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Content of the Environmental Scoping Document

1. Introduction

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

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

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

This ESD has not been released for public review. The ESD will be available on the EPA website (www.epa.wa.gov.au) upon endorsement and must be appended to the Environmental Review Document (ERD). The ERD is to be published for public review for a period of 10 weeks.

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

Table 1: General proposal and proponent information

Proposal information	
Proposal name	Western Green Energy Hub
Proponent	Western Green Energy Hub Pty Ltd
Assessment number	2489
Local Government area	Shire of Dundas and City of Kalgoorlie-Boulder
Public review period	Public Environmental Review Document- 10 weeks
EPBC reference no	EPBC 2024/10049

The subject of this ESD is the Western Green Energy Hub (WGEH) Pty Ltd's Western Green Energy Hub (the proposal). The proposal is to design, construct and operate a large-scale wind and solar power project to produce value added products, with the base case assuming green ammonia production for export. The proposal consists of wind turbines, solar farms hydrogen electrolysers a green ammonia (or other vector) production facility, electrical infrastructure, worker villages, infrastructure corridor, marine offloading facility, desalination plant, export pipeline and other associated infrastructure.

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

1.1 Indicative timing of the environmental review

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

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

Key assessment milestones	
EPA approves Environmental Scoping Document	July 2025
Proponent submits first draft Environmental Review Document	December 2026
EPA provides comment on first draft Environmental Review Document *(6 weeks from receipt of ERD)*	February 2027
Proponent submits revised draft Environmental Review Document	June 2027
EPA authorises release of Environmental Review Document for public review *(2 weeks from EPA approval of ERD)*	July 2027
Proponent releases Environmental Review Document for public review for 10 weeks	August 2027
Close of public review period	October 2027
EPA provides Summary of Submissions *(3-6 weeks from close of public review period)*	November 2027
Proponent provides Response to Submissions	January 2028
EPA reviews the Response to Submissions *(4-8 weeks from receipt of Response to Submissions)*	March 2028
EPA prepares draft assessment report and completes assessment	May 2028
EPA finalises Assessment report (including two-week consultation on draft conditions) and gives report to Minister *(6 weeks from completion of assessment)*	June 2028

1.2 Commonwealth Government approvals

The Proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Proposal is being assessed by environmental impact statement under the EPBC Act.

2. Form and content (required work)

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

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

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

2.1 Preliminary key environmental factors

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

1. Benthic Communities and Habitat
2. Coastal Processes
3. Marine Environmental Quality
4. Marine Fauna
5. Flora and Vegetation
6. Subterranean Fauna
7. Terrestrial Fauna
8. Landforms
9. Inland Waters
10. Greenhouse Gas Emissions
11. Social Surroundings

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

Table 3 outlines the proposal specific and/or additional work required as it relates to preliminary key environmental factor/s for the proposal. The information outlined in the tale below is required in additional to the required work outlined in the *Instructions and Template: How to prepare an Environmental Review Document* and any applicable policy and guidance.

Table 3: Proposal specific and/or additional required work

All Environmental Factors	
Required work	Work to be consistent with the requirements in the *Instructions and Template: How to prepare an Environmental Review Document* and provided for each factor: 1. factor objective 2. relevant policies and guidance 3. receiving environment 4. potential environmental impacts 5. mitigation

	6. assessment and significance of residual impact 7. environmental outcomes Work required to inform the ERD will be conducted in accordance with the requirements of the most recent EPA Environmental Factor Guidelines and Technical Guidance at the time the ERD is published for each preliminary key environmental factor, and a consolidated report of the surveys and/or investigations undertaken will be provided for each factor. Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance. If new or alternative techniques compared to the EPA Technical Guidance are used, a peer review of information, modelling, surveys conducted, and management plans developed for factors are required to determine if the EPA objectives can be met. For each preliminary key environmental factors, the proponent is required to follow relevant recovery plans, conservation advice and/or threat abatement plans for conservation significant species, communities, habitat (supporting, significant, and critical), and ecosystems that are known to occur, or are likely to occur in the vicinity of the proposal area. Any instances where published guidance is not followed must be justified. Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are current, relevant and consistent with EPA guidance. Stakeholder engagement should include a summary of consultation with relevant environmental authorities within South Australia due to the connectivity between both terrestrial and marine environmental values in the context of the proposal.
Benthic Communities and Habitats	
Required work	1. Identify and characterise Benthic Communities and Habitats (BCH) within and adjacent to the proposal area at a local and regional scale. Consider the potential impact pathways to the nearby Great Australian Bight and Mirning Marine Parks, and areas outside of the Development Envelope. 2. Use appropriate modelling of emissions and discharges to predict the permanent and reversable impacts on BCH and to derive effective monitoring and management controls to avoid or minimise impacts to BCH from proposal activities including but not limited to: a. Brine discharge from the facility b. Dispersion of sediment plumes from: i. construction of the Marine Operations Facility (MOF) ii. construction and maintenance dredge activities iii. construction of breakwaters iv. excavation and construction of pipelines c. Contaminant spills such has hydrocarbons or hydrogen products. 3. Modelling should consider the above impacts over the appropriate time spans to address the cumulative nature of hydrodynamic changes over time and their effect

	on BCH. 4. Identify impact pathways and quantify the extent of BCH assemblages to be lost directly from the proposal and indirectly, e.g. as a result of compromised through impacts to Marine Environmental Quality.
Coastal Processes	
Required work	5. Identify and characterise the local Coastal Processes in the vicinity of the proposal including up to the hightide mark within the Mirning Marine Park. The processes should include but be not limited to, the hydrodynamic and geophysical interactions that define the area. 6. Derive an informed design that minimises impacts to coastal processes and seeks to avoid permanently changing the character of the local coastal processes. 7. Undertake modelling to characterise hydrodynamic and geophysical processes and to predict the impact on these processes from the construction of infrastructure (e.g. breakwaters) that is appropriate in scope, both spatially and temporally. 8. Identify impact pathways and predict impacts from the proposal to Coastal Processes for both the short and long term (100 year proposal lifetime) that may alter or impede Coastal Processes including best, most likely and worst-case scenarios. 9. Provide a monitoring and management plan that will be implemented post-construction to demonstrate and ensure residual impacts to Coastal Processes are not greater than predicted.
Marine Environmental Quality	
Required work	10. Identify and characterise the baseline marine environmental conditions and derive suitable modelling, monitoring and management criteria to minimise impacts from the proposal including but not limited to: a. Prolonged alteration of local physicochemical parameters from point emissions b. Inadequate dispersion of authorised discharges c. Spilling of contaminants of potential concern related to proposal activities (COPC, as defined under the National Environment Protection Measures 1994)) d. Permanent infrastructure altering processes affecting Marine Environmental Quality (MEQ) such as turbidity, sedimentation and long-term hydrodynamics. e. Impacts to MEQ from works such as MOF construction, dredging, breakwater construction, pipeline excavation and pile driving. f. Ongoing impacts from project works and operational activities. 11. Using contemporary and validated models characterise and predict the impacts of contaminant spills with a focus on hydrogen products from the proposed activities. Predictions must consider a range of spill volumes up to a worst-case scenario spill event, likely spill dispersion, environmental persistence and degradation over time. 12. Undertake a long-term hydrodynamic study to inform metocean conditions, plume dispersion modelling, brine discharge, and spills. 13. Undertake sediment dispersion modelling to quantify the potential magnitude,

	intensity, and spatial distribution of suspended sediment concentrations and sedimentation from construction of the MOF, dredging operations, breakwater construction and pipeline excavation. 14. Describe the potential direct and indirect impacts to MEQ including, if relevant, MEQ of the Miring National Park, in terms of spatial extent, severity and duration, considering all relevant construction and operational activities and pressures. 15. Develop safeguards to address the risks of pollution/spills.
Marine Fauna	
Required work	16. Determine a baseline for Marine Fauna species that are known or are likely to occur in the local vicinity of the proposal with a particular focus on: a. Species listed under the *Biodiversity Conservation Act 2016* and Priority species listed by the Department of Biodiversity and Conservation and Attractions b. Species listed under the EPBC Act c. Marine and Migratory Bird species d. Cetacean species e. Species significant to commercial and recreational fisheries. The above baseline should consider for each species the habitat preferences and values of the local and biologically important area with a consideration for ecological/biological windows of sensitivity and seasonal interactions. Desktop and biological surveys undertaken to determine this baseline should include clear rationale and/or justification for survey methodologies, predictions/modelling used in determining the presence, abundance and /or distribution of significant marine fauna. 17. Conduct modelling to predict the impacts of underwater noise on conservation significant marine fauna, particularly the Southern right whale, during construction (pile driving, dredging and/or excavation) and operations (vessel movement and vessel stabilisation during loading). 18. Characterise the pathways and potential impacts to fauna and related habitat values through direct impacts and secondary impacts including but not limited to changes to marine environmental quality, spills, shipping traffic and pathways, underwater noise, BCH and coastal processes. If applicable, discuss these impacts in the context of the Mirning Marine Park. 19. Determine the extent of permanent impact to marine fauna habitat including but not limited to permanent infrastructure and shipping lane pathways. 20. Characterise the cumulative impacts to marine fauna at a regional scale. 21. Derive an informed design that seeks to avoid, mitigate or minimise impacts to marine fauna with consideration for but not limited to: a. Permanent loss of significant fauna habitat b. Impacts to fauna behaviour through light, noise and vessel traffic c. Impacts to fauna via construction and process activities d. Impacts during critical environmental windows such as breeding and migration.

	e. Introduction of foreign and invasive species through construction and operational activities. f. Contaminant spills such as ammonia or hydrocarbons g. Discharges such as hypersaline brine or wastewater. 22. Include proposed monitoring and management plans that will be implemented pre- and post-construction to demonstrate and ensure residual impacts to Marine Fauna are not greater than predicted.
Flora and Vegetation	
Required work	23. In accordance with EPA guidance, conduct surveys to identify and characterise the flora and vegetation within the area in a local and regional context, and clarify and justify the quantification of the local and regional context used in assessment. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. 24. Provide a map of the survey effort applied in relation to the study area, and development envelope, identifying the direct and indirect impact areas. 25. Provide maps showing the recorded locations of significant flora in relation to the proposal and species distributions. 26. Provide maps showing the extent of all vegetation, and significant vegetation, in the study area, the development envelope, direct and indirect impact areas, and in the local and regional contexts. 27. Characterise the scope of impacts to flora and vegetation at a local and regional level, with regard for secondary impacts such as changes to surface hydrology and fire regimes including consideration for vegetation resilience to change. 28. Quantitative assessment of impacts must include percentages of impact at local and regional levels. Quantitative assessment tables must be provided for: a. Significant flora, including: i. number of individuals and populations in a local and regional context ii. numbers and proportions of individuals and populations directly and potentially impacted iii. numbers/proportions/populations currently protected within conservation estate (where known). b. for vegetation units (noting threatened and priority ecological communities and significant vegetation): i. area (in hectares) and proportions directly or indirectly or potentially indirectly or directly impacted ii. proportions/ hectares of vegetation unit currently protected within conservation estate (where known). 29. Assess the potential impacts (direct, indirect and cumulative) to the flora and vegetation within the Development Envelope and adjacent vegetation, including conservation areas, due to the construction and operations. Indirect impacts

	include but are not limited to the introduction and spread of weeds, the introduction and spread of pathogens e.g. dieback, changes to fire regimes, changes in hydrology and hydrogeology, that considers the compounding effects of a drying, warming climate on vegetation health and condition. 30. Undertake and provide details of a baseline soil quality assessment of the development envelope. 31. Include figures of the mapped soil units and soil profile in the ERD. 32. Provide details on the presence of sodic/calcic clay soils, saline soils and cryptogram crusts within the proposal area, and if present, provide an assessment of the erosion risk as a result of the proposal, and provide details of proposed management measures to be implemented during construction and operation to minimise impacts to flora persistence and regeneration. 33. Discuss timebound and measurable commitments to achieve progressive rehabilitation outcomes both post construction and at decommissioning of operation (e.g. against annual clearing rates, number of hectares per five years etc.).
Terrestrial Fauna	
Required Work	34. In accordance with EPA guidance, conduct a desktop study to identify and characterise the fauna and habitats in a local and regional context; and based on the results of the desktop study conduct: a. a Basic fauna survey; and/or b. a Detailed survey include sampling inside and outside the impact areas that may be directly or indirectly impacted; and/or c. targeted surveys for significant or restricted fauna or unsurveyed areas that may be impacted. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. 35. Provide map(s) of the survey effort applied in relation to the study area, terrestrial fauna habitats, and development envelope, identifying the direct and indirect impact areas 36. Provide maps showing the extent of terrestrial fauna habitats in relation to the proposal and species distributions. 37. Map the locations of significant/restricted fauna records in relation to the terrestrial fauna habitats, the study area, the development envelope, and direct and indirect impact areas. 38. Describe significant fauna habitats, including but not limited to the short-range endemic (SRE) invertebrate microhabitats, refugia, breeding areas, key foraging habitat, movement corridors and linkages that may be impacted by the proposal. 39. Identify and describe the fauna assemblages present and likely to be present within the development envelope that may be impacted by the proposal including but not limited to short-range endemic and significant vertebrates. 40. Undertake targeted surveys for the conservation significant species, describe in detail their known ecology, likelihood of occurrence, habitats and known

	threats. Describe the application of the Conservation Advice and Recovery plans for the conservation significant species. 41. Assess the potential impacts attributable to the proposal during construction, operation and decommissioning including but not limited to, the introduction and/or spread of invasive and feral animals, change to fire regimes, change to surface water, artificial light and impacts attributable to the wind turbine operation. 42. Demonstrate that the Proposal has considered the requirements set out in the *Onshore Wind Farms – interim guidance on bird and bat management* (2024 or any subsequent revisions) and inform the mitigation hierarchy, monitoring and management measures to reduce significant impacts to birds and bats.
Subterranean Fauna	
Required Work	43. In accordance with EPA guidance, conduct a desktop study to identify and characterise the subterranean fauna and habitats in a local and regional context. Based on the results of the desktop study conduct a basic, detailed and/or targeted survey. If surveys in caves are required, they must be undertaken by suitably qualified and experienced experts in caving and subterranean fauna sampling and a survey plan must be approved by the Department of Water and Environmental Regulation (DWER) prior to commencement. This plan should include a log of caves which have been entered/surveyed previously (e.g. by cavers or researchers) and any that are surveyed for this assessment. 44. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results of the surveys. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. 45. Provide a map of the survey effort applied in relation to the study area, subterranean fauna habitats, and development envelope, identifying the direct and indirect impact areas. 46. Provide figures and maps showing the extent of subterranean fauna habitats in relation to the proposal and species distributions. 47. Map the locations of significant/restricted fauna records in relation to the subterranean fauna habitats, the study area, the development envelope, and direct and indirect impact areas. 48. Identify and describe the fauna assemblages present and likely to be present within the development envelope that may be impacted by the proposal. 49. Where significant or restricted subterranean fauna and habitats occur, describe their known ecology, likelihood of occurrence, habitats and potential threats. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to subterranean fauna and their habitat as a result of implementation of the proposal during both construction and operations, in a local and regional context. Provide a table of the proportional extents of each habitat within the study area and development envelope, and the predicted amount to be directly impacted and remaining. Consider any local or regional cumulative impacts.
Landforms	

Required Work	50. Characterise the landforms present in the Eucla Basin in terms of geoheritage, geomorphological divisions (geological/tectonic division) variety, integrity, ecological function, rarity and social importance/cultural associations. Consult with appropriate professionals as necessary to assist in the identification of the landforms likely to be impacted. This characterisation will be for extent of the landforms in their entirety and the portion within the Infrastructure Development Envelope. 51. Using suitably qualified experts undertake geomorphological and geotechnical surveys and assessment of the landforms likely to be impacted (e.g. limestone karst system) to inform the site characteristics and whether the landform is robust or sensitive to damage and degradation. Consideration should be given to survey methodology such as basement mapping, Light Detection and Ranging (LIDAR) and Landscape Function Analysis. Justification and limitations of the survey methodology used should be provided. Hydrological and geological interactions should be defined at local scales. 52. Provide an analysis and discussion of whether the landforms are robust and therefore less sensitive to damage or degradation from cumulative impacts in the region, development activities, or whether it is easily disturbed or degraded. 53. Identify the environmental values supported by the landforms (such as geodiversity values, ecological function, habitat, etc) and discuss interrelations between the values including how the proposal will affect the role of the landforms in sustaining these values (e.g. through changes in surface water or groundwater flows, wind movement, precipitation, temperature, stability, landscape connectivity and soil composition/chemistry). 54. Provide details of the stability of the site from a geotechnical perspective. 55. Describe and assess the significance of potential direct, indirect and cumulative impacts to the significant landforms features or systems within and directly adjacent to the proposal area. Include an analysis of the nature, magnitude and duration of the impacts (including extent and severity). The impacts should include, but not be limited to, disturbance by surveys and investigations (such as damage from vehicle access, sampling approaches or accidents), linear infrastructure such as roads and pipes, and foundations and hardstand structures in relation to the area's geological stability at construction and over the life of the proposal. 56. Synthesise the above information (i.e. tables, geospatial information, photos, aerials) to describe, spatially define and visually represent the extent of temporary (define timescales) and permanent impacts to the significant landform features, its ecological function and environmental values. 57. Commission and peer review of the scope, methodologies, findings and conclusions of the surveys.
Inland Waters	
Required Work	58. Provide information on the water demands required for the proposal, potential sources and quantities required for activities during construction, operation and decommissioning. 59. Provide a detailed description of the proposal aspects that have the potential to impact inland waters. 60. Characterise the baseline hydrological and hydrogeological regimes in a local and regional context, clarify and justify the local and regional context used in the

	assessment, including but not limited to, catchment boundaries, water quantity and quality, water chemistry, stream flows and flood patterns, water levels, aquifer recharge and discharge mechanisms, aquifer connectivity, and surface water/groundwater interaction. 61. Describe how the geological framework, including the karst systems, within the indicative footprint influences or is influenced by hydrological and hydrogeological regimes. Include a description of any interdependence between surface and groundwater features/bodies, as well as interdependence between surface/groundwater and the geological framework within the indicative footprint. 62. Undertake a desktop survey of bore users in the project area. 63. Conduct hydrogeological investigations and analysis to characterise how any changes to hydrological and hydrogeological regimes caused by implementation of the proposal are likely to impact karst systems within the development envelope and the Eucla Basin, potentially dependent ecosystems, existing users and potential RIWI resources such as Loongara Sandstone Aquifer. 64. Undertake representative hydrological investigations to determine: a. The effects any modified surface drainage will have on surface and groundwater quality and quantity, for a range of rainfall events, including forecasted maximum precipitation in consideration of climate change. b. The areas that are likely subject to direct and indirect impacts identified in (a). c. The predicted impacts of climate change on the post-development hydrology, including cumulative impacts and a range of climatic scenarios and rainfall events, including forecasted maximum precipitation. 65. Provide a hydrogeological assessment (including detailed numerical groundwater modelling) to assess potential impacts of utilising beach wells including but not limited to the risk of seawater intrusion. 66. Provide details of the presence of sodic/clay soils, acid sulphate soils, saline soils and cryptogam crusts within the proposal area. 67. Assess and discuss the potential risk of impacts (direct, indirect and cumulative) on the hydrological regime and surface water quality from the proposal including but not limited to, soil erosion and changes to water infiltration caused by vegetation loss, the disturbance of sodic/calcic clay soils, acid sulphate soils, saline soils and cryptogram crusts, and use of water for dust suppression and other construction, operational and decommissioning activities. 68. Assess and discuss the potential risk of impacts (direct, indirect and cumulative) on the hydrological regime and groundwater quality from the proposal, including but not limited to, altered hydrological flows, changes to water infiltration and seawater intrusion.
Greenhouse Gas Emissions	
Required work	69. Provide a clear pathway for reducing scope 1 greenhouse gas (GHG) emissions (annual and total) in tonnes of carbon dioxide equivalent (CO2-e) over the life of the proposal. This should usually be consistent with, or exceed, the EPA's minimum expectations for emissions reductions. If these minimum requirements cannot be practicably achieved, then a clear justification why should be provided. 70. Provide justification for the emissions baseline used and the alternative approaches

	that were considered to calculating baselines (including an explanation why these were not adopted). 71. Discuss how best practice measures have been adopted to avoid or reduce a proposal's scope 1 emissions at commencement and throughout the life of the proposal through regular reviews. 72. Describe the intended GHG emissions offsets to offset residual emissions for scope 1 emission sources that cannot be avoided or reduced to achieve proposed commitments and targets. 73. Discuss whether there are other legal and policy instruments such as the Safeguard Mechanism that can regulate GHG emissions from the proposal to meet the EPA's objectives. 74. Discuss how the scope 1, 2 and 3 GHG emissions from the proposal's operation beyond 2050 is consistent with a global low-carbon transition to a net zero by 2050 scenario.
Social Surroundings	
Required work	75. Characterise and describe the social, cultural, amenity, research and heritage values within and adjacent to the Proposal area and any sensitive receptors that may be directly or indirectly impacted as a result of this Proposal. This includes any receptors that may be affected by land clearing, construction, operation and decommissioning activities, noise, dust, traffic, access, visual and other amenity issues. Include relevant maps to show the locations of the sensitive receptors likely to be affected by the proposal. Identify sites of cultural significance within a regional context, in consultation with the relevant Aboriginal people, including the Mirning people. 76. In consultation with the relevant Aboriginal people, including the Mirning people, characterise the heritage and cultural heritage of the development envelope including offshore and underground domains, and any other areas that may be impacted. 77. In accordance with EPA guidance, provide information on physical or biological impacts to Aboriginal Cultural Heritage (ACH) where harm is avoided or minimised by the *Aboriginal Heritage Act 1972* (AH Act), physical or biological impacts to ACH not considered by the AH Act, and reasonable steps taken to consult with relevant Aboriginal people about physical or biological impacts likely to cause significant harm to ACH values. 78. Detail the process used to engage with relevant stakeholders, including but not limited to, pastoral lease holders, Western Australian fishing bodies (e.g. the Western Australian Fishing Industry Council, Recfishwest, and the Aquaculture Council of WA), speleological organisations, and the local community, and how they have been consulted with respect to the potential impacts to the Proposal. 79. Conduct a Noise Impact assessment predicting the worst-case impacts to all relevant sensitive receptors from the proposal, identifying any potential non-compliances with the *Environmental Protection* (*Noise) Regulations 1997* and proposing suitable mitigations and noise management measures where required. 80. Characterise the types, sizes and number of construction and operational vehicles on public roads, the proposed traffic routes and proximity to sensitive receptors. Demonstrate how construction and operational road traffic will be managed to protect the amenity of any sensitive receptors.

	81. Conduct a landscape and visual impact assessment to characterise the visual landscape character and scenic quality values, and impacts of the Proposal during construction, operations and post-closure, in accordance with the Western Australian Planning Commission (2007) Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design. Include photo-montages and assessment of visual impacts at representative visual receptor locations including, but not limited to, users of the Eyre Highway and passengers aboard trains on the Trans Australian Railway. 82. Describe and assess the potential impacts (direct, indirect and cumulative) to social surroundings, including recreational, amenity and social values, as a result of changes to the environment from the proposal (e.g. noise, dust, traffic, restricted amenity and access, and visual) considering relevant stakeholders.

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

The ERD will include a cumulative impact assessment (CIA) to assess the Proposal's contribution to impacts on relevant environmental values. Describe, quantify and discuss the direct and indirect cumulative impacts to environmental values and objectives. The CIA will consider successive, incremental and interactive impacts of the proposal on the environment, with one or more past, present and reasonably foreseeable future activities.

The site where the proposal is located is on a large area of Unallocated Crown Land and pastoral leases land. It is situated over the Nullarbor Plan limestone karst system with the Bunda Cliffs to the south. It is approximately 4.0 km from the Nuytsland Nature Reserve, approximately 3.5 km from the Eucla National Park, approximately 6 km west and 7 km east of the Mirning Marine Park and is adjacent to the Nullarbor Wildlife Protection Area in South Australia.

Development in the region includes the Eyre Highway, Trans Australian Railway, farming, Eucla town site, commercial and recreational fishing. There are up to 10 unsurveyed areas under exploration licences held by three separate entities registered within and in the vicinity of the development envelope.

The required items to be addressed in the CIA are identified in Table 4. Throughout the preparation of the ERD, there may be additional environmental values identified.

Table 4: Cumulative impact assessment

Benthic Communities and Habitat	
Required work	• Boundaries of assessment include the coastline including built, approved and planned projects adjacent to and surrounding the proposal, including developments further away where benthic communities and habitat are characterised as being continuous. • Environmental values at the time of ESD publication are preliminary pending further surveys and will be required to address impacts to benthic communities and habitats. • Activities considered include direct clearing and shading and smothering by sediments during construction and as a result of proposal related marine traffic.
Coastal Processes	
Required work	• Boundaries of assessment include the waters along the coastline including WA and South Australian waters • Environmental values at the time of ESD publication are preliminary pending further surveys and will be required to address impacts to coastal processes. • Activities considered include the construction and operation of the marine offloading facility, the approach channel and breakwaters by inducing changes to marine currents, sediment transport and deposition, shoreline equilibrium and BCH.
Marine Environmental Quality	
Required work	• Boundaries of assessment include the waters along the coastline including WA and South Australian waters • Environmental values at the time of ESD publication are preliminary pending further surveys and will be required to address impacts to marine environmental quality. • Activities considered include dredging construction, and proposal related marine traffic and accidental spillage during operation.
Marine Fauna	

Required work	• Boundaries of assessment include the Geographe Bay to Eucla Shelf and adjacent South Australian waters or the species range, whichever is smallest and should be assessed in the context of other pressures on marine fauna.
	• Environmental values include the following, which may be considered preliminary until further surveys are completed, and additional values may be included (exclusion of any environmental values require justification):
	  ○ Coastal Waters Important Marine Mammal Area
	  ○ Conservation significant marine fauna species
	  ○ MNES
	  ○ Conservation values adjacent marine parks and reserves
	  ○ Fishing and social/cultural values
	  ○ Other environmental values as identified in additional studies.

	• Activities considered include dredging construction, and proposal related marine traffic and accidental spillage during operation.
Flora and Vegetation	
Required work	• Boundaries of assessment include the proposal development envelope, and any direct or indirect impacts outside the development envelope. The extent (local and regional) of the boundaries for significant flora and vegetation should be defined and justified based on scientific evidence. boundaries should also take into consideration the location of other current and reasonably foreseeable future activities and the pathways through which impacts from these activities might arise. • The environmental values include, which may be considered preliminary until further surveys are completed and additional values may be included (exclusion of any environmental values require justification: ○ conservation significant flora species ○ conservation significant vegetation such as Priority Ecological Communities ○ biodiversity values of Nuytsland Nature Reserve, Eucla National Park in WA and the Nullarbor Wildlife Protection Area in South Australia ○ other environmental values as identified by studies. • Activities considered include clearing of native flora and vegetation, and alteration to surface water flows.
Subterranean Fauna	
Required work	• The boundaries of assessment include the development envelope, and any direct or indirect impacts that may occur outside the development envelope, including in the limestone karst system. • Environmental values at the time of ESD publication are preliminary pending further surveys and will be required to address impacts to significant or restricted subterranean fauna species and habitat. • Activities considered include the potential disturbance of the limestone karst system
Terrestrial Fauna	
Required work	• The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope, including that within the Nuytsland Nature Reserve and Eucla National Park in WA, and the Nullarbor Wildlife Protection Area in South Australia. The extent (local and regional) of the boundaries for significant terrestrial fauna should be defined and justified based on scientific evidence. Boundaries should also take into consideration the location of other current and reasonably foreseeable future activities and the pathways through which impacts from these activities might arise • Environmental values include the following, which may be considered preliminary until further surveys are completed, and additional values may be included (exclusion of any environmental values require justification):

	○ Fauna habitat ○ Conservation significant terrestrial fauna species (including short range endemic species and assemblages) ○ Conservation values of Nuytsland Nature Reserve and Eucla National Park in WA, and the Nullarbor Wildlife Protection Area in South Australia ○ Other environmental values as identified in additional studies. • Activities considered include clearing of 27,188 ha of fauna habitat, vehicle and machinery movements, groundwater abstraction during construction, alterations and disruptions to surface water flows.
Landforms	
Required work	• Boundaries of assessment include consideration of the landforms of the Eucla Basin that potentially connect and interact with the development envelope. • Environmental values are associated the Eucla Basin where they are potentially impacted by the proposal. • Activities considered – construction and movement of heavy machinery over karst systems and the potential placement of heavy infrastructure including but not limited to wind turbines above karst systems. • Consideration of indirect impacts that affect the processes and character associated with karstic landforms such as altered hydrology.
Inland Waters	
Required work	• The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope. • Environmental values include the following, which may be considered preliminary until further surveys are completed, and additional values may be included (exclusion of any environmental values require justification): ○ Unconfined limestone aquifer ○ Sandstone Eucla Artesian Aquifer ○ Department of Planning, Lands and Heritage (DPLH) bore water reserves 9256 and 9258 ○ Other key water features, including dongas (shallow depressions that collect water after intense rain), dolines (closed depressions that drain below ground) and surface water flow regimes • Activities considered include abstraction of beach wells, alteration of surface water flows.
Greenhouse Gas Emissions	
Required work	• Boundaries of assessment include greenhouse gas emissions contributions to the Western Australian resource sector (mining, processing, transport, oil and gas), and the cumulative emissions contributed to total West Australian greenhouse gas emissions.

	• Cumulative emissions for this proposal include those associated with the construction, operation and closure of the proposal from construction activities, haulage, processing and transportation of product for export. • Environmental values include scope 1 and 2 generations, and other environment receptors at risk due to climate change. • Activities considered include diesel combustion, use of equipment, vehicles and clearing.
Social Surroundings	

Required work	• The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope.
	• Environmental values include the following, which may be considered preliminary until further surveys are completed and additional values may be included (exclusion of any environmental values require justification):
	  ○ Impacts to areas of Aboriginal and Cultural Heritage
	  ○ Noise impacts to sensitive receptors
	  ○ Visual impacts to sensitive receptors, comprising the landscape and viewers
	  ○ Impacts to recreation including speleological activities
	• Activities considered include the construction and operation of the proposal

2.4 Holistic impact assessment

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

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

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

2.5 Offsets

Provide details of the proposed offset to counter-balance significant residual impacts including but not limited to:

- objectives and outcomes

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

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

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

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

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

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

Refer to the relevant guidance for further information on offsets:

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

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

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

2.6 Stakeholder consultation

The proponent must consult with stakeholders who are affected by or are interested in the proposal. This includes decision-making authorities, other relevant state (and Commonwealth) government agencies and local government authorities, Traditional Owners, the local community and environmental non-government organisations.

Additional stakeholder that must be meaningfully consulted include, but are not limited to:

- Mirning people and elders
- Pastoral leaseholders, where the development envelope overlaps the pastoral lease, or may otherwise directly or indirectly, affect the pastoral lease.

The proponent document must document the following in the ERD:

- List the key stakeholders for the proposal.
- Discuss the stakeholder identification process.
- Discuss the process for stakeholder engagement for the proposal, including ongoing consultation.
- Include outcomes of consultation with stakeholders and a detailed response to issues raised by them (or reference the section in the ERD where they are addressed) (ERD Template Table 5). Identify who was consulted, summary of discussions, key issues / matters raised, outcomes and whether matters raised were resolved or outstanding.
- Do not include generic outcomes of discussions with decision making authorities – do include specific outcomes.
- Justify if consultation has not been undertaken.

3. Decision-making authorities

The Proponent has identified the State decision-making authorities listed in Table 5 for this Proposal. Additional decision-making authorities may be identified during the course of the assessment. Information about how DMAs processes can meet expected outcomes and EPA objectives is preliminary or may be unknown at this ESD stage. Completion of the information in Table 5 and Table 6 will be provided in the ERD on a per impact basis.

Table 5: Decision making authorities and processes

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which proposal element the approval is related to)
Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972*	*Aboriginal Heritage Act 1972* s. 18 consent to impact a registered Aboriginal heritage site
Minister for the Environment	*Biodiversity Conservation Act 2016*	s. 40 authority to take or disturb threatened species
Minister for Mines and Petroleum	*Mining Act 1978*	s.16 approval to lease, transfer or otherwise dispose of land under the Land Administration Act (note: applies when land is leased or disposed of under the LAA)
Minister for Lands	*Land Administration Act 1997*	s. 79 lease of Crown land (note: approval of Minister for Mines also required under section 16 *Mining Act 1978*) s. 91 licence over Crown land s.88 Option to Lease (Option) s.92B Diversification of Lease
Minister for Transport	*Main Roads Act 1930* *Marine and Harbours Act 1981*	s. 18C authorisation to carry out main road works s. 12 seabed lease (*where land is vested in the Minister under s. 9)
Minister for Water	*Rights in Water and Irrigation Act 1914*	s. 5C licence to take water s. 26D licence to construct or alter a well dewatering licence
Minister for Agriculture and Food	*Biosecurity and Agriculture Management Act 2007* *Soil and Land Conservation Act 1945*	soil and land conservation covenants

Director General, Department of Biodiversity, Conservation and Attractions	*Biodiversity Conservation Act 2016*	Authority to take flora and fauna (other than threatened species)
Chief Health Officer, Department of Health	*Health Act 1911* Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974	Treatment of sewage intended to serve a building that is not a single dwelling or any other building that produces more than 540 litres of sewage per day
Director WorkSafe Petroleum Safety and Dangerous Goods, Department of Local Government, Industry Regulation and Safety	*Dangerous Goods Safety Act 2004*	Storage and handling of dangerous goods. Major Hazard Facility
Director General, Department of Transport	*Marine Navigational Aids Act 1973* Navigable Waters Regulations 1958	Reg 8 Permission to throw into or place things in port, harbor or navigable waters
Director General, Department of Water and Environmental Regulation	*Environmental Protection Act 1986*	Part V works approval and licence
Director General, Department of Planning Lands and Heritage	*Land Administration Act 1997*	Land access: s. 79 lease of Crown land s. 91 licence over Crown land s.88 Option to Lease (Option) s.92B Diversification of Lease
Western Australian Planning Commission	*Planning and Development Act 2005*	Part 11b Significant Development Pathway
Chief Executive Officer, Shire of Dundas	*Building Act 2011* *Planning and Development Act 2005* *Local Government Act 1995 (and relevant local By Law*	building permit (worker accommodation, offices etc) planning approval/development approval extractive industries licence
Chief Executive Officer, City of Kalgoorlie-Boulder	*Planning and Development Act 2005*	planning approval/development approval

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

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

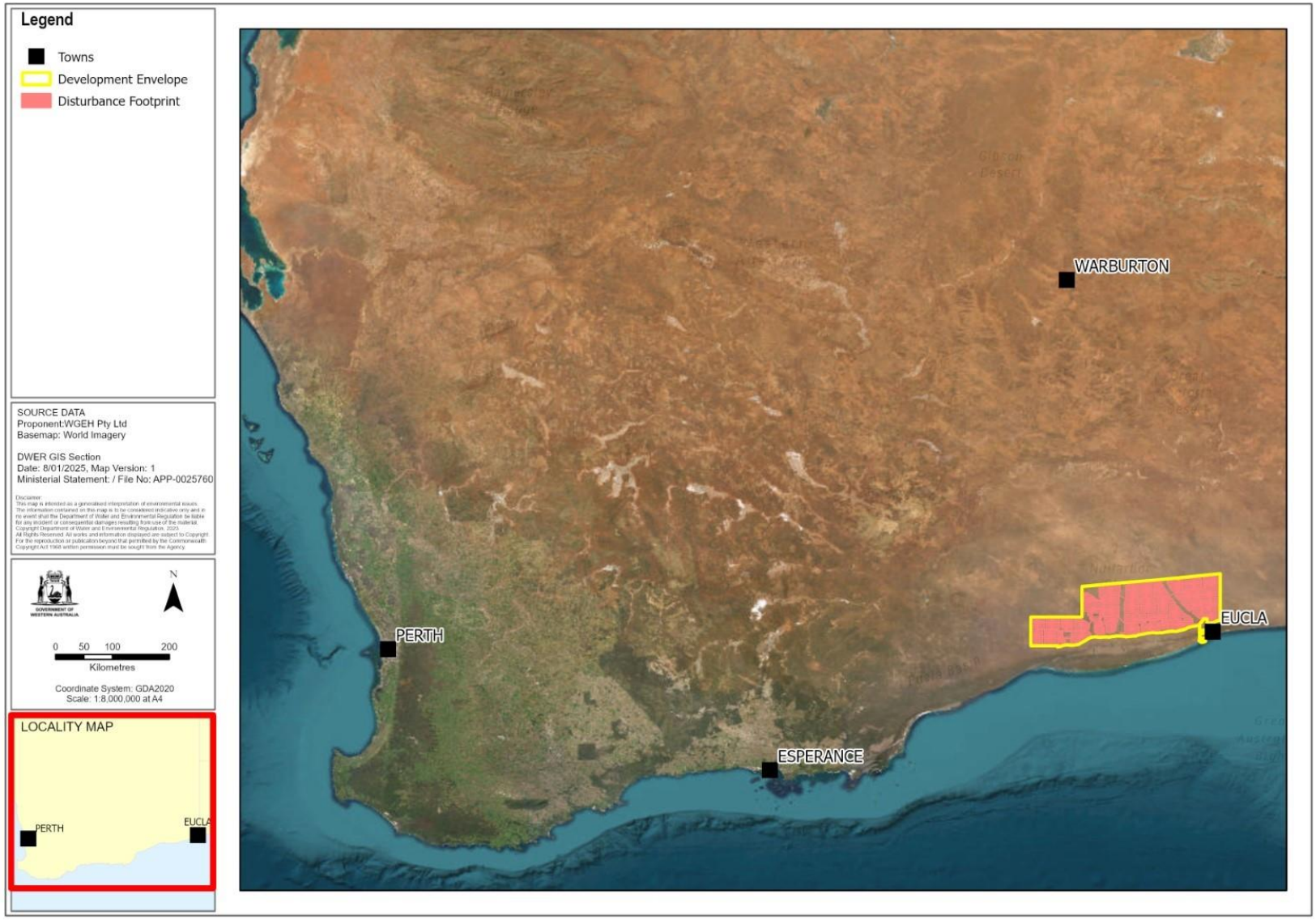

Figure 1: Regional Location of the Western Green Energy Hub

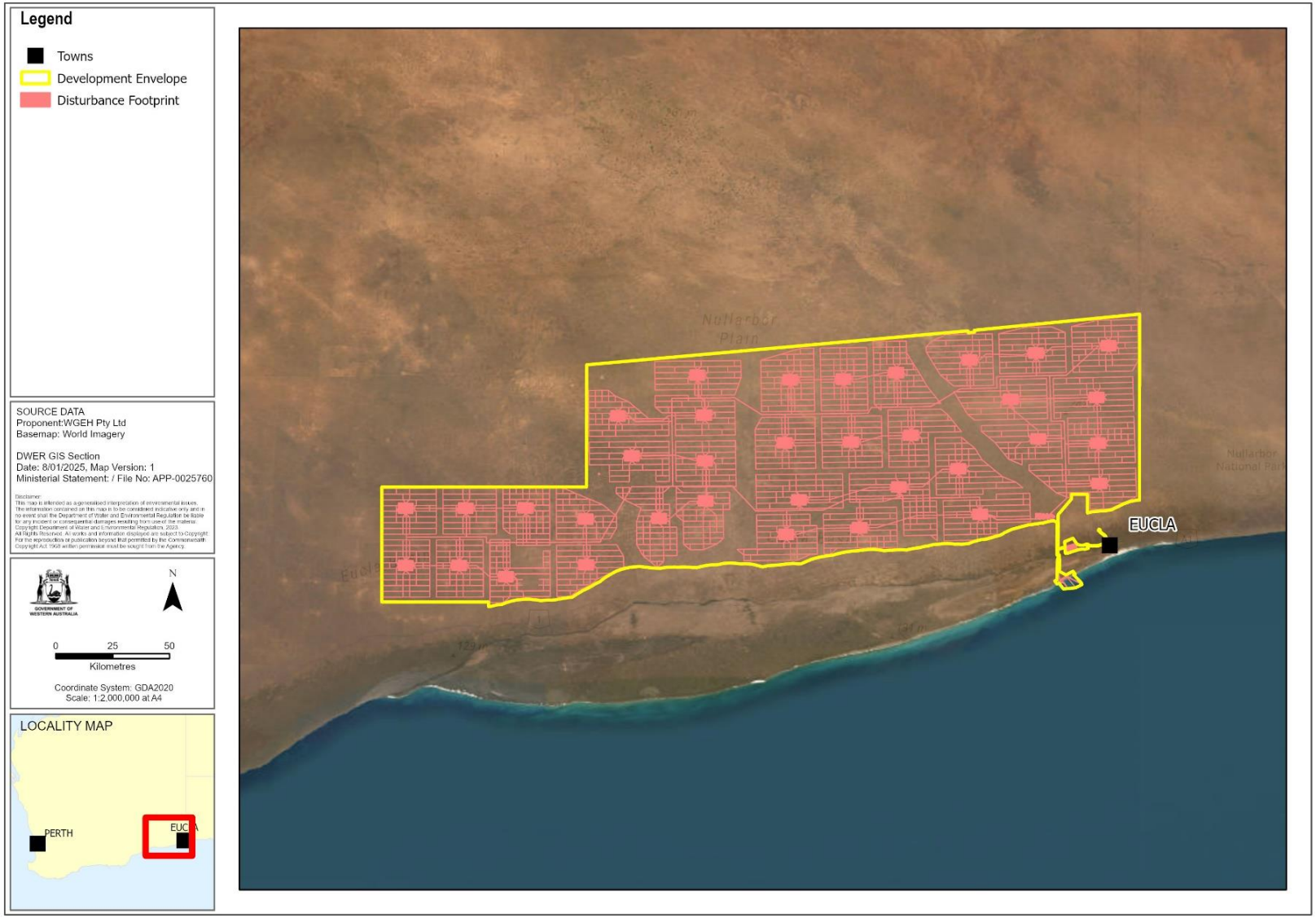

Figure 2: Development Envelope and Indicative footprint of the Western Green Energy Hub

Appendix 1 – Policy and Guidance

Benthic Communities and Habitat

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an Environmental Review Document (2024)
- Environmental Factor Guideline: Benthic Communities and Habitats (2016)
- Technical Guidance: Protection of Benthic Communities and Habitats (2016)
- Technical Guidance: Environmental Impact Assessment of Marine Dredging Proposals (2021)
- Instructions for the preparation of data packages for the Index of Marine Surveys for Assessments (IMSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)

Coastal Processes

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an Environmental Review Document (2024)
- Environmental Factor Guideline: Coastal Processes (2016)
- Instructions for the preparation of data packages for the Index of Marine Surveys for Assessments (IMSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)

Other policy and guidance

- State Planning Policy No. 2.6: State Coastal Planning Policy (DPLH 2021)
- Coastal hazard risk management and adaptation planning guidelines (DPLH 2019)

Marine Environmental Quality

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an Environmental Review Document (2024)
- Environmental Factor Guideline: Marine Environmental Quality (2016)
- Technical Guidance: Protecting the Quality of Western Australia's Marine Environment (2016)
- Technical Guidance: Environmental Impact Assessment of Marine Dredging Proposals (2021)
- Instructions for the preparation of data packages for the Index of Marine Surveys for Assessments (IMSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)

Other policy and guidance

- National Assessment Guidelines for Dredging (CA 2009)

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)
- Contaminated Sites Guidelines (DWER 2021)
- The International Convention for the Prevention of Pollution from Ships (MARPOL)

Marine Fauna

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an Environmental Review Document (2024)
- Environmental Factor Guideline: Marine Fauna (2016)
- Instructions for the preparation of data packages for the Index of Marine Surveys for Assessments (IMSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)

Other policy and guidance

- National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (CA 2020)
- Matters of National Environmental Significance: Significant impact guidelines 1.1 EPBC Act 1999 (DoE 2013)
- DBCA Threatened and Priority Species list
- DCCEEW Protected Matters Search Tool (DCCEEW 2023)
- Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NOAA 2018)
- Species specific recovery plans for listed threatened species and ecological communities that have been made or adopted under the EPBC Act 1999
- National Introduced Marine Pest Information System (CA 2023)
- Biofouling Management Tools and Guidelines (DPIRD 2022)
- Australian Biofouling Management Requirements (DAWE 2022)
- Anti-fouling and In-water Cleaning Guidelines (DAFF 2015)

Flora and Vegetation

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Environmental Factor Guideline – Flora and vegetation (2016)
- Technical guidance: Flora and vegetation surveys for environmental impact assessment (2016)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2024)
- State Planning Policy 2.0 Environment and Natural Resources Policy (2003)

Other policy and guidance

- WA Environmental Offsets Policy (Government of Western Australia 2011)
- WA Environmental Offsets Guidelines (Government of Western Australia 2014)
- WA Environmental Offsets Template (Government of Western Australia 2014)
- Public Advice: Considering environmental offsets at a regional scale (2024)

Subterranean Fauna

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Environmental Factor Guideline – Subterranean fauna (2016)
- Technical guidance: Subterranean fauna survey for environmental impact assessment (2021)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)
- Public Advice: Considering environmental offsets at a regional scale (2024)

Other policy and guidance

- WA Environmental Offsets Policy (Government of Western Australia 2011)
- WA Environmental Offsets Guidelines (Government of Western Australia 2014)
- WA Environmental Offsets Template (Government of Western Australia 2014)

Terrestrial Fauna

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Environmental Factor Guideline – Terrestrial fauna (2016)
- Technical guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (2020)
- Technical guidance: Sampling of short range endemic invertebrate fauna (2016)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)
- Public Advice: Considering environmental offsets at a regional scale (2024)

Other policy and guidance

- WA Environmental Offsets Policy (Government of Western Australia 2011)
- WA Environmental Offsets Guidelines, (Government of Western Australia 2014)
- WA Environmental Offsets Template (Government of Western Australia 2014)
- National Light Pollution Guidelines for Wildlife (DCCEEW 2023)

- Onshore Wind Farms – interim guidance on bird and bat management (DCCEEW 2023)

Landforms

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2024)
- Environmental Factor Guideline – Landforms (2018)

Other policy and guidance

- Plan for Our Parks (Government of Western Australia2023)

Inland Waters

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an Environmental Review Document (2024)
- Environmental Factor Guideline – Inland Waters (2018)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)
- Guidance Statement 33 Environmental Guidance for Planning and Development (2008)

Other policy and guidance

- Draft State Planning Policy 2.9 Planning for Water (WAPC 2021)

Greenhouse Gas Emissions

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Environmental Factor Guideline – Greenhouse Gas Emissions (2023)

Other policy and guidance

- Western Australian Climate Policy (Government of Western Australia 2020)
- Greenhouse Gas Emissions Policy for Major Projects (Government of Western Australia 2024)

Social Surroundings

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2024)
- Environmental Factor Guideline – Social Surroundings (2023)
- Techinical Guidance EIA of Social Surroundings – Aboriginal Cultural Heritage (2023)
- Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (2024)
- State Planning Policy 2.0 Environment and Natural Resources Policy (2003)

Other policy and guidance

- Environmental Protection (Noise) Regulations 1997.
- Guideline for managing the impacts from dust and associated contaminants from land development sites, contaminated sites remediation and other related activities (DWER 2011)
- Mine sites, exploration camps and construction villages - Scoping Tool: Public Health Considerations (DoH 2011)
- The Interim Engaging with First Nations People and Communities on Assessments and Approvals under Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (DCCEEW2023)
- *Aboriginal Heritage Act (1972)*
- Aboriginal Heritage Act 1972 Guidelines (DPLH 2023)
- Consultation policy for section 18 Applications (DPLH 2023)
- Position Statement: Renewable Energy Facilities (WAPC 2020)
- Visual Landscape Planning in Western Australia: a Manual for Evaluation, Assessment, Siting and Design (WAPC 2007)