INSTRUCTIONS FOR ENVIRONMENTAL REVIEW

Proposed scheme amendment:	**Local Planning Scheme 4 Amendment 1**
Responsible Authority:	**Shire of Exmouth**
Assessment number:	**2209**
Location:	**Lots 233, 234, 235 and 1586 Minilya-Exmouth Road Learmonth**
Local Government Area:	**Shire of Exmouth**
Public review period:	**Environmental Review Document – timing and procedure in accordance with the *Planning and Development Act 2005***

1. Introduction

Environmental Review Instructions (Instructions) are provided to the Shire of Exmouth as the responsible authority (RA) to define the scope and content of the Environmental Review (ER) required by s.48C(1)(a) of the *Environmental Protection Act 1986* (EP Act). These instructions have been prepared by the Environmental Protection Authority (EPA) in consultation with the Shire of Exmouth.

These instructions are available on the EPA website (www.epa.wa.gov.au)

Context

The EPA has determined that the above proposed amendment to the Shire of Exmouth Planning Scheme is to be assessed under Part IV of the EP Act. The scheme amendment is being assessed because the implementation of the scheme through future development and provision of associated infrastructure has the potential to have a significant effect on key environmental factors.

The purpose of this assessment is to determine the environmental acceptability of the scheme amendment, whether it should be implemented and if so, appropriate conditions placed on the RA to ensure appropriate environmental management.

The scheme amendment is related to the Learmonth Pipeline Fabrication Facility proposal, which is also being assessed by the EPA (Assessment No. 2208) under s.38 of the EP Act. The scheme amendment is being assessed on aspects that relate to the proposed change in zoning of the land from Rural and Foreshore Reserve to Special Use Zone No.10.

Assessment No. 2208 will examine a range of aspects of the proposal, including the regional context, construction, operation, closure and potential offsets for the development.

Where appropriate, the two assessment processes will align for stakeholder engagement and reporting purposes.

The work required in these instructions is similar to the work required by the Environmental Scoping Document (ESD) for Assessment No. 2208. The EPA recognises that studies and

findings from Assessment No. 2208 may also be used to inform the ER, and the assessment of the scheme amendment.

The Learmonth Pipeline Fabrication Facility has also been referred and determined to be a controlled action under the *Environmental Protection and Biodiversity Conservation Act 1999.* Assessment No. 2208 will be assessed by the Commonwealth of Australia and the State of Western Australia as an accredited assessment.

Environmental Value

The amendment area contains a number of environmental values, including, but not limited to:

- Dunes, foreshore and nearshore areas, including a subtidal zone that supports benthic habitat and communities;
- The mapped Cape Range Subterranean Waterways, identified under the Directory of Important Wetlands as a nationally important wetland (*WA006*), has the potential to support conservation significant stygofauna habitat and populations.
- Potential habitat for tropical arid zone mangroves;
- Habitat for conservation significant terrestrial fauna, including several migratory and marine bird species;
- The Exmouth Gulf and coast, which represents significant cultural, recreational and aesthetic value to local and regional communities; and
- Four identified Aboriginal heritage places, partially within or adjacent to the amendment zone.

Procedure

The EPA requires the responsible authority to undertake the environmental review according to these instructions.

Next step in the assessment process

The next step in the assessment process is the release of the ER. When the EPA is satisfied that the ER document has been prepared in accordance with the instructions, the RA can proceed to advertise the ER and proposed scheme amendment and release the ER and scheme report for a public review period as prescribed by the *Planning and Development Act 2005* (PD Act) **sections 84 and 87(1)**.

To facilitate adequate public input, the ER document should be made available as widely as possible and at a reasonable cost. The advertising period and process for the scheme amendment and the ER are to be done in accordance with the PD Act.

Scope and Content

The scope and content of the environmental review is outlined in sections 2 to 5 of these instructions. The EPA requires the form of the document to be prepared according to the Environmental Review Document template.

Timing

Table 1 sets out the timeline for the assessment of the scheme amendment.

Table 1 Assessment timeline

Key assessment milestones
EPA issues instructions to the responsible authority *(60 days after referral)*
Responsible authority submits Environmental Review to EPA
EPA authorises advertising of Environmental Review and scheme for public review *(30 days from RA submission of ER)*
Responsible authority advertises scheme amendment and Environmental Review for public review in accordance with the *Planning and Development Act 2005*
Close of public review period
Responsible authority provides copies of submissions related to environmental issues to the EPA *(7 days from close of public review period)*
Responsible authority provides Response to Submissions to EPA *(42 days from close of public review period)*
EPA reports to the Environment Minister on environmental factors and recommended scheme conditions *(60 days after end of public review period or 30 days after receiving RA's Response to Submissions, whichever is longer, but no more than 72 days from the end of the public review period)*

2. The scheme amendment

The subject of these instructions is the Shire of Exmouth Local Planning Scheme 4 Amendment 1. Amendment 1 seeks to rezone up to 440 hectares (ha) in Learmonth from Rural and Foreshore Reserve to Special Use Zone No.10 to facilitate the development of a pipeline fabrication facility, known as the Learmonth Pipeline Fabrication Facility.

The location of the scheme amendment is shown in Figure 1 and a summary of the scheme amendment is set out in Table 2.

Table 2 Summary of the scheme amendment

Scheme amendment	Local Planning Scheme 4 Amendment 1
Responsible authority	Shire of Exmouth
Location	Part of Lots 233, 234, 235 and 1586 Minilya-Exmouth Road Learmonth.

Short description	Rezoning of up to 440 hectares of land from Rural and Foreshore Reserve to Special Use Zone No. 10 to facilitate the development of a pipeline fabrication facility (Learmonth Pipeline Fabrication Facility).

3. Preliminary key environmental factors and required work

The preliminary key environmental factors for the environmental review are:

1. Benthic Communities and Habitat
2. Coastal Processes
3. Marine Environmental Quality
4. Flora and Vegetation
5. Subterranean Fauna
6. Terrestrial Fauna
7. Inland Waters
8. Social Surroundings

Table 3 outlines the work required for each preliminary key environmental factor and contains the following elements for each factor:

- **EPA factor** and **EPA objective** for that factor.
- **Relevant activities** – the development activities that may have a significant impact on that factor.
- **Potential impacts and risks** to that factor.
- **Required work** for that factor.
- **Relevant policy and guidance** – EPA (and other) guidance and policy relevant to the assessment.

Table 3 Preliminary key environmental factors and required work

Benthic Communities and Habitats	
EPA objective	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.
Relevant activities	• Future development on the coast, including a bundle launchway within Lot 235, which extends into the ocean.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Direct disturbance or loss of benthic communities and habitat through future development of bundle launchway within Lot 235, which extends into the ocean.

	• Indirect impacts to benthic communities and habitats due to altered sediment and water movement and flows caused by the bundle launchway. • Reduction in marine environmental quality that supports healthy benthic communities and habitat.
Required work	1. Characterise the environment by designing and conducting a benthic communities and habitat survey to accurately map the spatial extent of benthic habitats. Based on the findings of the surveys, produce geo-referenced maps showing the extent and distribution of the different benthic communities and habitats within the scheme amendment area. Surveys should be conducted to a standard such that the results can be used as a baseline for future quantitative monitoring. This characterisation should also identify any critical windows of environmental sensitivity for benthic communities, particularly corals. **Note:** if surveys were undertaken as part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal, survey results/mapping and a demonstration of how the *Technical Guidance – Protection of Benthic Communities and Habitats*, December 2016 has been followed are to be included in the ER. 2. Assess the values and significance of benthic communities and habitats within the scheme amendment area and describe these values in a local and regional context. This assessment must also specifically address the values and significance of benthic communities and habitats which are: potentially affected by future development and associated infrastructure within the scheme amendment area and adjacent Exmouth Gulf. 3. Identify elements of the future development and associated infrastructure which may potentially affect benthic communities and habitat, including both direct and indirect impacts. 4. Predict the residual impacts from the future development and associated infrastructure, both direct and indirect, on benthic communities and habitat after demonstrating how the mitigation hierarchy has been applied. Impact predictions are to: a) Include the likely extent, severity and duration of direct and indirect impacts of the scheme amendment on benthic communities and habitats. Predictions for both construction and operational impacts, are to include the most likely worst case, and the most likely best case loss scenarios. b) Address any irreversible loss of, or serious damage to, benthic communities and habitat, in the context of *Technical Guidance – Protection of Benthic Communities and Habitats*, December 2016 including an appropriately defined local assessment unit and an

	assessment of the significance of any loss, including cumulative loss. c) Include a risk assessment identifying potential impacts to benthic communities and habitat: that provides habitat for conservation significant or locally important marine fauna; that provides habitat for commercial and recreational fisheries; and that may be potentially affected by future development and associated infrastructure within the scheme amendment area and adjacent Exmouth Gulf. 5. Describe the likely consequences for the ecological integrity and biological diversity of the benthic communities and habitats that the identified impacts may have and include a description of the likely impact any changes may have on other dependent factors. 6. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 7. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2018 *Environmental Factor Guideline – Benthic Communities and Habitats*, EPA, 2016 *Technical Guidance – Protection of Benthic Communities and Habitats,* EPA, December 2016
Coastal Processes	
EPA objective	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.
Relevant activities	• Future development on the coast, including a bundle launchway within Lot 235, which extends into the ocean.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Alteration of wave and current conditions, interrupting existing longshore and cross-shore sediment dynamics through future development of bundle launchway within Lot 235, which extends into the ocean. • Construction of the launchway may trap sediment and cause further loss of near shore benthic communities and habitat. • Disruption of longshore sediment transport may alter downdrift sediment supply, causing dune and beach erosion adjacent to the launchway.

	• Alteration of wave overwash and drainage during extreme flooding events, with possible implications for dune stability.
Required work	8. Characterise the environment by describing the current coastal processes in the proximity to the scheme amendment. This is to include, but not be limited to: a) conducting a detailed analysis of existing long-shore sediment movements and variability over at least 20 years to estimate erosional and depositional patterns including for cross-shore processes; b) conduct an analysis of cross-shore processes and variability over at least 20 years; c) spatially quantify the coastal morphology by presenting beach profiles and aerial imagery or a more detailed representation (e.g. unmanned aerial vehicle survey); and d) characterise erosion and inundation provided by extreme events, particularly the potential effects of severe tropical cyclones. The characterisation is to consider all temporal scales including seasonal, inter-annual and episodic. The spatial scale must be adequate to address all coastal processes and patterns likely to be affected as a result of the scheme amendment. Characterisation should extend beyond the limits of where impacts may potentially occur to provide a baseline for subsequent evaluation. 9. Identify elements of the future development and associated infrastructure which may potentially affect coastal processes, including both direct and indirect impacts and for both construction and operation. 10. Predict the residual impacts from the scheme amendment, both direct and indirect, after outlining any avoidance, mitigation and management options that will be applied. Impact predictions are to: a) Be provided at a sufficient scale to address all impacts resulting from the scheme amendment to both up and down coastal processes as well as onshore-offshore process. b) Be informed by monitoring previously undertaken in the local area. c) Predict near-field responses to the future development and associated infrastructure coastal facilities, including anticipated updrift and downdrift coastal change. Information should include forecast changes to beach morphology over the intended service life of the facility (e.g. predicted beach profiles). d) Determine changes to local current and wave climate, longshore sediment movements and erosional and deposition patterns (including cross-shore processes).

	e) Consider and assess the cumulative effects from and to any other approved or reasonably foreseeable coastal developments. Be for both the short and long-term (100-year planning horizon or planning horizon relevant to the service life of the facility); be provided for best, most likely and worst case scenarios; and consider the likely impacts of climate change. f) Address the frequency, volume and potential environmental impacts of sand bypassing/backpassing adjacent to the amendment area. g) Address the requirements of State Planning Policy 2.6, particularly with regard to setback and coastal risk management. 11. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 12. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives,* EPA, 2018 *Environmental Factor Guideline – Coastal Processes,* EPA, December 2016 ***Other policy and guidance*** Guidance Statement No. 1, *Protection of tropical arid zone mangroves along the Pilbara coastline*, EPA, 2001 State Planning Policy No. 2.6, *State Coastal Planning Policy,* Western Australian Planning Commission, 2006 State Planning Policy 6.3, *Ningaloo Coast*, Western Australian Planning Commission, 2004 *Sea Level Change in Western Australia – Application of Coastal Planning,* Department of Transport Coastal Infrastructure, Coastal Engineering Group, 2010
Marine Environmental Quality	
EPA objective	To maintain the quality of water, sediment and biota so that environmental values are protected.
Relevant activities	• Future development on the coast, including a bundle launchway within Lot 235, which extends into the ocean.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Temporary impacts to water quality through future development of a bundle launchway within Lot 235, which extends into the ocean.

	• Temporary turbidity through placement of material for the launchway and leaching of fines from the material.
Required work	13. Conduct monitoring as necessary to characterise the existing marine environmental quality (baseline water and sediment quality) in the area potentially affected by the future development and associated infrastructure. The characterisation needs to be informed by an assessment of threats and pressures to marine environmental values, both ecological and social. The characterisation is to inform the environmental quality management required in work item 15. 14. Predict the extent, severity and duration of any impacts from future development and associated infrastructure, after outlining any avoidance and mitigation options that will be applied. Predicted impacts should also be presented spatially. 15. Identify management and mitigation measures to ensure residual impacts are not greater than predicted. The ER is to include the protocols and procedures for monitoring of key environmental quality indicators (e.g. turbidity, light attenuation coefficient, visual records etc.) and management of environmental quality to ensure that future development and associated infrastructure achieves the proposed environmental outcomes. 16. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 17. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives,* EPA, 2018 *Environmental Factor Guideline – Marine Environmental Quality,* EPA, December 2016 *Technical Guidance – Protecting the quality of Western Australia's marine environment*, EPA, December 2016 ***Other policy and guidance*** *Pilbara Coastal Water Quality Outcomes: Environmental Values and Environmental Quality Objectives,* Department of Environment, 2006
Flora and Vegetation	
EPA objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Relevant activities	• Clearing of vegetation for future development and associated infrastructure.

Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Direct loss of flora and vegetation of up to 176 ha. • Indirect impacts on flora and vegetation from: - dust during construction; - the introduction and spread of weeds; - fragmentation of vegetation; and - changes to surface or ground water flows and quality.
Required work	18. Identify and characterise the flora and vegetation of areas that may be directly or indirectly impacted by the scheme amendment in accordance with *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, December 2016. Demonstrate how surveys are relevant, representative and demonstrate consistency with current EPA policy and guidance set out below. Include a summary of survey findings in accordance with relevant guidelines set out below. **Note:** if surveys were undertaken as part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal, survey results and a demonstration of how the guidance has been followed are to be included in the ER. Ensure species database searches and taxonomic identifications are up to date. 19. Identify and describe the vegetation and significant flora species present and likely to be present within the scheme amendment area, and any areas that may be indirectly impacted by the scheme amendment area. Include an analysis of the significance of flora and vegetation in local, regional and State contexts as appropriate in accordance with the relevant guidance set out below. 20. Provide a map depicting the recorded locations of the significant flora, ecological communities and significant vegetation in relation to the scheme amendment area in accordance with the relevant guidelines set out below. 21. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 22. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives,* EPA, 2018 *Environmental Factor Guideline – Flora and vegetation*, EPA, December 2016 *Technical Guidance: Flora and vegetation surveys for environmental impact assessment*, EPA, December 2016

	Instructions and Form: IBSA Data Packages, EPA, June 2018 ***Other policy and guidance*** Guidance Statement No. 1, *Protection of tropical arid zone mangroves along the Pilbara coastline*, EPA, 2001
Subterranean Fauna	
EPA objective	To protect subterranean fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	• Excavation of subterranean fauna habitat, and water abstraction for future development and associated infrastructure.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Mortality and loss of habitat from excavation and physical presence of infrastructure. • Impacts to subterranean fauna from: - abstraction and/or reinjection of groundwater - changes to hydrological regimes and water quality - groundwater contamination. • Impacts to the Directory of Important Wetlands in Australia Cape Range Subterranean Waterways WA006.
Required work	23. In accordance with EPA guidance: a) conduct a desktop study, incorporating existing regional subterranean fauna surveys and databases; and b) undertake surveys to identify and characterise subterranean fauna and subterranean fauna habitat at a local and regional scale that may be impacted directly and indirectly by the implementation of the scheme amendment. This should include sampling inside and outside the impact areas and consider cumulative impacts. **Note:** Where surveys were undertaken as part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal, survey results and a demonstration of how the guidance has been followed are to be included in the ER. Ensure species database searches and taxonomic identifications are up-to-date. Where results from previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. 24. Provide figure(s) showing the extent of subterranean fauna habitat in relation to the scheme amendment area and species distributions.

	25. Describe and assess the extent of direct, indirect and cumulative impacts as a result of future development and associated infrastructure to subterranean fauna, taking into consideration the significance of subterranean fauna and subterranean fauna habitat. 26. Predict the residual impacts from the future development and associated infrastructure on subterranean fauna after considering and applying avoidance and minimisation measures. 27. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 28. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives,* EPA, 2018 *Environmental Factor Guideline – Subterranean Fauna*, EPA, December 2016 *Technical Guidance – Subterranean fauna survey, EPA,* December 2016 *Technical Guidance – Sampling methods for subterranean fauna,* EPA, December 2016 *Instructions and Form: IBSA Data Packages*, EPA, June 2018 ***Other policy and guidance*** Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the scheme amendment area.
Terrestrial Fauna	
EPA objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	• Clearing of fauna habitat for future development and associated infrastructure. • Movement of machinery and vehicles. • Increased presence of artificial light, noise and human activity.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Loss of up to 176 ha of fauna habitat. • Direct loss of terrestrial fauna from vehicle movements and strikes. • Indirect impacts to fauna habitat as a result of: - barrier effects of the physical presence of infrastructure and fragmentation of habitat and populations;

	- degradation of habitat from introduction and increased spread of weeds/dust; - alteration of fire regimes; - alteration of habitat as a result of changes to coastal processes or hydrodynamic/ hydrological regimes; and - introduction of feral animals resulting in increased predation and competition.
Required work	29. In accordance with the requirements of EPA Guidance: a) conduct a desktop study, incorporating existing regional terrestrial fauna surveys and databases; and b) undertake terrestrial fauna surveys, to identify and characterise terrestrial fauna and fauna habitat, at a local and regional scale, that may be impacted directly and indirectly by implementation of the scheme amendment. This should include sampling inside and outside the impact areas and consider cumulative impacts. For listed species, this must include information on: i. the abundance, distribution, ecology and habitat preferences, together with baseline information and mapping of local and regional occurrences. ii. a population size and importance of the population from a local and regional perspective; and iii. information on conservation value of each habitat type (e.g. breeding, migration, feeding, resting, interesting, etc.) from a local and regional perspective, including the percentage representation of each habitat site in relation to its local and regional extent. **Note:** if surveys were undertaken as part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal, survey results and a demonstration of how the guidance has been followed are to be included in the ER. Ensure species database searches and taxonomic identifications are up-to-date. Where results from previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA Guidance. 30. Describe the values and significance of fauna and fauna habitat that maybe impacted directly and indirectly by implementation of the scheme amendment and describe the significance of these values in a local and regional context. 31. Provide a map illustrating the known recorded locations of conservation significant species, short-range endemic invertebrate species or other significant fauna and fauna habitat in relation to the scheme amendment. 32. Describe and assess the extent of direct and indirect impacts as a result of implementation of the scheme amendment to terrestrial fauna

	taking into consideration cumulative impacts and the significance of fauna and fauna habitat. This should include an assessment of the risk posed to any listed species as a result of the scheme amendment. 33. Predict the residual impacts to terrestrial fauna after considering and applying avoidance and minimisation measures. 34. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 35. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2018 *Environmental Factor Guideline – Terrestrial Fauna*, EPA, December 2016 *Technical Guidance: Sampling methods for terrestrial vertebrate fauna*, EPA, December 2016 *Technical Guidance: Terrestrial fauna surveys*, EPA, December 2016 *Technical Guidance: Sampling of short range endemic invertebrate fauna*, EPA, December 2016 *Instructions and Form: IBSA Data Packages*, EPA, June 2018 ***Other policy and guidance*** Relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the amendment area.
Inland Waters	
EPA objective	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.
Relevant activities	• Alteration of natural drainage regimes for future development and associated infrastructure.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Impacts to natural surface water flows and contamination of surface water as a result of placement of infrastructure. • Alteration of surface water flows that may result in changes to natural erosion and deposition patterns which could increase the turbidity of surface water. • Impacts to surface and groundwater resources through disposal of brine and treated wastewater. • Impacts water quality through exposure or disturbance of acid sulphate soils.

	• Alteration of the hydrology of the area from groundwater abstraction and reinjection of treated wastewater. • Alteration of groundwater volumes and quality, due to groundwater abstraction; and reinjection of treated wastewater. • Impacts to any wetlands, groundwater dependent ecosystems, and subterranean fauna, as a result of groundwater drawdown and changes to groundwater quality.
Required work	36. Characterise the baseline hydrological and hydrogeological regimes and water quality and quantity, both in a local and regional context, including, but not limited to, water levels including the fluctuation of the aquifer system in response to tides and storm events, water chemistry, presence of acid sulphate soils, stream flows, patterns, spatial characteristics of the fresh/saline groundwater interface, aquifer characteristics and recharge potential. 37. Identify water requirements for the scheme amendment and identify and discuss any associated impacts of groundwater abstraction including from drawdown. 38. Provide a description of the future development and associated infrastructure with the potential to impact surface and ground water, including the extent of discharges and/or reinjection, and the disturbance of acid sulphate soils, if present. 39. Undertake hydrological investigations to determine impacts from the future development on the surface and ground water quality and quantity of the likely direct and indirect impact areas taking into account cyclonic conditions, cumulative impacts and a range of climatic scenarios including probable maximum precipitation. 40. Predict the residual impacts on inland waters, for direct, indirect and cumulative impacts, after considering avoidance and minimisation measures. 41. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 42. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2018 *Environmental Factor Guideline – Inland Waters*, EPA, June 2018 **Other policy and guidance** *Identification and investigation of acid sulphate soils and acidic landscapes*, Department of Environment Regulation, June 2015 *Treatment and management of soil and water in acid sulphate soil landscapes*, Department of Environment Regulation, June 2015

Social Surroundings	
EPA objective	To protect social surroundings from significant harm.
Relevant activities	• Clearing of vegetation for future development and associated infrastructure. • Physical presence future development and associated infrastructure.
Potential impacts and risks	Future development and associated infrastructure of the amendment area has the potential to cause: • Disturbance to Aboriginal heritage places and/or cultural associations within the scheme amendment area. • Temporary and/or permanent constraint on access and traditional cultural activities. • Changes to the environment which may impact on Aboriginal heritage places. • Impacts to amenity values (e.g. aesthetics, access and/or active use of coastal areas) of the amendment area it supports. • Impacts to tourism activities in the scheme amendment area.
Required work	43. Characterise the heritage and cultural values of the proposed amendment area, including areas that may be indirectly impacted, to identify sites of significance and their relevance within a wider regional context. 44. Conduct appropriate Aboriginal heritage surveys to identify Aboriginal sites, values and/or cultural associations. 45. Conduct appropriate consultation to identify concerns in regard to environmental impacts as they affect heritage matters. 46. Provide a detailed description and figure(s) of the proposed disturbance and impacts to heritage sites, values and/or cultural associations associated with the scheme amendment. 47. Assess the impacts on heritage sites, values and/or cultural associations as a direct result of the future development and associated infrastructure, including those resulting from changes to the environment which may impact on cultural and heritage significance or values. 48. Predict the residual impacts on heritage sites, values and/or cultural associations, for direct, indirect and cumulative impacts after considering the mitigation hierarchy. 49. Outline the mitigation and management measures to ensure impacts to heritage sites, values and/or cultural associations (direct and indirect) are minimised, and not greater than predicted. 50. Characterise the environment by providing a description of the visual landscape character and scenic quality values and provide maps of the

	visual landscape units that may potentially be visually affected. This should include, but not be limited to: landforms; vegetation; and waterways/bodies and can be undertaken by way of 3-dimensional modelling and/or photographs. 51. Characterise the current, and any other reasonably foreseeable, land and recreation uses and amenity values (including for visual, noise, odour and dust) of the scheme amendment area. 52. Identify and discuss the potential sources and impacts of noise, dust, light-spill and alteration to landscape from the proposed scheme amendment. 53. Design and undertake a visual impact assessment (VIA) for the future development and associated infrastructure to assess the impacts of it on visual amenity in accordance with the Western Australian Planning Commission (2007) Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design. **Note:** The visual impact assessment completed as part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal may be used as a reference case for future development and associated infrastructure. 54. The VIA will identify and describe the aspects of the future development and associated infrastructure which may potentially affect the visual landscape character and scenic quality values both temporarily and permanently, using agreed (by the EPA) reference and vantage points of surrounding areas and use area's viewer positions and perceptions. **Note:** The visual impact assessment completed as part of the s part of the EPA's Assessment No. 2208 of the Learmonth Pipeline Fabrication Facility proposal may be used as a reference case for future development and associated infrastructure. 55. Predict the residual amenity impacts from the future development and associated infrastructure on the landscape, land and recreation use and amenity values (including visual, noise, odour and dust) after considering and applying avoidance and minimisation measures. Impact predictions are to include, but not be limited to: a) the likely extent, severity and duration of the impacts; and b) Simulations/modelling of the predicted residual impacts from the scheme amendment, including changes to the landscape from the agreed reference and vantage points. Include the cumulative impacts on amenity (visual, noise, odour and dust) from the scheme amendment area and other currently approved developments. 56. Identify management and mitigation measures for the scheme amendment to ensure residual impacts to land and recreation uses,

	and amenity (including visual, noise, odour and dust) are not greater than predicted. 57. Conduct appropriate consultation to identify the potential impacts the future development and associated infrastructure will have on the economic surroundings of people affected by the scheme amendment (related to the physical area involved in the scheme amendment), including in relation to tourism, commercial fishing and recreational fishing operations/business. 58. Identify and discuss the potential impacts to the economic surroundings of the people referred to in scope 57 above. The discussion must include consideration of the mitigation hierarchy. **Note:** This should include consideration of information collected in relation to impacts to the physical or biological surroundings as required by relevant scopes within the other preliminary key environmental factors. 59. Describe any proposed avoidance, mitigation and management measures that demonstrate the EPA's objectives can be met. 60. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.
Relevant policy and guidance	***EPA Policy and Guidance*** *Statement of Environmental Principles, Factors and Objectives*, EPA, 2018 *Environmental Factor Guideline – Social Surroundings*, EPA, December 2016 **Other policy and guidance** *Aboriginal Heritage Due Diligence Guidelines* – Version 3.0, Department of Aboriginal Affairs and Department of Premier and Cabinet, 2013 *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design*, Western Australian Planning Commission, 2007

These preliminary key environmental factors must be addressed by the ER for the public to consider the impacts of future development resulting from the scheme amendment, and proposed management, and make comment to the EPA. The EPA anticipates addressing these factors in its report to the Minister for Environment. All technical reports, modelling and referenced documents (not currently in the public domain) used in the preparation of the ER document should be included as appendices to the ER document. Documents used in the preparation of the ER must not contain disclaimers that preclude their public availability.

4. Other environmental factors or matters

It is important that the responsible authority be aware that other factors or matters may be identified during the course of the environmental review that were not apparent at the time that these instructions were prepared. If this situation arises, the responsible authority

must consult with the EPA to determine whether these factors and/or matters are to be addressed in the ER, and if so, to what extent.

5. Relevant Ministers and Interested agencies

Table 4 Relevant Ministers and interested agencies

Minister/agency	Interest
Minister for Planning	*Planning and Development Act 2005.* *Environmental Protection Act 1986*. Minister's agreement needed with Minister for Environment on the conditions.
Minister for Environment	*Environmental Protection Act 1986*. *Biodiversity and Conservation Act 2016.*
Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972.*
Minister for Lands	*Land Administration Act 1997*.
Minister for Water	*Rights in Water and Irrigation Act 1914.*
Shire of Exmouth	*Planning and Development Act 2005*.

Figure 1 – Location