Owner heritage monitors at all ground disturbing works during construction • Further identification of artefacts discovered during the heritage survey to Site Identification standards, where required • Further survey effort, if required 	<p>Potential impact to culturally sensitive waterways or artefacts.</p>
<p>CPF infrastructure may be visible from sensitive receptors and roads, impacting visual amenity</p>	<p>CPF has been located to ensure that infrastructure is largely obscured from view by intervening vegetation and topography. While visible from several sensitive receptors, CPF is</p>	<p>N/A</p>	<p>Various CPF infrastructure will be visible from several sensitive receptors.</p>

Risk	Avoidance	Mitigation and management	Identified impacts
<p>Dust, noise and light generated during construction and operations impacting local amenity</p>	<p>not an overwhelming feature of the view and blends with the landscape.</p> <p>CPF is located away from roads and sensitive receptors.</p>	<p>Operational noise will comply with levels in the Environmental Protection (Noise) Regulations 1997 (Lloyd George Acoustics 2025; Appendix C11).</p> <p>Management measures to minimise impacts associated with increased light levels include (but are not limited to):</p> <ul style="list-style-type: none"> • Substituting permanent flood lights for “resort style” lights at the accommodation camp • Lighting design around CPF facilities will consider warm light colours and minimise light spill in line with Dark Sky and Astrotourism principles (DPLH 2022) • Floodlights at the CPF will be limited to support essential operations and maintenance, and where required to meet safety standards • Night works will not normally occur, limiting the amount of light required for construction <p>Management measures to minimise impacts associated with increased dust levels include (but are not limited to):</p>	<p>Potential for fugitive dust, noise and light generated during the construction of the Proposal that could temporarily impact local amenity.</p>

Risk	Avoidance	Mitigation and management	Identified impacts
		<ul style="list-style-type: none"> • Ensuring vehicles importing material with dust emitting loads are covered (except when loading and unloading) • Application of water or stabilisers via water trucks and sprayers to dampen down soil as required • Limiting topsoil stockpile height to less than 2 m in height • Potential use of dust stabilisers, water, tarps, geo-textile materials and/or hydro-mulch (with or without seed) to suppress dust from stockpiles • Adherence to speed limits on public roads and implementation of speed limits on private access tracks and within the CPF site 	

10.6. Assessment and Significance of Residual Impacts

10.6.1. Aboriginal Cultural Heritage

The Proposal does not interact with any registered or lodged ACH, with the closest site being the Irwin River (Registered Site 18907, located approximately 9 km to the confluence with Sand Plain Creek).

Engagement with relevant parties is on-going and has included an archaeological and ethnographic survey, preliminary agreement on monitoring and site discovery procedures, and discussions regarding changes to the physical and biological environment that could impact on Aboriginal cultural heritage. Full details of consultation to date are provided in **Section 2.3**.

Following the completion of the heritage surveys, consultation is continuing to identify appropriate management for culturally significant waterways, which is likely to involve HDD, thus avoiding surface and water flow impacts to these waterways. Known and potential cultural heritage material will be managed in a process agreed and documented in a co-developed Cultural Heritage Management Plan.

Risk of broader impacts to the physical and biological environment that could affect Aboriginal cultural heritage are limited. These have been discussed in other sections of this document and include clearing of small areas of mostly degraded vegetation, increased noise, and impacts to the visual landscape in the vicinity of the Proposal. Due to the minor nature of these changes to the physical and biological environment after avoidance and mitigation has been considered, these changes are not expected to impact cultural heritage values.

The Proponent will continue engagement with YSRC to ensure the Proposal is implemented in a way that avoids significant impact to any ACH. Following the completion of any required further archaeological and ethnographic assessment, proactive on-going engagement with Traditional Owners, the implementation of mitigation measures for surface waters proposed in **Section 6.4** and monitoring proposed in **Section 10.4.1**, The Proponent is confident that impacts to Aboriginal cultural heritage will not be significant.

10.6.2. Amenity

10.6.2.1. Visual Amenity

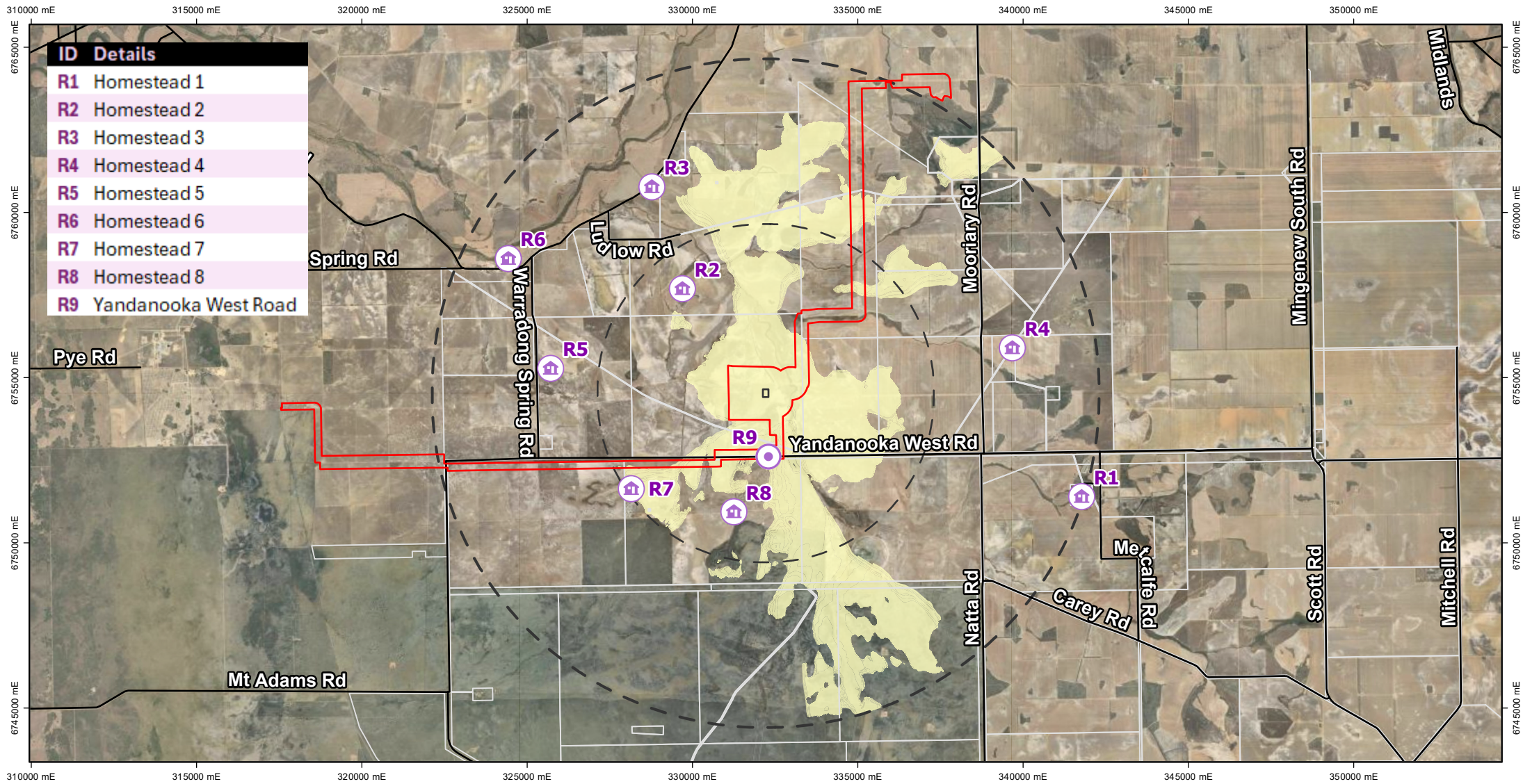
The proposed development is located in a sparsely populated rural area, surrounded by agricultural properties. Roads are utilised mainly by local traffic, and sensitive receptors in proximity to the proposed development are limited to highly dispersed rural residences, of which the closest are owned by the Proponent. The landscape surrounding the CPF does not include particular scenic or natural features.

The results of the VIA indicate that the CPF infrastructure is likely to be visible to varying degrees from a number of residences, with the unsealed Yandanooka West Road being the only road in proximity to the site from where the infrastructure may be visible to the public (ELA 2025; **Appendix C10**). The likely visibility of infrastructure at selected locations is illustrated by the viewshed analysis which indicates the 'seen area' of the various infrastructure associated with the CFP (**Figure 10-2 to Figure 10-5**). It is noted that vegetation has

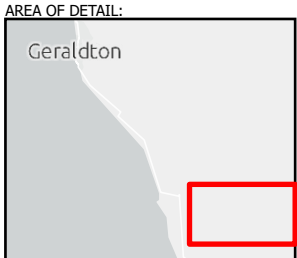
not been modelled in the viewshed analysis and is likely to play a role at a local scale in decreasing the ‘seen area.’

While the VIA indicates that some of the taller CPF site infrastructure is likely to be visible at some sensitive receptors, the bulk of the development is largely shielded by existing vegetation and topography (ELA 2025; **Appendix C10**). At a number of locations, the tallest infrastructure (the flare) will be noticeable above the existing landscape and tree lines. The viewpoint analysis modelled the worst-case scenario with regards to this infrastructure, which in reality is likely to be shorter, narrower and lighter in colour. Where more of the proposed development is likely to be visible, the infrastructure is typically far away (i.e. ≥ 2 km) and is generally not an overwhelming feature of the view, blending in with the topographical features of the landscape such as hills and tree lines. With respect to Yandanooka West Road, the majority of the CPF is shielded from view when travelling west-to-east until the road user would be due south of the CPF. The closest main sealed road is Midlands Road, which is 12 km from the CPF and outside of visual range.

Based on the results of the VIA including modelled renders of the view from sensitive receptor locations, the impacts on visual amenity are minimal. In addition, impacts are not permanent, with an expected 20-year lifespan for the Proposal. Impacts to visual amenity will not be significant (ELA 2025; **Appendix C10**).



ID	Details
R1	Homestead 1
R2	Homestead 2
R3	Homestead 3
R4	Homestead 4
R5	Homestead 5
R6	Homestead 6
R7	Homestead 7
R8	Homestead 8
R9	Yandanooka West Road



LEGEND:

Development Envelope	CPF plant boundary	Distance from CPF plant boundary
Homestead	Cadastre	
Yandanooka West Road	CPF plant boundary visible area	5 km
Road		10 km

PROJECT: Hancock Belisama Approvals

TITLE: Figure 10-2 Viewshed analysis: CPF plant boundary (average height 5m)

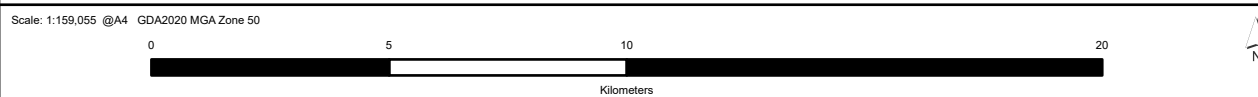
SUBTITLE:

DATE: 15/04/2026

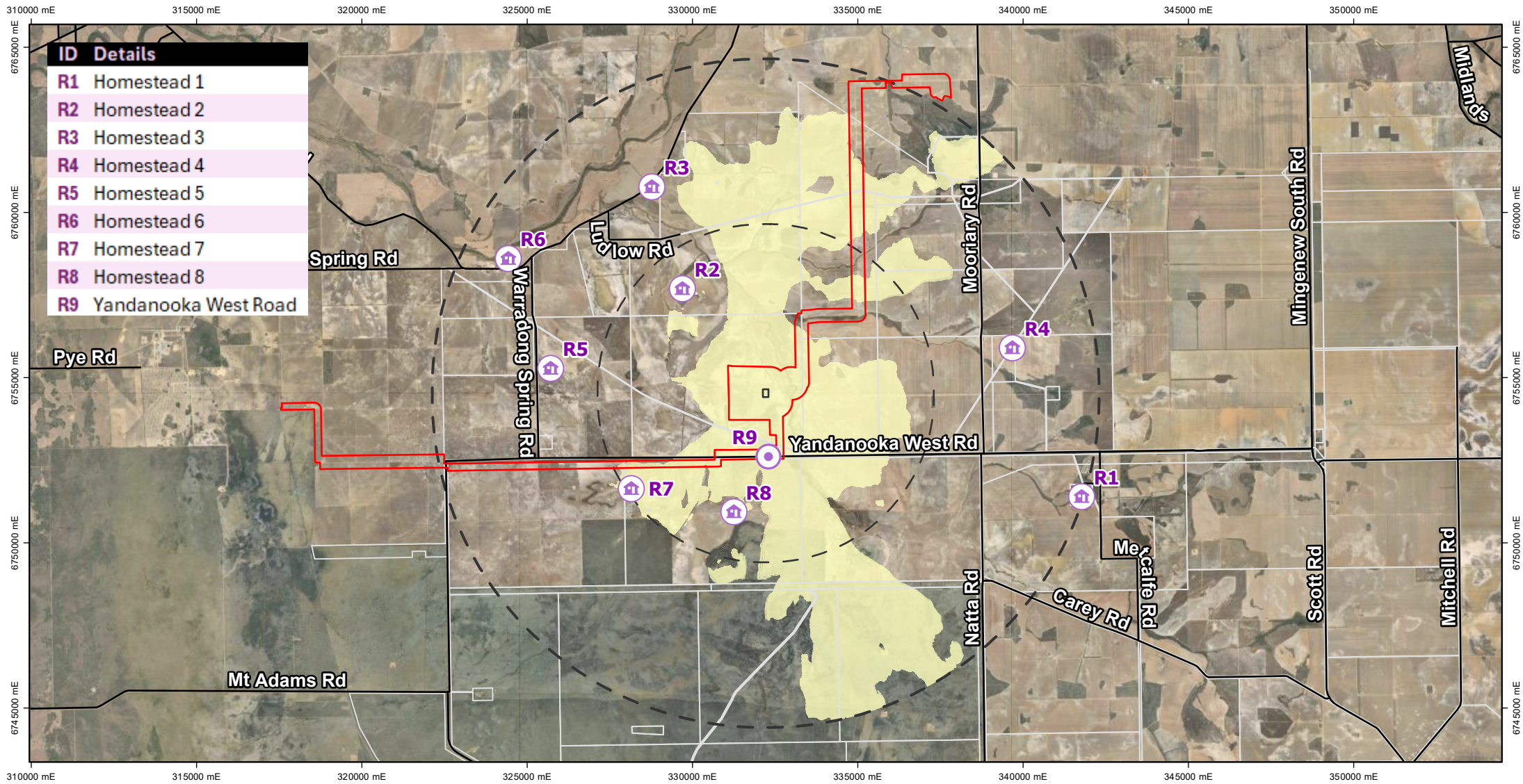
DATA SOURCE:
Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

DOCUMENT STATUS:

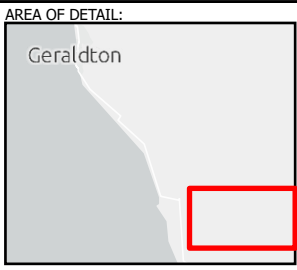
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Revision	Description	SP	Author	Reviewer	QC	CR	21/01/2026
0							



ID	Details
R1	Homestead 1
R2	Homestead 2
R3	Homestead 3
R4	Homestead 4
R5	Homestead 5
R6	Homestead 6
R7	Homestead 7
R8	Homestead 8
R9	Yandanooka West Road



LEGEND:

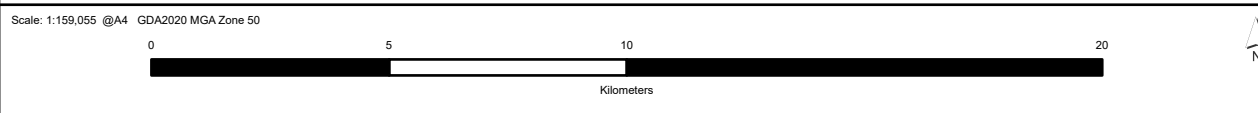
Development Envelope	CPF plant boundary
Homestead	Cadastre
Yandanooka West Road	Gas Gensets and Still Column Tank visible area
Road	

Distance from CPF plant boundary

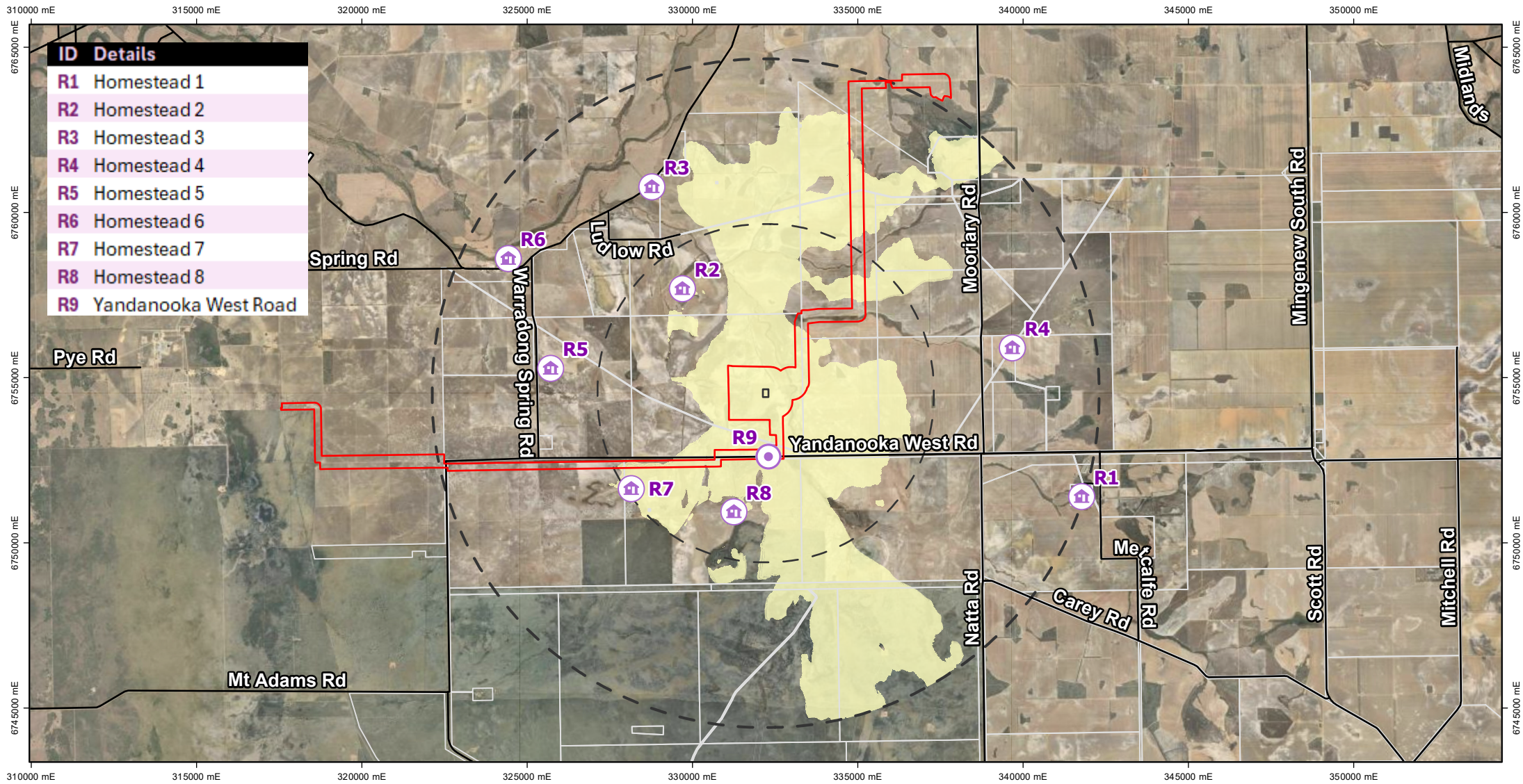
5 km

10 km

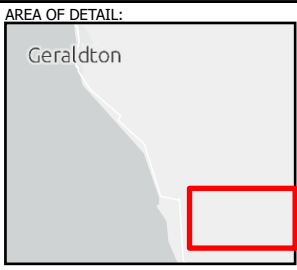
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PROJECT:	Hancock Belisama Approvals				
TITLE:	Figure 10-3 Viewshed analysis: Gas Gensets (height 13.2m) and Still Column Tank (height 12m)				
SUBTITLE:					
DATE:	15/04/2026				
DATA SOURCE:	Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User				
DOCUMENT STATUS:					
0					
Revision	Description	SP Author	Reviewer	QC	CR Approved Date



ID	Details
R1	Homestead 1
R2	Homestead 2
R3	Homestead 3
R4	Homestead 4
R5	Homestead 5
R6	Homestead 6
R7	Homestead 7
R8	Homestead 8
R9	Yandanooka West Road



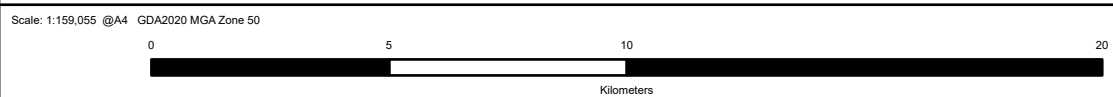
LEGEND:

Development Envelope	CPF plant boundary
Homestead	Cadastre
Yandanooka West Road	Gas Gensets and Still Column Tank visible area
Road	

Distance from CPF plant boundary

	5 km
	10 km

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PROJECT:	Hancock Belisama Approvals				
TITLE:	Figure 10-3 Viewshed analysis: Gas Gensets (height 13.2m) and Still Column Tank (height 12m)				
SUBTITLE:					
DATE:	15/04/2026				
DATA SOURCE:	Service Layer Credits: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User				
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10.6.2.2. Noise

The closest sensitive receptors for increased noise comprise nearby farmhouses or other residences. The main sources of sounds are outlined in **Table 10-4**.

Table 10-4: Overall Decibel (dB(A)) and Sound Sources

Sound sources	Overall decibel (dB(A))
Amine Pumps	105
Compressor > 1750 kW (enclosed)	93
Condensation Cooler	103
Cooler Bed	98
Electric Pump	92
Inlet Cooler Fan	73
Inlet Separator	95
Methane Gas Flare Emergency Discharge	120
Methane Gas Flare Normal	93
Reciprocating Engines (enclosed)	93
Reflux Pumps	93
Slug Catcher	92
Engine Exhaust	85
Dew Point Controllers (JT Jet)	95
Launchers/Receivers	92
Workshop	97

The major noise sources at the CPF during operations will be the compressors and reciprocating engines. With the inclusion of mitigation measures into the facility design (housing compressors and reciprocating engines within acoustic enclosures [**Section 10.4.2**]), the predicted noise levels are compliant with the assigned levels outlined in the Environmental Protection (Noise) Regulations 1997 at all adjacent noise sensitive premises, as demonstrated in **Table 10-5**, **Figure 10-6** and **Figure 10-7**.

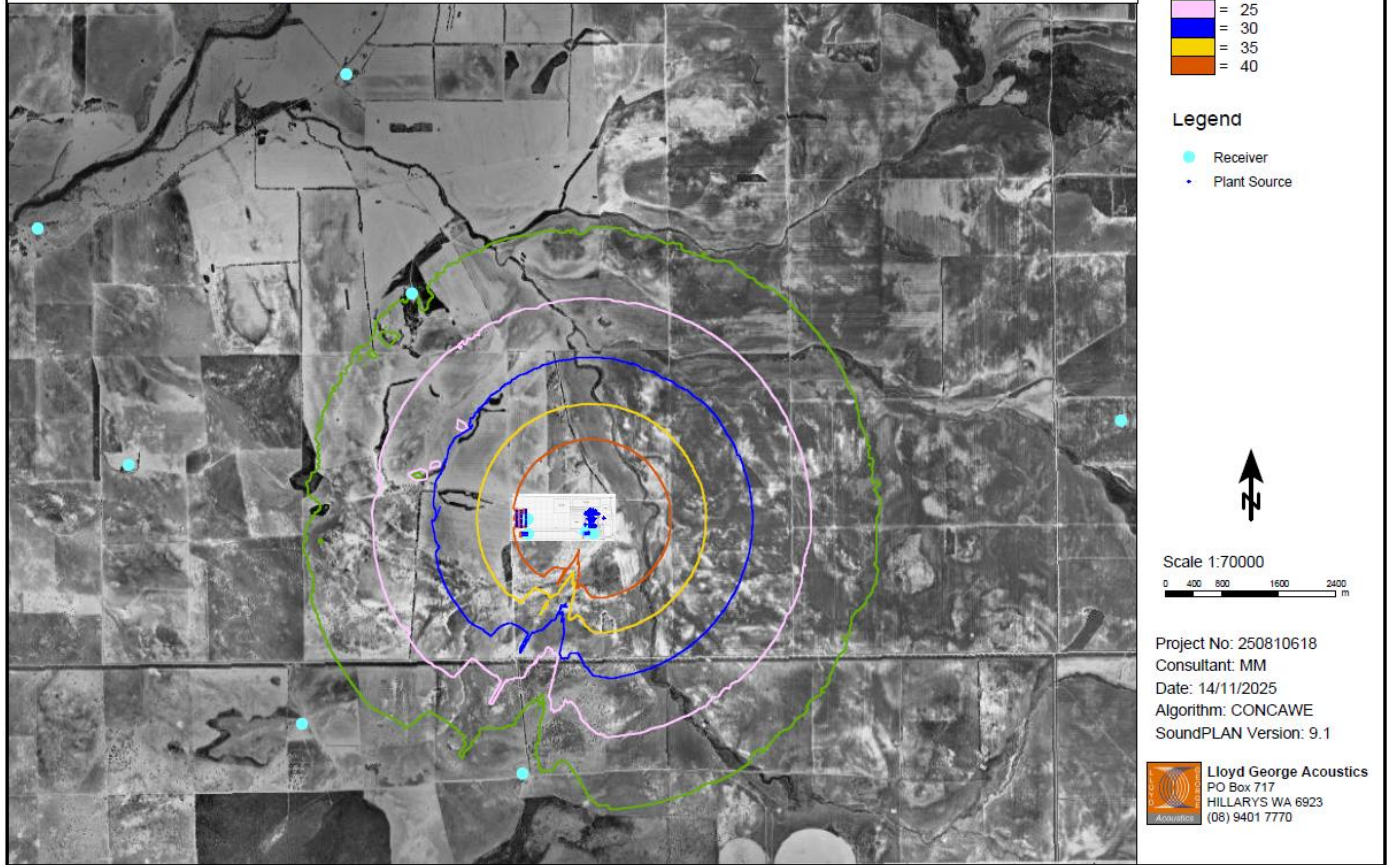
Table 10-5: Predicted Noise Levels at Sensitive Receptors (dB(A))

Sensitive Receiver	Predicted L _{A10} Noise Level dB	Controlling L _{A10} Criterion	Predicted L _{A1} Noise Level dB	Controlling L _{A1} Criterion	Comment
R1	16	35	20	45	Compliant with assigned levels at all times
R2	25	35	29	45	Compliant with assigned levels at all times
R3	14	35	18	45	Compliant with assigned levels at all times
R4	15	35	19	45	Compliant with assigned levels at all times
R5	11	35	14	45	Compliant with assigned levels at all times
R6	10	35	12	45	Compliant with assigned levels at all times
R7	20	35	25	45	Compliant with assigned levels at all times
R8	22	35	30	45	Compliant with assigned levels at all times

In addition, the Proposal will be implemented in accordance with an Environmental Licence issued under Part V of the EP Act, with construction impacts, including noise, to be managed through standard measures outlined in the CEMP (Hancock Energy 2026; **Appendix D1**). As a result of the proposed mitigation for noise and capacity for regulation under other decision-making processes, no significant residual impacts resulting from noise emissions are anticipated.

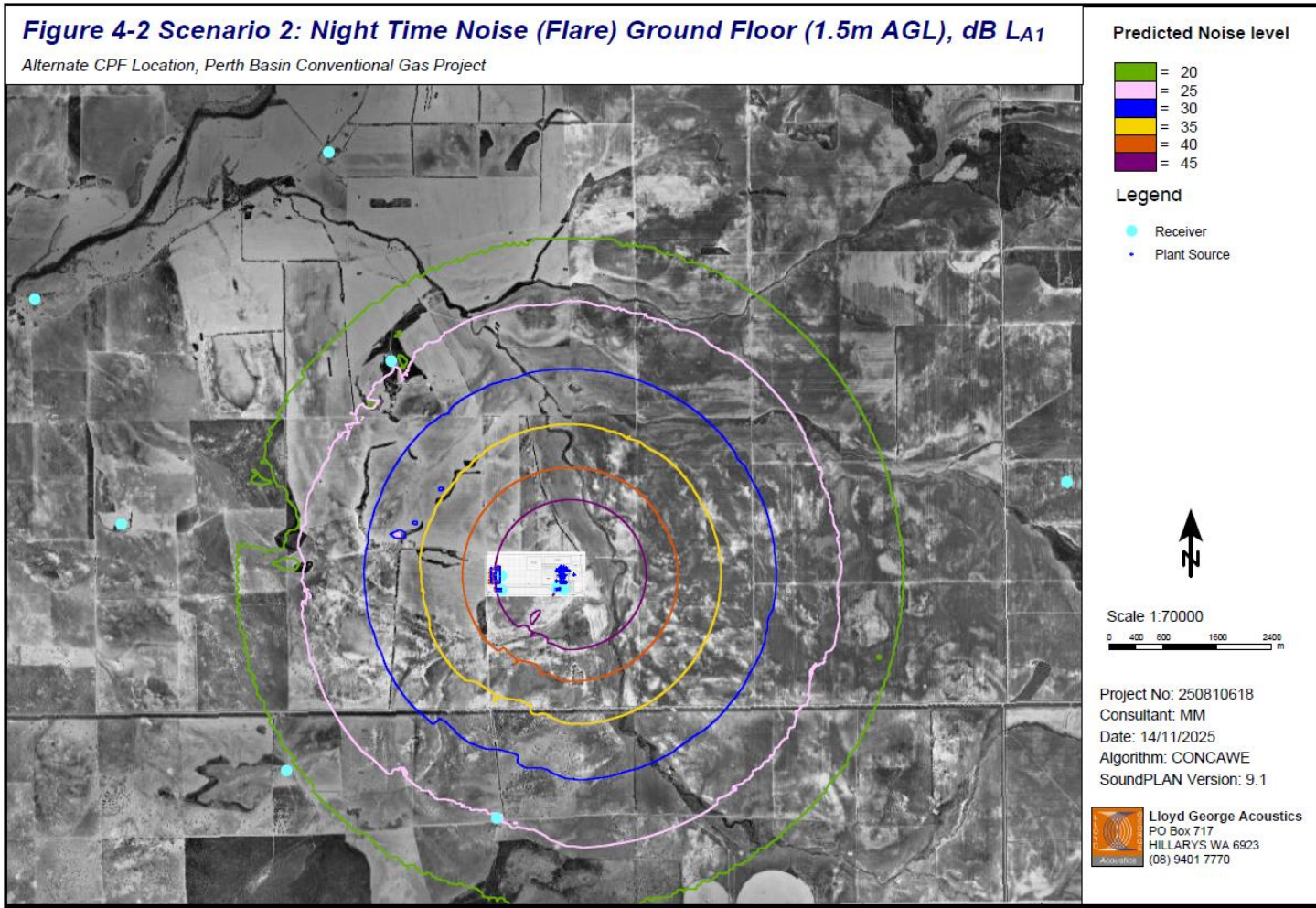
Figure 4-1 Scenario 1: Night Time Noise Ground Floor (1.5m AGL), dB LA10

Alternate CPF Location, Perth Basin Conventional Gas Project



Source: (Lloyd George Acoustics 2025)

Figure 10-6: Predicted LA10 Noise Levels from Processing Plant



Source: (Lloyd George Acoustics 2025)

Figure 10-7: Predicted LA1 Noise Levels from Processing Plant

10.6.2.3. Dust

Dust emissions are expected to increase during construction, from activities such as vegetation clearing, excavations, and vehicle movements. The proposed dust mitigation measures outlined in the CEMP (Hancock Energy 2026; **Appendix D1**) are expected to effectively minimise impacts to amenity. In view of these measures, combined with the short construction timeframe and the rural location of the Proposal away from sensitive receptors, dust-related impacts on amenity are not anticipated to be significant.

10.6.2.4. Light

Lighting associated with the CPF and camp operations will result in low levels of increased light emission to surrounding areas. The proposed light mitigation measures outlined in the CEMP (Hancock Energy 2026; **Appendix D1**) including avoidance of flood lighting at the accommodation camp and minimising the need for night work. Moreover, the CPF gas facilities lighting will be designed to minimise light spill whilst ensuring safety for operators carrying out planned tasks. Maintenance activities will not normally be conducted at night, minimising the need for high lighting levels across the plant. These measures, along with the rural location of the Proposal away from sensitive receptors, are expected to effectively minimise impacts to amenity, and consequently these impacts will not be significant.

10.7. Environmental Outcomes

No significant residual impacts to social surroundings are expected as a result of the Proposal due to the following:

- The minor nature of changes to the physical and biological environment after avoidance and mitigation
- Consultation with YSRC is on-going and will include co-design of a Cultural Heritage Management Plan to ensure that culturally sensitive waterways, known ACH, and potential undiscovered sub-surface ACH materials are appropriately handled to avoid significant impacts to cultural heritage
- Predicted noise emissions are within the guidance levels outlined in Environmental Protection (Noise) Regulations 1997
- The rural location and deliberate placement of the CPF limit the potential sensitive receptors for impacts to amenity
- Impacts to visual amenity will be minor and are not permanent (20-year lifespan of the Proposal)
- Impacts from dust (construction) and light (construction and operation) will be effectively mitigated through the proposed management measures.

The Proponent is therefore confident that social surroundings are protected from significant harm and EPA's objective for the Social Surroundings factor can be met.

11. CUMULATIVE IMPACT ASSESSMENT

In line with EPA guidance, the Proponent has considered the cumulative effects of the Proposal, taking into account the total impacts on the environment of the Proposal with the impacts of past, present or future activities and pressures (EPA 2026a). As appropriate the assessment focused on relevant geographic and temporal boundaries for each of the EPA factors.

The Proposal is located in the mid-west region of WA, within the Shires of Mingenew and Irwin. The surrounding landscape is highly cleared, with the Proposal located within cleared (cropped or grazed) agricultural farmland. The impact of this historical clearing and present agricultural activities is assumed to have been captured in the description of the receiving environment which forms the basis for the impact assessment for the relevant EPA factors.

Current and future activities that could contribute to cumulative impacts are shown in **Figure 11-1** and listed in **Table 11-1**, along with the relevant environmental factors.

If the Proposal is implemented, the development of the West Erregulla Processing Plant and Pipeline Project is unlikely to be progressed but has been included as a conservative measure. Subject to timely approvals of the Belisama project, the downstream elements (i.e. CPF and export pipeline) of the Lockyer Conventional Gas Project will not be progressed and have not been considered as a cumulative impact.

Table 11-1: Projects that may Contribute to Cumulative Impacts

Proponent	Future Activity	Relevant Factors
Tronox Management	Dongara Titanium Minerals Project	Flora and Vegetation Terrestrial Fauna
Project Haber Pty Ltd	Project Haber	Flora and Vegetation Terrestrial Fauna
Strike South Pty Ltd	South Erregulla Conventional Gas Development	Flora and Vegetation Terrestrial Fauna
ERM Power	Three Springs Gas Fired Power Station	Flora and Vegetation Terrestrial Fauna
Energy Resources Limited (acquired by Hancock Energy)	Upstream gathering system of the Lockyer Conventional Gas Project	Flora and Vegetation Terrestrial Fauna
Strike Energy Limited	West Erregulla Field Development Program	Flora and Vegetation Terrestrial Fauna
AGI Operations	West Erregulla Processing Plant and Pipeline (unlikely to be progressed)	Flora and Vegetation Terrestrial Fauna
FI Joint Venture Pty Ltd	Yogi Magnetite Project	Flora and Vegetation Terrestrial Fauna

Proponent	Future Activity	Relevant Factors
AWE Perth Pty Ltd	Waitsia Gas Project Stage 2	Flora and Vegetation Air Quality
Mitsui E&P Australia (MEPAU)	Hovea Production Facility	Air Quality
APA Group	Mondarra Gas Storage and Processing Facility	Air Quality
MEPAU	Xyris Gas Plant	Air Quality

The cumulative impacts of the Proposal are primarily related to the clearing of native vegetation and terrestrial fauna habitat as well as air emissions and inland waters. Potential cumulative impacts are considered in detail in the Flora and Vegetation and Terrestrial Fauna Chapters (**Section 4** and **Section 5**). A summary of these impacts is provided below, along with an assessment of cumulative impacts to the Inland Waters and Air Quality Factors. As impacts to the Terrestrial Environmental Quality factor are expected to be localised and on a small scale, no cumulative impacts are considered relevant.

11.1. Flora and Vegetation

The Proposal will result in minor cumulative impacts to flora and vegetation values within the region. These include:

- Minor contribution to impacts to remnant vegetation within the Eridoon 378, Irwin 352 and Tathra 379 vegetation associations of 1.2%, 0.1% and 0.4% of, respectively
- Minor contribution to cumulative losses of two Priority flora species, *Stylidium drummondianum* (P3) and *Banksia scabrella* (P4), with clearing of one individual of each species (only) attributable to the Proposal.

The Proposal is designed as a direct replacement for the CPF and export pipeline under the approved Lockyer Conventional Gas Project proposal. In relation to flora and vegetation, the cumulative outcome of implementing this Proposal (clearing of 5.7 ha of remnant native vegetation) is not dissimilar to the alternative and current approved scenario of implementing Lockyer Conventional Gas Project as referred (clearing of 4.5 ha of remnant native vegetation).

11.2. Terrestrial Fauna

Together with future activities, the Proposal will contribute to cumulative impacts to up to 2.8% and 2.7% of remnant vegetation within the Mt Adams and Mt Horner land systems respectively.

This Proposal is designed as a direct replacement for the CPF and export pipeline under the approved Lockyer Conventional Gas Project proposal, which would have resulted in the clearing of approximately 9.0 ha of fauna habitat represented by native vegetation, all of which occurs in the Mt Horner Land System. When this is taken into account, the overall cumulative outcome of implementing this Proposal is a reduction in the clearing of fauna habitat within Mt Horner Land System by approximately 4.6 ha and a reduction in overall clearing of fauna habitats by 3.3 ha.

Relative to the Lockyer Conventional Gas Project proposal (as approved) the Proposal will result in an overall reduction in clearing of Carnaby's Cockatoo foraging habitat regionally by 6.6 ha, and an overall reduction in clearing of potential Southern Whiteface habitat by 5.2 ha.

11.3. Inland Waters

Any impacts to surface water and associated values are expected to be localised and small scale, and cumulative impacts are not considered relevant.

Cumulative impacts to the Yarragadee Aquifer associated with cumulative groundwater abstraction in the region have been considered by the Proponent. The Proposal will utilise approximately 0.3 GL per annum for construction over a period of three years, and an ongoing 0.03 GL per annum for operation over the life of the proposal, from an existing 5C groundwater licence. Given the allocation is an existing one, no new cumulative impacts to the Yarragadee Aquifer are anticipated as a result of implementing the Proposal.

11.4. Air Quality

The following surrounding projects were included in the air modelling for the Air Quality assessment (MRP 2025a):

- Mondarra Gas Storage and Processing Facility (operational)
- West Erregulla Processing Plant and Pipeline (Proposed)
- Hovea Production Facility (decommissioned)
- Waitsia Gas Project Stage 2 (operational)
- Xyris Gas Plant (operational).

The cumulative impact assessment for Air Quality was included in the overall assessment for this factor. Outcomes include:

- Predicted concentrations for all pollutants are expected to be below the relevant ambient air quality guidelines and workplace exposure standard criteria at all locations including sensitive receptor locations
- Increased dust emissions will be short-term, highly localised and can be effectively managed
- Aesthetic and environmental impacts from dust deposition are not anticipated
- Standard dust suppression measures proposed to be implemented will be managed through a Part V EP Act Environmental Licence
- Air quality throughout the life of the Proposal will be monitored and reported through Part V EP Act Environmental Licence conditions.

Overall, there will be no significant impacts from the Proposal associated with a reduction in air quality or increased dust emissions.

11.5. Conclusion

The Proponent has considered the cumulative effects of the Proposal along with present and reasonably foreseeable future activities in the area and considers the EPA's objective for all environmental factors can be met.

12. REFERENCES

12.1. Legislation

- *Aboriginal Heritage Act 1972*
- *Dangerous Goods Safety Act 2004*
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007
- *Environmental Protection Act 1986*
- *Environmental Protection Regulations 1987*
- Environmental Protection (Clearing of Native Vegetation) Regulations 2004
- Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974
- *Petroleum and Geothermal Energy Resources Act 1967*
- Petroleum and Geothermal Energy Resources (Environment) Regulations 2012
- *Petroleum Pipelines Act 1969*
- Petroleum Pipelines (Environment) Regulations 2012
- *Planning and Development Act 2005*
- *Rights in Water and Irrigation Act 1914*

12.2. Other

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Appendix A: Legislative Context

A1. Environmental Impact Assessment Process

A1.1 Environmental Protection Act 1986

The Proposal is being referred under the *Environmental Protection Act 1986* (EP Act). The EP Act is the primary environmental legislation governing environmental protection and impact assessment within Western Australia. Part IV of the EP Act provides for the referral and assessment of proposals that may, or will, have a significant impact on the environment.

Aspects of the Proposal have recently been referred to the EPA by the State Development Assessment Unit as part of a Development Approval process for the Belisama Gas Processing Plant. The relevant EPA reference number is APP-0033265.

A1.2 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework for the protection of Matters of National Environmental Significance (MNES). The EPBC Act is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEE).

The Proponent does not consider that the Proposal is likely to have a significant impact on any protected matter that would require referral to the Minister under the EPBC Act.

A2. Other Approvals and Regulations

All onshore petroleum exploration, development and production activities (including flowlines from the wells to the production facilities) are subject to the *Petroleum and Geothermal Energy Act 1967* (PGER Act) and associated regulations, administered by the State Government through the Department of Mines, Petroleum, and Exploration (DMPE), while the *Petroleum Pipelines Act 1969* (PP Act) applies to construction, operation, and maintenance of petroleum pipelines on land within the State. All infrastructure and activities relevant to the Proposal, will be authorised under both the PGER Act and the PP Act.

The objectives of the environment regulations associated with the PGER and PP Act are to ensure that any petroleum activities are carried out in a manner consistent with the principles of ecologically sustainable development and are being carried out in accordance with an Environment Plan and an Oil Spill Contingency Plan (OSCP) approved by DMPE. All petroleum activities within the State are to be undertaken in accordance with these plans, which will have appropriate risk-based environmental performance objectives and standards and provide measurement criteria for determining whether the objectives and standards are met. The management measures outlined within this referral will be consistent with the Environment Plan or OSCP as appropriate.

In addition, the Proposal is expected to be subject to a range of other regulatory decision-making processes that have the ability to mitigate potential impacts of the Proposal on the environment. Other environmental approvals and regulations relevant to the Proposal are outlined in **Table A2-1**.

In determining the ability of other statutory decision-making processes to deliver outcomes consistent with the EPA's environmental objectives, the EPA can consider a number of factors including the scope and any limitations on the decision making, likely environmental outcomes of the regulatory process and ability to set conditions, monitor and review actual outcomes. **Table A2-2** outlines key aspects of these environmental approvals and regulations affecting their ability to mitigate the potential impacts of the Proposal, and ensures that the Proposal is implemented in a way that is consistent with the EPA's objectives.

The relevance of each of these processes to specific risks associated with the Proposal is considered within the mitigation section of each EPA factor chapter within the referral supporting document.

In addition to decision-making processes, the Proposal is subject to a number of other regulatory requirements which require transparent monitoring and reporting of environmental emissions. These include:

- *National Environment Protection (National Pollutant Inventory) Measure*
- *National Greenhouse and Energy Reporting Act 2007* reporting scheme.

A number of regulatory decision-making processes have been considered and were not found to be relevant to the Proposal including:

- BC Act s. 40 Authorisation
 - The Proposal will not take or disturb any Threatened species legislated under the BC Act.
- BC Act s. 45 Authorisation
 - The Proposal will not modify the occurrence of any Threatened community legislated under the BC Act.
- DGS Act Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007 licence
 - The Proposal will not exceed thresholds for designation as a Major Hazard Facility.
- RiWI Act s. 17 Permit to interfere with bed and banks
 - The Proposal is not within a Proclaimed surface water area.

Table A2-1: Other decision-making authority approvals relevant to the Proposal

Decision-making authority	Legislation or Agreement regulating the activity	Proposal element	Approval required/amended
Department of Mines, Petroleum, and Exploration (DMPE)	PP Act and PP (Environment) Regulations 2012	Export pipeline	Pipeline Licence Environment Plan
	PGER Act and PGER (Environment) Regulations 2012	Central processing facility (CPF) and supporting infrastructure; central flowlines	Production Licences Environment Plan
	<i>Dangerous Goods Safety Act 2004</i> (DGS Act) Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007	CPF	Licence for the appropriate storage and handling of Dangerous Goods
	EP Act Part V Environmental Protection (Clearing of Native Vegetation) Regulations 2004	All physical elements	Native vegetation clearing permit
Department of Water and Environmental Regulation (DWER)	EP Act Part V Environmental Protection Regulations 1987	CPF and supporting infrastructure; central flowlines	Works approvals and operating licences for prescribed activities
	<i>Rights in Water and Irrigation Act 1914</i> (RiWI Act)	Construction water supply / operational water supply	26D licence application to construct two groundwater production bores 5C licence amendment to take groundwater

Decision-making authority	Legislation or Agreement regulating the activity	Proposal element	Approval required/amended
Department of Planning, Lands and Heritage (DPLH)	<i>Aboriginal Heritage Act 1972 (AH Act)</i>	All physical elements	Section 16 authorisation to enter, excavate, examine, or remove anything on an Aboriginal Cultural Heritage (ACH) site. Only applicable if ACH discovered in Project area.
	<i>Planning and Development Act 2005 (PD Act) Part 11B</i>	CPF and Operations Village	Significant Development Application
Department of Health/ Local Government	<i>Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974</i>	Sewage treatment plant	Approval to Construct or Install an Apparatus for the Treatment of Sewage

Table A2-2: Other statutory decision-making processes which can mitigate potential impact on the environment

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
<p>Native Vegetation Clearing Permits (NVCP) required for clearing of native vegetation.</p> <p>Applies to all physical Proposal elements within native vegetation.</p> <p>Phases applicable:</p> <ul style="list-style-type: none"> Construction 	<p>Flora and Vegetation</p> <ul style="list-style-type: none"> Clearing of native vegetation including Priority flora species Degradation of vegetation from the introduction and/or spread of weeds during clearing Degradation of vegetation from increased dust deposition during clearing <p>Terrestrial Fauna</p> <ul style="list-style-type: none"> Clearing or degradation of fauna habitat Loss of fauna individuals during clearing Disturbance of fauna due to light, noise and/or vibration during clearing <p>Inland Waters</p> <ul style="list-style-type: none"> Reduction of quality of surface water in Sand Plain Creek due to erosion and sediment load during clearing <p>Terrestrial Environmental Quality</p> <ul style="list-style-type: none"> Wind erosion impacting soil quality following clearing 	<ul style="list-style-type: none"> Exemptions apply for certain activities up to 5 ha per financial year and construction of a cross-over (excludes environmentally sensitive areas) Clearing is restricted to 2-5 years depending on the type of the NVCP Applies to 'native vegetation' only. 	<p>The NVCP process is governed by the guiding principles for the clearing of native vegetation, as stipulated in Schedule 5(1) of the EP Act, stating that native vegetation should not be cleared if:</p> <ul style="list-style-type: none"> it comprises a high level of biodiversity; or it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna; or it includes, or is necessary for the continued existence of, threatened flora; or it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community; or it is significant as a remnant of native vegetation in an area that has been extensively cleared; or it is growing in, or in association with, an environment associated with a watercourse or wetland; or the clearing of the vegetation is likely to cause appreciable land degradation; or the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area; or the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding. <p>By following these guiding principles, and in combination with other listed processes, the environmental outcomes are likely to be consistent with the EPA's factor objectives for Flora and Vegetation, Terrestrial Fauna, Inland Waters and Terrestrial Environmental quality.</p>	<p>Conditions</p> <p>In accordance with s51G, 51H and 51I of the EP Act, DMPE (as the delegated authority) is empowered to attach conditions to the NVCP that are proportionate to the assessed potential impacts on the environment.</p> <p>Enforcement</p> <p>Under s51J of the EP Act the NVCP may include conditions requiring the permit holder to report on various aspects of the clearing activities approved under the permit. It may also contain conditions allowing DMPE to undertake compliance inspections. If through the reporting and inspection processes it is identified that a law has been breached, DMPE is empowered under s70 of the EP Act to undertake 'enforcement actions' to either remedy the situation or sanction the permit holder.</p> <p>Review Process</p> <p>Under s101A(1), 101A(3) and 101A(4) of the EP Act any permit applicants or a third party, including the general public, have the opportunity to lodge an appeal against DMPE's determination or any conditions attached to an approved permit, within the legislated timeframe. These appeals will be considered by the Minister of the day, who is empowered under s.51K(1)(h), 51K(2), 105(aa), 107, 109, 110 EP Act to make a final determination to uphold or dismiss the appeal.</p>	<p>Applications for an NVCP are advertised for public comment in accordance with s51E (4B) of the EP Act.</p> <p>DMPE is also required to consult with other relevant agencies on the content of the application and conditions that may be required, including DBCA, under s51E (4A) of the EP Act.</p>

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
<p>Approval of an Environment Plan is required when conducting any petroleum activity. Applies to the CPF, flowlines, export pipeline and production wells. Phases applicable:</p> <ul style="list-style-type: none"> • Construction • Operations <p>Separate Environment Plans will be required for each phase.</p>	<p>Flora and Vegetation</p> <ul style="list-style-type: none"> • Loss and fragmentation of remnant native vegetation • Degradation of vegetation from the introduction and/or spread of weeds • Degradation of vegetation from increased dust deposition • Increased risk of bushfire ignition <p>Terrestrial Fauna</p> <ul style="list-style-type: none"> • Loss and fragmentation of fauna habitat • Injury, mortality, or displacement of conservation significant fauna • Disturbance to native fauna from light, noise and/or vibration • Degradation of fauna habitats as a result of increased competition or predation by feral fauna • Degradation of fauna habitats as a result of increased bushfire ignition risk <p>Inland Waters</p> <ul style="list-style-type: none"> • Alteration of surface water flows • Increased sediment loads • Water quality impacts due to spills or leaks <p>Social surroundings</p> <ul style="list-style-type: none"> • Reduction in local amenity due to dust, light or noise <p>Terrestrial Environmental Quality</p> <ul style="list-style-type: none"> • Soil contamination due to spills or leaks • Increased wind erosion 	<p>Restricted to the assessment and management of impacts to the environment that occur within Petroleum Instruments granted under the PGER Act, or within Pipeline Instruments granted under the PP Act</p>	<p>All provisions, including the development and approval of an Environment Plan are guided by the overarching objectives (s3) of the PGER (Environment) Regulations 2012 and the PP (Environment) Regulations 2012.</p> <p>Under the objectives, an Environment Plan is designed to demonstrate that all environmental risks and impacts associated with a petroleum and/or geothermal activity are reduced to as low as reasonably practicable.</p> <p>By adhering to this overarching objective and the associated requirements for performance targets and monitoring, all potential impacts identified in this table will be managed to ALARP. The environmental outcomes are likely to be consistent with the EPA’s factor objectives for Flora and Vegetation, Terrestrial Fauna, Inland Waters, Social Surroundings and Terrestrial Environmental Quality.</p>	<p>Conditions</p> <p>In accordance with s11 of the PGER (Environment) Regulations 2012 and s11 of the PP (Environment) Regulations 2012, the Minister of the day may approve an Environment Plan subject to the imposition of limitations or conditions.</p> <p>Enforcement</p> <p>Under the PGER (Environment) Regulations 2012 and PP (Environment) Regulations 2012, the Minister of the day is empowered to administer penalties and/or the withdraw approval of a plan if the applicant is not adhering to specific approval conditions and/or provisions within the regulation.</p> <p>Review Process</p> <p>There are no provisions within the PGER Act, PP Act or the PGER/PP (Environment) Regulations 2012 for the public to review the Environment Plan. However, there are mechanisms within the regulations for the Minister or their delegate to review and ensure the appropriateness/effectiveness of the plan in achieving environmental protection.</p>	<p>As part of the approval process for an Environment Plan the Minister of the day is not required under the PGER Act or PP Act to undertake stakeholder consultation. However, once approved, a summary of the plan must be made publicly available.</p>

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
<p>RiWi Act s5C and s26D Licences are required to take groundwater and construct bores for the Proposal.</p> <p>Applies to the Proposal's construction and operational water supply.</p> <p>Phases applicable:</p> <ul style="list-style-type: none"> • Construction • Operations 	<p>Inland Waters</p> <ul style="list-style-type: none"> • Groundwater abstraction impacting surrounding groundwater users and/or potential GDEs 	<p>A licence is not required to construct a well or to take water if:</p> <ul style="list-style-type: none"> • the development is within the water table (non-artesian) aquifer; and • water is only used for domestic purposes such as: <ul style="list-style-type: none"> – domestic and ordinary use – watering an area of lawn or garden less than 0.2 ha – fire fighting – watering cattle or other stock not raised under intensive conditions as defined in section 21(4) of the RiWi Act. <p>A licence amendment for taking of water and approval for new bores will be required for the Proposal.</p>	<p>All provisions, including the issuing of s5C and s26D licences, are guided by the overarching objectives of the RiWi Act (s4). The most relevant of these to the Proposal and the EPA's objective for Inland Waters is objective a(ii) which is:</p> <p>'to provide for the management of water resources, and (ii) in particular for the protection of their ecosystems and the environment in which water resources are situated, including the regulation of activities detrimental to them.'</p> <p>By adhering to this overarching objective, the outcomes of the s5C licence, is likely to align with the EPA's environmental objective for the Inland Waters factor.</p>	<p>Conditions</p> <p>Under Schedule 1, s15 of the RiWi Act the Minister of the day may 'prescribe terms, conditions and restrictions' on any licences that are approved under the Act. The terms etc attached to the licence must be adhered to as long as the licence exists.</p> <p>Enforcement</p> <p>Under Schedule 1, s18 of the RiWi Act, the Minister is empowered to enforce any conditions attached to an approved licence. This includes the issuing of notices to the licensee and monetary fines.</p> <p>Review Process</p> <p>Under s26GG and s26GI an applicant for a licence may make an appeal to the State Administrative Tribunal to review the Minister's decision. In relation to the s5C licences the right of appeal is extended to any person who are party to an agreement for the use of any water generated under this licence.</p>	<p>Under Schedule 1 s5 of the RiWi Act, an application for a s5C or s26D licence may be made publicly available and open to public submissions on the discretion of the Minister of the day. The Minister will consider any submissions relating to the application prior to deciding.</p> <p>Once a decision has been made, the author of the submission will be notified of the Minister's final determination on the application.</p>
<p>EP Act Part V Works Approval and Operating Licences regulate emissions, discharges and wastes generated by the CPF</p> <p>Applies to the CPF, and central flowline.</p> <p>Phases applicable:</p> <ul style="list-style-type: none"> • Construction (Works Approval) • Operations (Operating Licences) 	<p>Inland Waters</p> <ul style="list-style-type: none"> • Water quality impacts due to spills or leaks <p>Air Quality</p> <ul style="list-style-type: none"> • Airborne pollutants • Dust emissions <p>Greenhouse Gas Emissions</p> <ul style="list-style-type: none"> • Generation of scope 1 emissions <p>Terrestrial Environmental Quality</p> <ul style="list-style-type: none"> • Soil contamination due to spills or leaks <p>Social Surroundings</p> <ul style="list-style-type: none"> • Reduced amenity due to dust, light or noise emissions 	<p>A Works Approval/Operating Licence is only required if the proposed activities trigger the prescribed activities outlined within the Schedule 1 of the Environmental Protection Regulations.</p> <p>The Proposal will trigger two of these categories.</p> <p>A Proponent can undertake site preparation works without a Works Approval (subject to other approvals or restrictions).</p>	<p>All provisions, including the mechanisms for Works Approvals and Operating Licences are guided by the overarching objective of the EP Act to 'Protect the environment of the State'.</p> <p>This objective is guided by the principles presented in s4a of the EP Act and are listed below:</p> <ul style="list-style-type: none"> • The precautionary principle • The principle of intergenerational equity • The principle of the conservation of biological diversity and ecological integrity • The principles relating to the improvement valuation, pricing and incentive mechanism • The principle of waste minimisation. <p>By adhering to this overarching objective and its guiding principles, and in combination with other listed processes, the outcomes of the Works Approvals and Operating Licences are likely to align with the EPA's factor objectives for Inland Waters, Air Quality, Greenhouse Gas Emissions, Terrestrial Environmental Quality and Social Surroundings.</p>	<p>Conditions</p> <p>Under s62 and 62A of the EP Act, the CEO of DWER may include such conditions on a Works Approval or Operating Licence relating to the prevention control, abatement or mitigation of pollution or environmental harm.</p> <p>Enforcement</p> <p>Under s59A of the EP Act, the CEO may revoke or suspend a Works Approval or Operating Licence if the CEO is satisfied that any conditions attached to these documents have been breached. The CEO is also empowered under s65 of the EP Act to issue an environmental protection notice, which requires the holder of these documents to implement measures to prevent, control or abate any unauthorised emissions, pollution or acts harmful to the environment. The Environmental Protection Regulations 1987 also outlines monetary penalties which the CEO can issue to individuals or companies which have committed an offence under the EP Act.</p> <p>Review Process</p> <p>Under s101A(1), 101A(3) and 101A(4) of the EP Act, any permit applicants or a third-party, including the general public, have the opportunity to lodge an appeal against DWER's determination or any</p>	<p>Once an application for a Works Approval or Operating Licence has been accepted by the CEO, it is advertised publicly and invites comments from the general public as required under 54(2a) and 57(2a) of the Environmental Protection Regulation 1987.</p> <p>The CEO may also undertake targeted consultation with direct interest stakeholders, including people, organisations or public authorities, as outlined in s54(2b) and 57(2b).</p>

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
Approval to Construct or Install an Apparatus for the Treatment of Sewage Applies to the CPF. Phases applicable: <ul style="list-style-type: none"> Construction (Temporary Construction Camp) Operations (Operations Village and CPF ablutions) 	<p>Inland Waters</p> <ul style="list-style-type: none"> Water quality impacts due to spills or leaks <p>Terrestrial Environmental Quality</p> <ul style="list-style-type: none"> Soil contamination due to spills or leaks 	<p>All sewage treatment and disposal systems require approval to construct or install an apparatus under the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 under the <i>Health (Miscellaneous Provisions) Act 1911</i>.</p> <p>Where sewage production does not exceed 540 L/day, approval is to be granted by the relevant local government; however, where volumes exceed 540 L/day, approval is required from the Department of Health.</p>	<p>Through this approval, the decision-making authority is informed of and approve the type of effluent disposal system, the source of water supply to be used in connection with the apparatus, the location of the apparatus, and other specifications which may contribute to an environmental impact including site and soil evaluation. This ensures that the approval is managed in accordance with local government and/or Department of Health requirements.</p> <p>The outcomes of the sewage approval(s) will therefore be consistent with the EPA's Terrestrial Environmental Quality and Inland Water factor objectives.</p>	<p>conditions attached to an approved permit, within the legislated time frame. These appeals will be considered by the Minister of the day, who is empowered under s.51K(1)(h), 51K(2), 105(aa), 107, 109, 110 of the EP Act to make a final determination to uphold or dismiss the appeal.</p> <p>Conditions In accordance with the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, the approval may be subject to conditions by the local Government Authority or the Chief Health Officer depending on the type of approval required.</p> <p>Enforcement Under the Health Regulations, penalties may be administered for an operator who commits an offence by contravening the regulations.</p> <p>Review A person who is aggrieved by a decision under the Regulations may apply for a review of the decision.</p>	N/A
AH Act Approvals, if required Applies to all physical Proposal elements. Phases applicable: <ul style="list-style-type: none"> Construction <p>Consent from the Minister under s18 is required to impact an Aboriginal site (being a place to which the AH Act applies by the operation of s5 of the Act).</p> <p>Authorisation under s16 is required to enter, excavate, examine, or remove anything on an Aboriginal site (general related to research).</p>	<p>Social Surroundings</p> <ul style="list-style-type: none"> Potential impacts to Aboriginal cultural heritage 	<p>The Act applies to:</p> <ul style="list-style-type: none"> any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people, past or present any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent any place which, in the opinion of the Committee, is or was associated with the Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State 	<p>All provisions, including the issuing of s18 consent, s16 Authorisations and Regulation 10 and 7 Authorisations, are guided by the overarching objectives of the AH Act to protect and preserve ACH sites and objects.</p> <p>By adhering to this overarching objective, in combination with other listed processes under the AH Act, are likely to contribute to achieving the EPA's Social Surroundings factor objective which is 'To protect social surroundings from significant harm.'</p>	<p>Conditions Under s16 of the AH Act, the Registrar of Aboriginal Sites, on the advice of the Aboriginal Cultural Heritage Committee, may include conditions that apply to the excavation, examination, or removal of an ACH site or object.</p> <p>Under s18 of the AH Act, the Minister may include conditions upon which consent may be given to use the land for the planned activity, which may be amended when the Minister becomes aware of new information about an ACH site.</p> <p>Enforcement Under the AH Act; causing damage or removal of ACH (s17), causing damage or removal of Aboriginal cultural material (s43), obstructing execution of the Act (s54), breaching conditions (s55), or disclosing confidential information obtained under the Act (s56) are classified as offences. Monetary penalties for the person or body corporate committing an offence under the AH Act are outlined in s57.</p> <p>Review Process Under s18A of the AH Act the landowner or Native Title party in relation to the land may apply to the State Administrative Tribunal for a review of the</p>	Consultation with Traditional Owners is required prior to submitting a Section 18 application.

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
<p>Authorisation under Regulation 10 to approve to minor activities and impacts on an Aboriginal site.</p> <p>Authorisation under Regulation 7 to take digging or lifting equipment or explosive onto an Aboriginal site.</p>		<ul style="list-style-type: none"> any place where objects to which this Act applies are traditionally stored, or to which, under the provisions of this Act, such objects have been taken or removed. <p>If there is no risk of harm to ACH from the planned activity, no approval under the AH Act is required.</p>		<p>decision made by the Minister under s18. The Premier may determine the application if they consider that the application raises issues of State or regional importance that it would be appropriate.</p>	
<p>Development Application is required when constructing, modifying, or changing building or land use.</p> <p>An application for the Proposal was made as a Significant Development under Part 11B of the PD Act and requires determination by the Western Australian Planning Commission (WAPC), or Statutory Planning Committee under delegated authority.</p> <p>Applies to the CPF.</p> <p>Phases applicable:</p> <ul style="list-style-type: none"> Design and Construction 	<p>Inland waters</p> <ul style="list-style-type: none"> Alteration of surface water flows Increased sediment loads Water quality impacts due to spills or leaks <p>Social Surroundings</p> <ul style="list-style-type: none"> Impacts on visual amenity Reduced amenity due to dust, light or noise emissions <p>Flora and Vegetation and Terrestrial Fauna</p> <ul style="list-style-type: none"> Increased risk of bushfire ignition 	<p>N/A</p>	<p>Impacts on the environment and on amenity are a key consideration for decisions made under the WA planning framework.</p> <p>The State Development Assessment Unit (SDAU) has issued draft conditions which include requirements for:</p> <ul style="list-style-type: none"> The approval and implementation of a Stormwater Management Plan, demonstrating that stormwater discharge will not impact the existing river system and downstream environment. A Noise Assessment and Compliance Report, certified by a qualified acoustic consultant which includes: <ul style="list-style-type: none"> confirmation that all relevant provisions of the approved Environmental Noise Assessment have been implemented in the construction of the development day and night-time noise assessment undertaken inside the proposed workers accommodation any remedial action/s to be undertaken to address any non-compliance with the approved Environmental Noise Assessment and/or the Environmental Protection (Noise) Regulations 1997, and the date by which the action/s will be completed ongoing noise management and monitoring protocols, to ensure ongoing compliance 	<p>Conditions</p> <p>Under s171P(1) of the PD Act, WAPC may impose conditions on a determined significant development application. Requests for amendments to or removal of conditions are addressed under s171X.</p> <p>Enforcement</p> <p>Under s171U of the PD Act, any conditions imposed on the approval by WAPC must be complied with as if they were imposed on the approval by the local government.</p> <p>Under s218C of the PD Act, contravening a Planning Scheme, commencing or continuing a development in a region subject to a Planning Scheme, or failing to comply with an imposed condition of a Development Application are classified as offences. Monetary penalties for the person or body corporate committing an offence under the AH Act are outlined in s223.</p> <p>Review Process</p> <p>Under s171Y of the PD Act, the applicant may apply to the State Administrative Tribunal for a review of the decision made or any condition imposed by WAPC under s171P(1).</p>	<p>Consultation occurs in accordance with the Planning and Development (Significant Development) Regulations 2024 and the Part 11B Application Guide. It involves a public consultation period of at least 28 days, including letters to nearby property owners and occupants within a 5 km radius, posters in local government buildings and a public notice published in a local newspaper. Information has also been posted on the Department website and WAPC and Department social media accounts.</p> <p>The Development Application is referred to all relevant State agencies to provide feedback, before it is released for public comment.</p>

Decision making process	Proposal impacts regulated by this process	Limit(s) of the decision-making process(es) to regulate the impact e.g. time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision-making process(es)	Stakeholder engagement in decision-making process(es)
Licence for storage of Dangerous Goods. Applies to the CPF. Phases applicable: • Construction • Operations			<ul style="list-style-type: none"> The approval and implementation of a Bushfire Management Plan. <p>In combination with other listed processes, the planning process and associated conditions are likely to contribute to achieving the EPA's factor objectives for Inland Waters, Social Surroundings, Flora and Vegetation and Terrestrial Fauna.</p>		
	<p>Inland Waters</p> <ul style="list-style-type: none"> Water quality impacts due to spills or leaks <p>Terrestrial Environmental Quality</p> <ul style="list-style-type: none"> Soil contamination due to spills or leaks 	<p>The DGS Act does not cover petroleum pipelines transporting Dangerous Goods, which are addressed by the PP Act.</p> <p>A Dangerous Goods site must be licensed when more than a manifest quantity of Dangerous Goods (according to the ADG Code) are handled or stored on-site.</p> <p>The CPF will meet the threshold for requiring this licence.</p>	<p>The dangerous goods site licensing process is likely to result in best practice design and management of chemicals and other hazardous materials at the CPF site.</p> <p>In combination with other listed processes this will minimise the likelihood of a leak or spill that could otherwise impact on Inland Waters or Terrestrial Environmental Quality, and contribute to achieving the EPA's objectives for these factors.</p>	<p>Conditions</p> <p>In accordance with Part 4 of the DGS Act, the Minister or Chief Dangerous Goods Officer may exempt specified provisions of the Regulations from applying, which may be subject to specified conditions.</p> <p>Enforcement</p> <p>Offences and monetary penalties for unlicensed involvement with, possession of, the management of a site containing, or drivers transporting Dangerous Goods are outlined in s11, s12, s13, s14, and s15 of the DGS Act.</p> <p>Offences and monetary penalties for contravening any conditions to which an exemption is subject are outlined in s24 of the DGS Act.</p> <p>Review</p> <p>Under s67 of the DGS Act, any person aggrieved by a reviewable decision may apply to the State Administrative Tribunal for review of the decision.</p>	Not required

A2.1 Land Tenure

The Development Envelope includes portions of both Freehold and Crown lots within the Irwin and Mingenew local government areas. These lots are located within both the Mingenew and Irwin Local Planning Schemes (DPLH 2023a; DPLH 2023b). The land tenure information relevant to the Proposal has been summarised in **Table A2-3**. Access to these parcels will be granted in accordance with:

- Access Rights granted under the Dampier to Bunbury Pipeline Act 1997
- Licences under Section 91 of the Land Administration Act 1997
- Production licences under the PGER Act and Pipeline licences under the PP Act
- Agreements for Access and Compensation and Easements granted under the PP Act
- Agreements for Access and Compensation under the PGER Act
- Consent of the Minister for entry on reserves – section 15A of the PGER Act.

Table A2-3: Land Tenure Information

Lot Number	Volume/ Folio	Land Type	Zoning	Local Government
Road Reserve P ROAD	No Title	Crown Land	Local Road	Shire of Mingenew
Lot M434 on Plan 2981	1271/697	Freehold Land	Rural	Shire of Mingenew
Lot M441 on Plan 2981	1661/537	Freehold Land	Rural	Shire of Mingenew
Lot M717 on Plan 2981	1191/274	Freehold Land	Rural	Shire of Mingenew
Lot 10075 on Deposited Plan 205997	1181/251	Freehold Land	Rural	Shire of Mingenew
Lot M433 on Plan 2984	1122/362	Freehold Land	Rural	Shire of Mingenew
Lot 2 on Deposited Plan 19467	1865/534	Freehold Land	Rural	Shire of Mingenew
Lot 10106 on Plan 206697	1888/212	Freehold Land	Rural General Farming	Shire of Mingenew Shire of Irwin
Lot 12299 on Plan 220114 Road Reserve 10876	LR3112/803	Crown Land	Local Road	Shire of Mingenew Shire of Irwin
Lot 10119 on Plan 206697	1887/898	Freehold Land	General Farming	Shire of Irwin
Lot 123 on Plan 2993	2018/196	Freehold Land	General Farming	Shire of Irwin

A3. Object and Principles of the EP Act

This section discusses how the environmental protection principles of environmental impact assessment (EIA), as listed in s.4A of the EP Act and presented within the EPA’s Statement of Environmental Principles, Factors and Objectives, have been considered by the Proponent for the Proposal (**Table A3-1**) (EPA 2023a).

Table A3-1: Principles of the *Environmental Protection Act 1986*

Principle	Considerations
<p>1. The Precautionary Principle</p> <p>Where there are threats of serious or irreversible damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>In application of this precautionary principle, decisions should be guided by:</p> <ul style="list-style-type: none"> (a) Careful evaluation to avoid, where practicable, serious or irreversible damage to the environment (b) An assessment of the risk-weighted consequences of various options. 	<p>The Proposal has been developed through a detailed process of review to ensure that any impacts to the environment, where possible, have been avoided or otherwise have been minimised as far as practicable.</p> <p>To ensure that these mitigation decisions are suitably informed of the local environmental values and the potential impacts of the Proposal, the Proponent has undertaken extensive environmental studies and surveys within the Development Envelope and the surrounding local area. The comprehensive understanding of these values and potential impacts are reflected in the information presented within the referral supporting document.</p>
<p>2. The Principle of Intergenerational Equity</p> <p>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</p>	<p>The Proposal has been designed to address the principle of intergenerational equity by complying with the EPA’s objectives for each environmental factor. This has been achieved through the implementation of mitigation measures to reduce the significance of any residual environmental impacts.</p> <p>The assessment contained within the referral supporting document demonstrates that the Proposal can be implemented to avoid significant impacts to the health, diversity and productivity of the environment for the benefit of future generations.</p> <p>The Proposal will replace the proposed Lockyer Convention Gas Project CPF and export pipeline, thereby avoiding a number of associated impacts. In comparison with the approved Lockyer Project, the alternative proposed location of the Belisama CPF will reduce social impacts by increasing the distance to sensitive receptors and reducing the indicative Disturbance Footprint and associated vegetation clearing.</p> <p>Under a future targeted scenario, subject to commercial arrangements, the Proposal would also reduce Scope 1 greenhouse gas emissions associated with separate CPF facilities at Lockyer and West Erregulla, by facilitating the future integration of multiple gas field resources.</p> <p>The Proposal responds to a forecast shortage of natural gas in the WA domestic market to support an orderly transition to a low carbon economy. The Proposal will</p>

Principle	Considerations
	<p>contribute significantly to economic growth, employment, and infrastructure development in the Mid-West region. Fundamental to the Proposal’s projected impact will be the increase in affordable and competitive gas to ensure that the domestic market remains well supplied.</p>
<p>3. Principles Relating to Improved Valuation, Pricing and Incentive Mechanisms</p> <p>(a) Environmental factors should be included in the valuation of assets and services.</p> <p>(b) The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement.</p> <p>(c) The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.</p> <p>Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</p>	<p>The costs of environmental constraints through avoidance and management have been considered in the planning and design of the Proposal.</p> <p>The Proponent will be responsible for funding the cost of the environmental avoidance and management measures and ongoing monitoring and rehabilitation activities.</p>
<p>4. The Principle of the Conservation of Biological Diversity and Ecological Integrity</p> <p>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</p>	<p>Comprehensive baseline environmental studies and surveys have been undertaken to understand the existing biological diversity within the Development Envelope and the local area. The results of these studies and surveys have been used to inform a robust assessment of the potential impacts that the Proposal may have on the biological diversity and ecological integrity within these areas.</p> <p>The clearing of native vegetation and fauna habitat, particularly that of conservation significance has been avoided as far as practicable or minimised in all other circumstances. The Proposal does not intersect or fragment any large intact native vegetation remnants.</p> <p>To ensure all unavoidable impacts are minimised as far as practicable, the Proponent will implement mitigation measures throughout the construction, operation, and decommissioning phases of the Proposal. These mitigation measures are discussed in detail throughout this document.</p> <p>Under a future targeted scenario, the Proposal also has the potential to result in a significant reduction in cumulative impacts to native vegetation by making construction of the approved West Erregulla Processing</p>

Principle	Considerations
	Plant and Pipeline redundant. This outcome is subject to future commercial arrangements.
<p>5. The Principle of Waste Minimisation</p> <p>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</p>	The Proponent commits to minimising waste as far as practicable during construction, operation, and closure by adopting the hierarchy of waste controls: avoid, reduce, reuse, recycle and safe disposal.
<p>6. Description of how the object of the EP Act has been considered</p>	The Proposal has been designed to address the EPA’s objectives for environmental factors, with mitigation measures to reduce residual environmental impacts for any significant residual impacts. The Proposal is considered to meet the principles contained in the EP Act and the EPA’s objectives for individual factors. This in turn demonstrates that the Proposal will meet the overarching object of the EP Act to protect the environment of Western Australia.

A4. Classifications of Flora and Fauna

A4.1 Western Australia

In Western Australia, the *Biodiversity Conservation Act 2016* (BC Act) provides for the listing of threatened fauna species in the following conservation categories:

- Critically Endangered (CR) – species facing an extremely high risk of extinction in the wild in the near future
- Endangered (EN) – species facing a very high risk of extinction in the wild in the near future
- Vulnerable (VU) – species facing a high risk of extinction in the wild the medium term
- Conservation Dependent (CD) – species of special conservation interest due to naturally low population, restricted natural range, or special interest to science, or subject to or recovering from a significant population decline or reduction in natural range
- Migratory species (Mig) – includes birds subject to international agreements
- Species otherwise in need of special protection (OS).

The DBCA administers the BC Act and also maintains a non-statutory list of Priority fauna, categorised into four levels from highest priority (P1) to lowest (P4) based on level of knowledge/concern. Priority species are still considered to be of conservation significance (they may be Threatened) but cannot be considered for listing under the BC Act until there is adequate understanding of threat levels imposed on them.

A4.2 Commonwealth

Species and Ecological Communities classified as Threatened under the EPBC Act are assigned to one of the following conservation categories

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- Extinct (EX) – there is no reasonable doubt that the last individual has died
 - Extinct in the Wild (EW) – taxa known to survive only in captivity
 - Critically Endangered (CR) – taxa facing a very high risk of extinction in the wild in the immediate future
 - Endangered (EN) – taxa facing a very high risk of extinction in the wild in the near future
 - Vulnerable (VU) – taxa facing a high risk of extinction in the wild in the medium term
 - Conservation Dependent (CD) – taxa whose survival depends upon ongoing conservation measures; without these measures, a conservation dependent taxon would be classified as Vulnerable, Endangered, or Critically Endangered.

The Proponent does not consider that the Proposal is likely to have a significant impact on any protected matter that would require referral to the Minister under the EPBC Act.

The EPBC Act is also the enabling legislation for protection of Migratory (Mig) species as MNES under several international agreements discussed below.

A4.3 International Conventions and Agreements

Due to Australia providing critical habitat for several species of migratory bird species, the Australian Government has entered into bilateral agreements and other commitments with other nations to conserve these species and their important habitats:

- Japan-Australia Migratory Bird Agreement (JAMBA)
- China-Australia Migratory Bird Agreement (CAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- Ramsar Convention on Wetlands
- Agreement on the Conservation of Albatrosses and Petrels (ACAP)
- East Asian-Australasian Flyway Partnership

The Proponent does not consider that the Proposal is likely to have a significant impact on any migratory bird species protected under these agreements, or their important habitats.

Appendix B: Other Environmental Matters and Factors

B1. Environmental Factors

A summary of each environmental factor and a determination of its relevance to this Proposal is included in the table below.

Table B1-1: Environmental Factors

Theme	Factor	Objective	Consideration
Sea	Benthic Communities and Habitat	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained	The Proposal is located approximately 40 km inshore. As such, these factors are not relevant to the Proposal.
	Coastal Processes	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected	
	Marine Environmental Quality	To maintain the quality of water, sediment, and biota so that environmental values are protected	
	Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained	
Land	Flora and Vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained	The Proponent has made a concerted effort to avoid areas of native vegetation wherever possible during the planning and design phase of the Proposal. Minimal native vegetation clearing will be undertaken as part of the Proposal, with the majority of the Disturbance Footprint being previously cleared agricultural land. However, some small areas of native vegetation are proposed to be cleared. As such, this factor is relevant to the Proposal.

Theme	Factor	Objective	Consideration
	Landforms	To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected	No distinctive landforms occur within the Development Envelope. As such, this factor is not relevant to the Proposal.
	Subterranean Fauna	To protect subterranean fauna so that biological diversity and ecological integrity are maintained	The Proposal will not require any dewatering, and all excavations are expected to be shallow or isolated in nature for specific CPF infrastructure and pipeline installation via HDD, making it highly unlikely that any subterranean fauna habitat will be disturbed. As such, this factor is not relevant to the Proposal.
	Terrestrial Environmental Quality	To maintain the quality of land and soils so that environmental values are protected	Predominant land use in the region has been agricultural (cropping and grazing) which has historically depleted soil quality across the region, and such soils no longer have a native seed bank requiring management. The Proposal could result in minor localised impacts to land and soils via accidental leaks or spills. These potential impacts will be appropriately managed under Part V of the EP Act Works Approval/Licences. However, with regard for the Precautionary Principle, this factor may be considered relevant to the Proposal.
	Terrestrial Fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained	The Proponent has made a concerted effort to avoid areas of native vegetation wherever possible during the planning and design phase of the Proposal and as such minimal fauna habitat will be cleared as a result of the Proposal, with the majority of the Disturbance Footprint being previously cleared agricultural land. However, some small areas of the Development Envelope do contain fauna habitat. As such, this factor is relevant to the Proposal.
Water	Inland Waters	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected	The Proponent has opted for a strategy which will see the central flowline horizontal direct drilled under Sand Plain Creek to avoid any impacts to creek line hydrology. The Proposal intersects a number of minor ephemeral surface water flowlines and will include a relatively small amount of groundwater abstraction. As such, this factor is relevant to the Proposal.
Air	Air Quality	To maintain air quality and minimise emissions so that environmental values are protected	The Proposal is likely to generate airborne pollutants, the ground concentrations of which have been modelled as being below relevant ambient air quality criteria. However, in view of the Precautionary Principle, this factor may be considered relevant to the Proposal.

Theme	Factor	Objective	Consideration
	Greenhouse Gas Emissions	To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable	Significant up-front capital investment on emissions reducing technologies is proposed to reduce the baseline greenhouse gas emissions associated with the Proposal. The Proposal is estimated to generate greenhouse gas emissions up to a maximum of approximately 86,000 tCO ₂ -e/year during operations (under a high emissions scenario). As such, this factor is relevant to the Proposal.
People	Social Surroundings	To protect social surroundings from significant harm	Elements of the Proposal have potential to impact on amenity of residences and road users. The Development Envelope may include Aboriginal cultural heritage values. As such, this factor is relevant to the Proposal.
	Human Health	To protect human health from significant harm	The Proposal does not include radiation emission or other risks to human health that are not considered under other factors. As such, this factor is not relevant to the Proposal.

APPENDIX C: RELEVANT TECHNICAL STUDIES AND INVESTIGATIONS

- Belisama Conventional Gas Project Flora and Vegetation Survey (Biologic 2026a)
- Basic and Targeted Terrestrial Fauna Survey for the Belisama Conventional Gas Project (Phoenix 2025)
- Belisama Conventional Gas Review of Black Cockatoo Assessment (Bamford 2026)
- Belisama Gas Project Inland Waters Assessment (HGG 2025)
- Belisama Conventional Gas Project Air Quality Assessment (MRP 2025a)
- Belisama Conventional Gas Project Greenhouse Gas Assessment Technical Report – Case 1 (Greenbase 2025a)
- Belisama Conventional Gas Project Greenhouse Gas Assessment Technical Report – Case 2 (Greenbase 2025b)
- Belisama Conventional Gas Project Independent Peer Review – Greenhouse Gas Estimate (Evolveable 2025)
- Geotechnical Investigation by Test Pitting – Belisama Gas Project (FCE 2025)
- YSRC Letter of Support (YSRC 2026)
- Belisama Gas Project Visual Impact Assessment (ELA 2025)
- Environmental Noise Assessment – Belisama Gas Development Project (Lloyd George Acoustics 2025)

C1. Belisama Conventional Gas Project Flora and Vegetation Survey (Biologic 2026a)

C2. Basic and Targeted Terrestrial Fauna Survey for the Belisama Conventional Gas Project (Phoenix 2025)

C3. Belisama Conventional Gas Review of Black Cockatoo Assessment (Bamford 2026)

C4. Belisama Gas Project Inland Waters Assessment (HGG 2025)

C6. Belisama Conventional Gas Project Greenhouse Gas Assessment Technical Report – Case 1 (Greenbase 2025a)

**C7. Belisama Conventional Gas Project Greenhouse Gas Assessment
Technical Report – Case 2 (Greenbase 2025b)**

C8. Belisama Conventional Gas Project Independent Peer Review – Greenhouse Gas Estimate (Evolveable 2025)

C9. Geotechnical Investigation by Test Pitting – Belisama Gas Project (FCE 2025)

C10. Belisama Gas Project Visual Impact Assessment (ELA 2025)

**C11. Environmental Noise Assessment – Belisama Gas Development Project
(Lloyd George Acoustics 2025)**

Appendix D: Environmental Management Plans

- Belisama Gas Project – Construction Environmental Management Plan (Hancock Energy 2026)
- Belisama Gas Project – Stormwater Management Plan (HGG 2026a)
- Belisama Gas Project – Technical Monitoring Guideline: Groundwater and Surface Water (HGG 2026b)

**D1. Belisama Gas Project – Construction Environmental Management Plan
(Hancock Energy 2026)**

D2. Belisama Gas Project – Stormwater Management Plan (HGG 2026a)

D3. Belisama Gas Project – Technical Monitoring Guideline: Groundwater and Surface Water (HGG 2026b)