



# Report and recommendations of the Environmental Protection Authority



## Gorgon Gas Development – additional construction laydown and operations support area

**Chevron Australia Pty Ltd**

Report 1499

January 2014

## **Assessment on Proponent Information Environmental Impact Assessment Process Timelines**

<b>Date</b>	<b>Progress stages</b>	<b>Time (weeks)</b>
8/11/13	Level of assessment set	
14/11/13	Scoping guideline issued by EPA	1
5/12/13	Proponent's Final API document received by EPA	3
30/12/13	Provision of EPA Report to Minister	*3
6/01/14	Publication of EPA report	1
20/01/14	Close of appeals period	2

\* Excludes public holidays

Timelines for an assessment may vary according to the complexity of the project and are usually agreed with the proponent soon after the level of assessment is determined.

In this case, the Environmental Protection Authority met its timeline objective for the completion of the assessment and provision of a recommendation to the Minister.



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Chairman

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# **1. Introduction and background**

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for Environment on the proposal by Chevron Australia Pty Ltd (Chevron) to clear an additional 32 hectares of land within a 36 hectare development envelope on Barrow Island. The clearing is for the purposes of an additional construction laydown and operations support area, required to support the construction and operation of the Gorgon Gas Development referred to in Ministerial Statement 800 dated 10 August 2009 and Ministerial Statement 865 dated 8 June 2011.

The proposal was referred to the EPA on 25 October 2013. On 11 November 2013 the EPA Chairman, under Delegation No. 30 dated 24 January 2013, set the level of assessment for the proposal at Assessment on Proponent Information - Category A (API-A). The EPA delegated the sign-off of the Scoping Guideline to the Acting Chairman at Meeting 1058 on 14 November 2013 and the Scoping Guideline was approved by the Acting Chairman on that date.

Further details of the proposal are presented in Section 2 of this report and the consultation undertaken by Chevron is briefly discussed in Section 3. Section 4 discusses the key environmental factors and principles for the proposal. The conditions to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 5. Section 6 provides other advice by the EPA.

## 2. The proposal

The Gorgon Gas Development - Additional Construction Laydown and Operations Support Area Project (Gorgon Additional Lands Project) is a proposal to undertake clearing and earthworks of up to 32 hectares (ha) of uncleared land within a 36 ha development envelope on Barrow Island (Figure 1).

Barrow Island is a Class A Nature Reserve vested in the Conservation Commission of Western Australia (Conservation Commission). The Department of Parks and Wildlife (DPaW) manages the Nature Reserve on behalf of the Conservation Commission.

The use of land on Barrow Island for gas processing is provided for in the *Barrow Island Act 2003* for up to 300 ha of uncleared land. This proposal will require an amendment to the *Barrow Island Act 2003* for the additional clearing of uncleared land from 300 ha up to 332 ha.

The proposal involves the clearing of up to 32 ha of vegetation within the 36 ha development envelope and cut and fill of the cleared area to provide a level surface. The potential impacts are to flora and vegetation and terrestrial fauna from the clearing and to subterranean fauna from the cut and fill activities. Chevron indicates in the environmental review document that land within the development envelope will be rehabilitated when no longer required to support construction and operation of the Gorgon Gas Development (Chevron, 2013).

The proponent is currently utilising previously cleared areas of the Island that are remote from the Gorgon Gas Development for construction laydown and operations support and is also demobilising equipment/materials from the Island to manage space constraints. The revised proposal is expected to result in less movement of materials across the Island due to the consolidation of operations, as well as a reduction in quarantine risks from bringing demobilised equipment/materials back on to the Island. Chevron considers that some of the additional area is necessary for ongoing operations support as their review of the design has shown the current planned size of area for ongoing operations support is insufficient (Chevron, 2013).

The proposal referred to is to amend the approved Gorgon Gas Development Revised and Expanded Proposal: Barrow Island Nature Reserve (Ministerial Statement 800 as amended by Ministerial Statement 865). The EPA's role is to assess the change and decide whether the existing conditions are adequate to manage the additional impacts.

No changes to the key characteristics table for Ministerial Statement 800 are proposed as part of the revised proposal. As the statement currently operates, the restriction on the area allowed to be cleared is stated in the *Barrow Island Act 2003* and not in the key characteristics table of the Ministerial Statement. There is also no change to any of the activities currently listed in the key characteristics table of Ministerial Statement 800 as a result of the revised proposal.

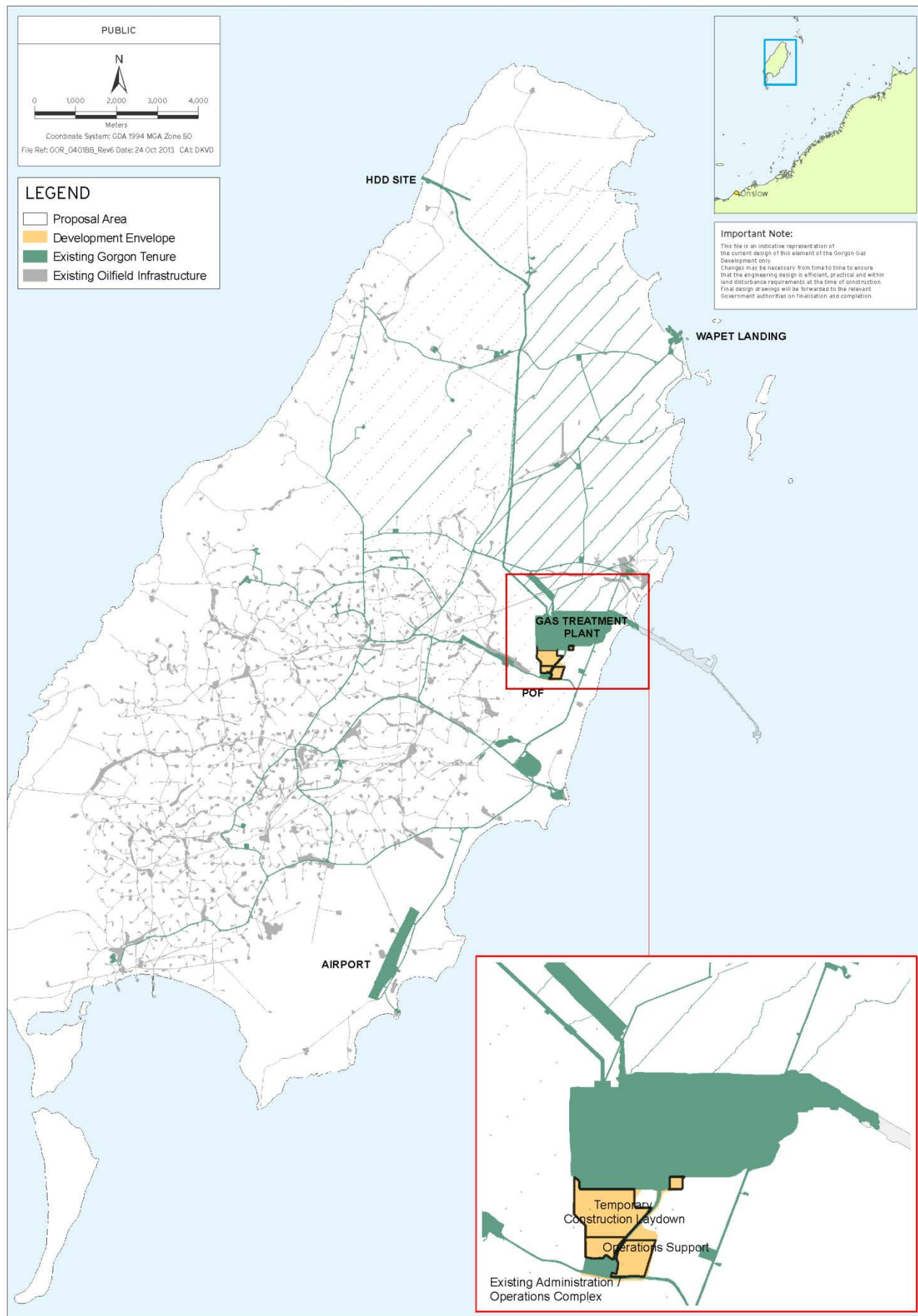
The Gorgon Additional Lands Project sits within areas that have previously been the subject of environmental surveys as part of the EPA's previous assessment of the Gorgon Gas Development (EPA Reports 1221 and 1323).

The potential impacts of the proposal are discussed by the proponent in the environmental review document (Chevron, 2013).

### **3. Consultation**

During the preparation of the environmental review document, the proponent has undertaken consultation with government agencies and key stakeholders where possible. The agencies, groups and organisations consulted, along with the comments received and proponent's response, are detailed in the proponent's environmental review document (Chevron, 2013). Table 3-1 in the proponent's environmental review document summarises the main environmental issues raised by stakeholders and details the actions taken by the proponent to address the issues.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders of the proposed development.



**Figure 1: Locality map and development envelope**

## 4. Key environmental factors

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for Environment on the outcome of its assessment of a proposal. The report must set out:

- the key environmental factors identified in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit. It is the EPA's opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

- (a) Flora and Vegetation
- (b) Terrestrial Fauna
- (c) Subterranean Fauna
- (d) Offsets (integrating factor)

The above key factors were identified from the EPA's consideration and review of all environmental factors generated from the environmental review document, in conjunction with the proposal characteristics as described in Section 2.

The key environmental factors are discussed in Sections 4.1 – 4.4. The discussion of each factor shows why it is relevant to the proposal, how it will be impacted by the proposal and the EPA's assessment of whether or not a proposal meets the environmental objective set for that factor.

All the factors above were considered to be preliminary key environmental factors in the scoping guideline.

In assessing the proposal, the EPA notes that the proponent has sought to avoid, minimise and rectify environmental impacts associated with the proposal by:

- considering the following as part of the site selection process:
  - avoiding creeklines to avoid impacts on the *Triodia angusta* dominated creekline vegetation Priority Ecological Community;
  - avoiding impacts to Boodie warrens and raptor nests;
- minimising the additional land required to 32 ha;
- minimising impacts associated with edge effects by aligning the proposal area to be adjacent to the existing development footprint; and
- rehabilitating any disturbed areas not required for the future construction and operation of the Gorgon Gas Development.



## 4.1 Flora and Vegetation

The EPA's environmental objective for this factor is *to maintain representation, diversity, viability and ecological function at the species, population and community level.*

The main impact to the flora and vegetation from the Gorgon Additional Lands Project is direct disturbance due to clearing.

As a result of previous EPA assessments associated with the Gorgon Gas Development there is a high level of knowledge of the flora and vegetation of Barrow Island. The survey area for previous surveys encompassed the Gorgon Additional Lands Project area. Chevron undertook a further study in 2013 of the 36 ha development envelope to ensure a contemporary assessment of the flora and vegetation in the proposal area (Astron, 2013).

The surveys have identified 226 plant taxa from 131 genera and 68 families on Barrow Island. All plant taxa are found on the mainland except for *Cucumis* sp. Barrow Island and *Amaranthus* sp. Barrow Island.

No Declared Rare Flora (DRF) have been recorded on Barrow Island. Three species of Priority Flora have been recorded. These are *Helichrysum oligochaetum* (P1), *Cucumis* sp. Barrow Island (P2) and *Corchorus congener* (P3). Of these *C. congener* was recorded in the development envelope during the 2013 survey. *C. congener* is considered abundant and widespread across Barrow Island.

There are 40 species of flora considered as being 'locally significant' on Barrow Island due to restricted distribution or vulnerability to disturbance. Two of the 40 species were found in the development envelope; *Hakea lorea subsp. lorea* and *Melaleuca cardiophylla*. Both these species are considered to have low regenerative capacity once disturbed compared to other species found on Barrow Island. However, previous surveys have found that both species are relatively widespread across the Island, with the disturbance for this proposal representing less than 1% and 1.6% of the mapped distribution of *M. cardiophylla* and *Hakea lorea subsp. lorea*, respectively.

No Threatened Ecological Communities listed under State or Commonwealth legislation occur on Barrow Island. There are two Priority Ecological Communities (PECs) listed by the DPaW for Barrow Island. Neither of these occurs within the development envelope. One of the recognised PECs is *Triodia angusta* dominated creekline vegetation. One of the site selection criteria for the Gorgon Additional Lands Project was avoidance of creeklines to avoid impacts to this PEC. A creekline runs along the western edge of the development envelope but has a buffer in place so that the Gorgon Additional Lands Project does not impact on the creekline. This creekline potentially meets the requirements to be considered a PEC as it contains restricted creekline vegetation, but it is yet to be formally classified.

Vegetation mapping on Barrow Island has been carried out for previous EPA assessments of the Gorgon Gas Development. The mapping has been at a range of scales over different areal extents. This has resulted in some variation in the classification of vegetation types as detailed in section 7.1.3.2 of the environmental

review document. Mattiske and Associates mapped four vegetation formations in the development envelope, whilst the more recent Astron Environmental Services mapped five vegetation associations (environmental review document, Table 7-3). Regardless of which mapping is used there are no vegetation types that are restricted to the development envelope and all are well represented across the Island. The vegetation is considered to be in excellent condition with no visible signs of disturbance (Astron Environmental Services, 2013).

**Table 1: Vegetation associations present in the development envelope**

Vegetation Association <sup>1</sup>	Total Area (m <sup>2</sup> ) of Vegetation Association within Area Mapped <sup>2</sup>	Area (m <sup>2</sup> ) Within Existing Gorgon Gas Development Tenure	Area (m <sup>2</sup> ) Within Development Envelope	Area (m <sup>2</sup> ) Within Proposal Area <sup>3</sup>	Increase (%) in Clearing of Area Mapped <sup>3,4</sup>
F8a: <i>Acacia bivenosa</i> shrubland over mixed <i>Triodia</i> hummock grassland on flats and valley floors	1,900,331	642,126	7,918	7,394	0.39%
L7b : Open low shrubland of <i>Melaleuca</i> and <i>Acacia</i> over closed <i>Triodia</i> hummock grassland on limestone slopes and ridges	2,030,490	124,756	128,095	112,823	5.56%
V1d : Shrubland of <i>Acacia bivenosa</i> with low scattered <i>Pentalepis</i> shrubs over mixed <i>Triodia</i> hummock grassland on limestone slopes and low ridges	93,741	5,796	10,839	7,367	7.86%
V1k : Scattered <i>Hakea</i> over low open <i>Melaleuca</i> shrubland over <i>Triodia</i> hummock grassland on limestone hillslopes and minor drainage lines	1,211,395	316,495	58,316	49,404	4.08%
V1m : <i>Melaleuca</i> and <i>Acacia</i> heath over mixed <i>Triodia</i> hummock grassland on limestone slopes and ridges	1,914,340	367,669	156,669	143,665	7.50%

As result of the Gorgon Additional Land Project the total clearing of the Island associated with the Gorgon Gas Development will increase from 1.3% to 1.4% of the Island. When combined with historical disturbance associated with the existing oilfield the cumulative area disturbed would increase from 6.5% to 6.6% of the Island.

The proponent has committed to measures to avoid and minimise the impacts to terrestrial fauna. The key measures include:

- undertaking a site selection study to select a site that has the lowest environmental impacts including avoiding known or potential PECs;
- reducing the size of area required for the proposal from that originally considered;
- implementing clearing controls to ensure disturbance is limited to 32 ha;
- rehabilitating areas no longer required; and
- applying the approved established management framework currently utilised for the Gorgon Gas Development to the additional area.

The EPA notes the measures taken in site selection to avoid conservation significant flora and vegetation and to avoid the creekline to the west of the development envelope that is a potential PEC. It is also noted that the species of conservation significant flora recorded in the development envelope are widespread across the Island.

The EPA notes that areas within the development envelope will be rehabilitated when they are no longer required to support the construction and operation of the Gorgon Gas Development.

The EPA considers that the current management plans that relate to flora and vegetation required under Ministerial Statement 800 are effective in managing the impacts of the Gorgon Gas Development on flora and vegetation. The EPA considers that these management plans should be implemented for the development envelope that is the subject of the Gorgon Additional Lands Proposal and therefore considers that no amendments to the implementation conditions addressing flora and vegetation impacts in Ministerial Statement 800 are necessary to manage the additional impact of the proposal.

The EPA recognises the measures that the proponent has undertaken and committed to take to avoid, minimise and rectify impacts to flora and vegetation.

### **Summary**

Having particular regard to:

- no declared rare flora being recorded on Barrow Island and conservation significant flora being widespread across the Island;
- the measures that the proponent has undertaken and committed to take to avoid, minimise and rectify impacts to flora and vegetation;
- the 0.1% increase in total disturbance on the Island; and
- the likely level of restoration of ecological values and functions that would be achieved through best practice rehabilitation,

the EPA considers that the proposal can be managed to meet the EPA's objective for Flora and Vegetation provided that the implementation conditions set out in Ministerial Statement 800 are applied to the revised proposal.

The recommended implementation agreement in Appendix 2 would have the effect of allowing the revised proposal to be implemented and the implementation conditions of Ministerial Statement 800 (as amended by Ministerial Statement 865) would apply to the Gorgon Additional Lands Project.

## **4.2 Terrestrial Fauna**

The EPA's environmental objective for this factor is *to maintain representation, diversity, viability and ecological function at the species, population and assemblage level.*

The main impacts on terrestrial fauna from the Gorgon Additional Lands Project are direct impacts through the clearing of fauna habitat and vehicle strikes.

The terrestrial fauna of Barrow Island is well understood, partly as result of surveys and investigations carried out by the proponent to inform previous EPA assessments of the Gorgon Gas Development. Past fauna surveys have encompassed the Additional Lands Area and, as for flora and vegetation, Chevron undertook an

additional survey over the development envelope in 2013 to provide a contemporary assessment of the terrestrial fauna (Biota, 2013a).

The classification of Barrow Island as a Class A Nature Reserve reflects the importance of the Island as habitat for fauna species away from the threatening processes present on the mainland (EPA, 2009a).

Thirteen species of mammals have been recorded as resident on Barrow Island. Six of these are protected under the *Wildlife Conservation Act 1950* and four of the six species are likely to occur in or near the development envelope:

- Barrow Island Euro (*Petrogale lateralis lateralis*);
- Spectacled Hare-wallaby (*Lagorchestes conspicillatus conspicillatus*);
- Barrow Island Golden Bandicoot (*Isodon auratus barrowensis*); and
- Boodie (*Bettongia lesueur*).

Forty-five species of terrestrial reptiles and one species of frog are found on Barrow Island, none of which is listed under the *Wildlife Conservation Act 1950*. There have been 119 bird species recorded on Barrow Island and two of these are protected under the *Wildlife Conservation Act 1950*. Of these, the White-winged Fairy-wren (Barrow Island) (*Malurus leucopterus edouardi*) is widespread across the Island and known to be present in the development envelope.

Biota (2013a) has estimated the number of each type of threatened fauna species that may be present in the development envelope. The estimates are shown in Table 2. Further details about the populations of these species on Barrow Island are provided in the environmental review document for the Gorgon Additional Lands Project (Chevron, 2013).

**Table 2 Estimates of specially protected fauna species that may be present in the development envelope**

Species	Scientific name	Estimated Barrow Island population	Number of individuals estimated within development envelope
Barrow Island Euro	<i>Macropus robustus isabellinus</i>	1,234	2
Spectacled Hare-wallaby	<i>Lagorchestes conspicillatus conspicillatus</i>	7,411	8
Barrow Island Golden Bandicoot	<i>Isodon auratus barrowensis</i>	Between 39,688 and 46,225	Between 47 and 72
Barrow Island Boodie	<i>Bettongia lesueur</i>	4,500	0
White-winged Fairy-wren	<i>Malurus leucopterus edouardi</i>	10,684	25

More than 2200 invertebrate species have been identified on Barrow Island to date. None of these is listed under the *Wildlife Conservation Act 1950* or as Priority species by the DPaW. Several of these species have been identified as Short Range Endemic (SRE) species, but with widespread distribution across the Island. In this context, an SRE is an invertebrate that has a distribution of 10,000 square kilometres or less (EPA, 2009b). As this is an area larger than Barrow Island, any invertebrate species found only on Barrow Island will automatically be considered an SRE species.

None of the terrestrial fauna species recorded within the development envelope is considered to have a distribution that is restricted to the development envelope. As the Island is a Nature Reserve that undergoes active management (including quarantine), there are secure populations of conservation significant fauna species on the Island outside areas of development (Chevron, 2013).

Fauna habitats found within the development envelope are considered to be well-represented in the areas surrounding the envelope and across Barrow Island. Surveys indicate that there are no habitats of critical importance to any particular terrestrial fauna species in the development envelope (Chevron 2013). Avoidance of areas of significant fauna habitat was a selection criterion when choosing a site for the Gorgon Additional Lands Project.

Criteria have been developed for determining if fauna habitat is considered significant for Barrow Island. These are detailed in section 7.2.3.2 of the environmental review document (Chevron, 2013) and were also used during previous EPA assessments of the Gorgon Gas Development. The habitats considered significant on Barrow Island are Boodie warrens, raptor nests and termite mounds. There are no Boodie warrens or raptor nests within the development envelope. The location of termite mounds across Barrow Island have been mapped. It is predicted that the Gorgon Additional Lands Project will impact on 130 mounds equivalent to less than 2% of the 7000 mounds mapped in the vicinity of the Gorgon Gas Development (as shown in Figure 7-2 of the environmental review document).

Active Boodie warrens are found to the south, west and east of the development envelope. The Department of Parks and Wildlife (DPaW) has provided comment that the Boodie population could be impacted by the reduction in foraging area and habitat fragmentation associated with known warrens. Tagging studies by Chevron have indicated that the development envelope does not represent a movement corridor for Boodies between the west and east warrens and that there is limited evidence of foraging within the envelope. Foraging habitat extends south, west and east of the development envelope (Chevron, 2013). The DPaW has indicated that Chevron's monitoring of Boodie populations should be ongoing. This is a requirement under Ministerial Statement 800.

Since the start of construction for the Gorgon Gas Development there has been loss of fauna on Barrow Island due to vehicle strikes. The Gorgon Additional Lands Project is expected to provide an environmental benefit as the consolidation of operations will reduce the number of vehicle movements across the Island. The proponent has attempted to quantify the reduction in vehicle strikes of as a result of the consolidation. Focussing on threatened fauna species the proponent predicts that there will be 122 less casualties during the construction period and 300 less

casualties during the operational life of the project. The methodology for this prediction is described in Section 5.1 of the environmental review document (Chevron, 2013).

The proponent has committed to measures to avoid and minimise the impacts to terrestrial fauna. The key measures include:

- undertaking a site selection study to select a site that has the lowest environmental impacts including avoiding areas of conservation significant fauna habitat, where possible;
- reducing the size of area required for the proposal from that originally considered;
- reducing the total vehicle movements associated with the Gorgon Gas Development;
- translocating fauna to remove individuals from the site before the vegetation is cleared;
- rehabilitating areas no longer required; and
- implementing the approved established management framework currently utilised for Gorgon Gas Development to the additional area.

The EPA notes that there will be an unavoidable loss of a small proportion of widely distributed fauna habitat and displacement and potential loss of low numbers of fauna, including species of conservation significance, as a result of the proposal. However, the number lost will be reduced by an active trapping and translocation program prior to ground disturbance. The expected reduction in vehicle movements due to the consolidation of current operations for the Gorgon Additional Lands Project should also result in a lower number of fauna casualties from the Gorgon Gas Development.

The EPA considers that the current management plans that relate to terrestrial fauna required under Ministerial Statement 800 are effective in managing the impacts of the Gorgon Gas Development. The EPA considers that these management plans should be implemented for the development envelope that is the subject of the Gorgon Additional Lands Proposal.

The EPA recognises the measures that the proponent has undertaken and committed to take to avoid, minimise and rectify impacts to terrestrial fauna. Notwithstanding this, the implementation of the proposal will result in a significant residual impact of permanent disturbance of up to 32 ha of Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950*. Consistent with EPA Position Statement No. 9 *Environmental Offsets*, an offset should be applied. This is further discussed in the Offsets section.

## **Summary**

Having particular regard to:

- the fauna habitat to be disturbed being well represented across Barrow Island;
- the site selection process to avoid Boobie warrens and raptor nests;
- the potential impacts to less than 2% of termite mounds;

- the likely level of restoration of ecological values and functions that would be achieved through best practice rehabilitation; and
- the significant residual impact of permanent disturbance of up to 32 ha of Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950*,

the EPA considers that the proposal can be managed to meet the EPA's objective for Terrestrial Fauna provided that:

- the implementation conditions set out in Ministerial Statement 800 are applied to the revised proposal; and
- a condition is imposed to counterbalance the significant residual impact of permanent disturbance of up to 32 ha of Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950*.

The recommended implementation agreement in Appendix 2 would have the effect of allowing the revised proposal to be implemented and the implementation conditions of Ministerial Statement 800 (as amended by Ministerial Statement 865) would apply to the Gorgon Additional Lands Project, with the addition of an offset condition and an additional administrative condition related to monitoring and reporting.

### 4.3 Subterranean Fauna

The EPA's environmental objective for this factor is *to maintain representation, diversity, viability and ecological function at the species, population and assemblage level*.

The proposed development includes cut and fill earthworks to create a level area. This will require the disturbance of small hills to a depth of up to eight metres and the compaction of the surface, both of which could impact subterranean fauna on Barrow Island.

The subterranean fauna community of Barrow Island is seen as being unique and of high conservation value resulting in its listing as a Priority 1 PEC by the DPaW. Subterranean fauna has been considered a key environmental factor in previous EPA assessments of the Gorgon Gas Development (EPA Reports 1221 and 1323).

As for flora and vegetation and terrestrial fauna, the subterranean fauna of Barrow Island is relatively well-understood as a result of previous studies. For many of the species that have been well-collected, genetic and morphological work has demonstrated that their distribution extends across Barrow Island (Biota, 2013b).

Installation of sampling bores for subterranean fauna directly within the development envelope was not possible as the proponent currently does not have any form of tenure over the area. However, Chevron does have tenure over areas directly adjacent to the development envelope and bores are located in these areas (including bores as close as three, 12 and 14 metres from the development envelope) that could be sampled to support the revised proposal. Two additional bores have recently been

installed just south of the development envelope to increase the coverage of the sampling.

The bores adjacent to the development envelope are regularly sampled to demonstrate compliance with Ministerial Statement 800. The proponent has indicated that sampling of these bores since the release of Ministerial Statement 800 in 2009 has reduced the number of species of subterranean fauna recorded as singleton species (where only one individual of a particular species has been found during surveys) on the Island from seven species down to two. This indicates that further sampling of subterranean fauna on the Island is likely to expand the known range of these species (Chevron, 2013).

To support the EPA assessment of the Gorgon Additional Lands Project a desktop study was undertaken by Biota Environmental Sciences in 2013 to collate available data on subterranean fauna within a four kilometre area of the development envelope.

A total of 63 stygofauna species and 19 troglafauna species have been found on Barrow Island. Ten of these species are listed as Schedule 1 species under the *Wildlife Conservation Act 1950*. Stygofauna on Barrow Island are dominated by crustacean taxa, whilst arachnids dominate the troglafauna species.

Three Schedule 1 species are considered likely to be found within the development envelope. They are:

- Blind Gudgeon (*Milyeringa justitia*);
- the troglitic schizomid *Draculoides bramstokeri*; and
- the troglitic millipede *Speleostrophus nesiotus*.

These species are found more widely across Barrow Island. The Biota desktop study in 2013 shows the records of these species in the study area as follows:

- Blind Gudgeon recorded one time south of the development envelope.
- *Draculoides bramstokeri* recorded 33 times north and 22 times south of the development envelope.
- *Speleostrophus nesiotus* recorded four times north and seven times south of the development envelope.

The results of the desktop assessment by Biota also suggested that the subterranean fauna habitat of the development envelope is similar to that of the surrounding area. This is based on the similarity of distribution and representation of subterranean taxa to the north and south of the envelope suggesting connectivity of habitat.

This use of surrogates to infer habitat connectivity is consistent with the EPA's Environmental Assessment Guideline 12 *Consideration of Subterranean Fauna in Environmental Impact Assessment in Western Australia* (EPA, 2013).

The proponent has committed to measures to avoid and minimise the impacts to subterranean fauna. The key measures include:

- undertaking a site selection study to select a site that has the lowest environmental impacts including areas of subterranean fauna habitat;



- using existing water supplies to avoid dewatering or groundwater abstraction;
- minimising extent and depth of excavation work to that which is practicable for operational requirements;
- designing and implementing the project to minimise changes to the hydrological regime and prevent groundwater contamination; and
- implementing the approved established management framework currently utilised for Gorgon Gas Development in the additional area.

The proposal may result in impacts to individuals of subterranean fauna species that have broader distributions on Barrow Island. The EPA notes the high conservation values of subterranean fauna on Barrow Island, which is reflected in subterranean fauna being a key environmental factor in previous EPA assessments of the Gorgon Gas Development.

The EPA notes that sampling associated with the Gorgon Gas Development is showing additional records of subterranean fauna species previously only recorded as singletons, which suggests that the Gorgon Gas Development is not likely to have a significant impact on subterranean fauna.

The EPA acknowledges that tenure issues limit the amount of sampling that can be carried out directly within the development envelope but, given the level of historical sampling surrounding the envelope, inferences can be made about the likely subterranean fauna habitat in the development envelope. The EPA agrees that there is habitat connectivity between the development envelope and the surrounding area.

The proposal may impact on three species listed under the *Wildlife Conservation Act 1950*. The EPA notes that these species have been found to have a wider distribution across Barrow Island.

The EPA considers that the current management plans that relate to subterranean fauna required under Ministerial Statement 800 are effective in managing the impacts of the Gorgon Gas Development. The EPA considers that these management plans should be implemented for the development envelope that is the subject of the Gorgon Additional Lands Proposal and therefore considers that no amendments to the implementation conditions addressing subterranean fauna in Ministerial Statement 800 are necessary to manage the additional impacts of the proposal.

The EPA recognises the measures that the proponent has undertaken and committed to take to avoid, minimise and rectify impacts to subterranean fauna.

## **Summary**

Having particular regard to:

- the site selection process used to minimise impacts to subterranean fauna;
- the sampling of subterranean fauna required by Ministerial Statement 800 demonstrating that five of the seven singleton species are now more broadly distributed; and
- the three of the 10 Schedule 1 species that are likely to be found within the development envelope but have a wider distribution across Barrow Island,

the EPA considers that the proposal can be managed to meet the EPA's objective for Subterranean Fauna, provided that the implementation conditions set out in Ministerial Statement 800 are applied to the revised proposal.

The recommended implementation agreement in Appendix 2 would have the effect of allowing the revised proposal to be implemented and the implementation conditions of Ministerial Statement 800 would apply to the Gorgon Additional Lands Project.

#### **4.4 Offsets (Integrating Factor)**

The EPA's environmental objective for this factor is *to counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.*

Barrow Island is a Class A Nature Reserve approximately 23,600 ha in area. The internationally recognised environmental values of Barrow Island are its unique combination of taxa and communities and its island status. In particular, the classification of Barrow Island as a Class A Nature Reserve reflects the importance of the Island as habitat for fauna species away from threatening processes present on the mainland (EPA, 2009a). The high density and diversity of species are largely due to Barrow Island being naturally quarantined from invasive species because it is an island.

The proponent has demonstrated that they have applied the mitigation hierarchy by:

- avoiding impacts to Boodie warrens and raptor nests through the selection of an appropriate site;
- minimising impacts associated with edge effects by aligning the proposal area adjacent to the existing development footprint;
- limiting the extent of the footprint to 32 ha of clearing; and
- rehabilitating any parts of the area not required for the future construction and operation of the Gorgon Gas Development once they are no longer required to support the Gorgon Gas Development and rehabilitating the remaining area at the end of gas field life.

Considering the above, the implementation of the proposal will result in a significant residual impact of permanent disturbance of up to 32 ha of Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950*.

An appropriate and relevant offset for this expansion would involve extending the current fauna translocation program required by the original project under Ministerial Statement 800. The commitment involves:

*Threatened Species Translocation and Reintroduction Program* – a 12-year Threatened Species Translocation and Reintroduction Program for selected species from Barrow Island to other Pilbara islands at a cost of \$10 million. The program will include the initial translocation actions, plus ongoing island management and will target three threatened species – Spectacled Hare-wallaby, Golden Bandicoot and Black and White Fairy-wren. All these species have been

lost from other Pilbara islands through environmental threats such as feral animals and weeds.

The results from this program have been mostly positive so far with the successful translocation of Golden Bandicoots, Spectacled Hare-wallabies, Spinifexbirds and Black and White Fairy-wrens from Barrow Island to a number of other islands and the mainland. An extension of this program will allow for further monitoring and management actions to assist in ensuring that these translocated individuals survive and establish breeding populations in the areas in which they are released.

The length of the extension should be commensurate with the area of permanent impact that the proposal will have on the reserve. The EPA considers that where the proponent can demonstrate that they have substantially commenced effective rehabilitation within five years, in accordance with the Post-Construction Rehabilitation Plan and Gorgon Project Topsoil Management Plan, that the impact to the area rehabilitated could be considered as mitigated.

An extension of the Threatened Species Translocation and Reintroduction Program by two years consistent with the current funding arrangements would represent a 10% increase in the contribution to the program. This is commensurate with an approximately 10% increase in the project footprint from 300 to 332 ha. The details of the additional actions to be undertaken would be determined in consultation with the DPaW.

Ministerial Statement 800 refers to the Threatened Species Translocation and Reintroduction Program as an Additional Gorgon Joint Venture Undertaking and not as an Offset. Since the release of Ministerial Statement 800, the Western Australian Government's Environmental Offsets Policy and the EPA's Environmental Assessment Guideline No. 8 *Environmental Factors and Objectives* have been released. These two documents make it clear that offsets is the correct terminology to refer to programs and undertakings that are required to counterbalance any significant residual environmental impacts or uncertainty.

Consistent with the approach outlined above, the EPA has recommended condition 1 in the recommended environmental conditions in Appendix 2, to address the significant residual impacts of the proposal.

## **5. Conditions**

Section 44 of the EP Act requires the EPA to report to the Minister for Environment on the key environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

As this proposal is a revised proposal, section 45B of the EP Act also requires the EPA to consider whether the existing conditions for the proposal should be amended to accommodate the change to the proposal.

## 5.1 Recommended conditions

Having considered the information provided in this report, the EPA recommends that the existing conditions of Ministerial Statement 800 (as amended by Ministerial Statement 865), together with a new condition on offsets and an administrative condition related to monitoring and reporting, be imposed if the proposal by Chevron Australia Pty Ltd to clear an additional 32 ha of land, within a 36 ha development envelope, on Barrow Island for the purposes of an additional construction laydown and operations support area, is approved for implementation.

One additional condition is to offset the significant residual impact of permanent disturbance of up to 32 ha of Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950* by extending the existing Threatened Species Translocation and Reintroduction Program by two years.

The administrative condition related to monitoring and reporting will ensure that monitoring and compliance reporting for the Gorgon Gas Development and the Gorgon Additional Lands Project occurs on a joint basis.

The recommended implementation agreement that would allow the existing conditions to apply to the change to the proposal and the two additional conditions are presented in Appendix 2.

## 6. Other advice

In regards to any potential increases in lighting due to the Gorgon Additional Lands Project which may impact on nearby turtle nesting beaches, the EPA notes that the Gorgon Additional Lands Project is set back from the coast and there is a dune system that provides a physical barrier to direct light spill, particularly to Bivalve and Terminal beaches. The EPA also notes the proponent's commitment to limit night time construction activities to reduce the amount of lighting required. The EPA considers that the proponent should continue to work with the Marine Turtle Expert Panel that was established for the Gorgon Gas Development to ensure that the Gorgon Additional Lands Project is not impacting on turtle nesting beaches.

The DPaW recommended that efficient and environmentally safe lighting design should be at the forefront of the process and not a retrofitted solution and that the DPaW can assist with this design process as it has done for other industrial developments. The EPA agrees that lighting design should take into account environmental impact considerations and be carried out early by the proponent and in consultation with the DPaW.

## 7. Conclusions

The EPA has considered the proposal by Chevron Australia Pty Ltd to clear an additional 32 ha of land, within a 36 ha development envelope, on Barrow Island for the purposes of an additional construction laydown and operations support area,

required to support the construction and operation of the Gorgon Gas Development referred to in Ministerial Statement 800 dated 10 August 2009 and Ministerial Statement 865 dated 8 June 2011.

The EPA notes that the proponent has actively sought to avoid, minimise and rectify environmental impacts through the design of the proposal.

As the proposal is located in a Class A nature reserve (Barrow Island Nature Reserve) that is important habitat for conservation significant fauna, a condition has been recommended by the EPA to offset the significant residual impacts on the nature reserve.

The EPA has assessed the change to the Gorgon Gas Development proposal and whether the conditions of Ministerial Statement 800 (as amended by Ministerial Statement 865) need to be amended to accommodate the change to the proposal. The EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided the proposal is implemented consistent with the existing management plans established under the implementation conditions of Ministerial Statement 800, with the addition of a condition related to offsets and an administrative condition relating to monitoring and reporting (Appendix 2).

## **8. Recommendations**

The EPA submits the following recommendations to the Minister for Environment.

That the Minister:

1. notes that the proposal being assessed is for Chevron Australia to clear an additional 32 ha of land, within a 36 ha development envelope, on Barrow Island for the purposes of an additional construction laydown and operations support area;
2. considers the report on the key environmental factors as set out in Section 4;
3. notes the proponent's application of avoidance and minimisation principles identified in this report;
4. notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2;
5. imposes the conditions and procedures recommended in Appendix 2 of this report; and
6. notes the EPA's other advice presented in Section 6 in relation to potential impacts on marine turtles.

# **Appendix 1**

## **References**

Astron Environmental Services (2013). *Additional Land South of the Gas Treatment Plant Vegetation and Flora Survey*, Prepared for Chevron Australia Pty Ltd, November 2013, Final Report.

Biota Environmental Sciences (2013a). *Gorgon Gas Project Additional Area Terrestrial Fauna Values*, Prepared for Chevron Australia Pty Ltd, November 2013. Final Report.

Biota Environmental Sciences (2013b). *Gorgon Gas Project Additional Area Subterranean Fauna Desktop Review*, Prepared for Chevron Australia Pty Ltd, November 2013. Final Report.

Chevron Australia Pty Ltd (2013). *Gorgon Gas Development – Additional Construction Laydown and Operational Support Area: Environmental Review*, 5 December 2013.

Environmental Protection Authority (2006). *Gorgon Gas Development Barrow Island Nature Reserve: Report and Recommendations of the Environmental Protection Authority*, Report 1221, Environmental Protection Authority, Perth.

Environmental Protection Authority (2006). *EPA Position Statement No. 9 Environmental Offsets*. Environmental Protection Authority, Perth.

Environmental Protection Authority (2009a). *Gorgon Gas Development Revised and Expanded Proposal – Barrow Island Nature Reserve: Report and Recommendations of the Environmental Protection Authority*, Report 1323, Environmental Protection Authority, Perth.

Environmental Protection Authority (2009b). *EPA Guidance Statement No. 20: Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment in Western Australia*, Environmental Protection Authority, Perth.

Environmental Protection Authority (2013). *Consideration of Subterranean Fauna in Environmental Impact Assessment in Western Australia*, Environmental Assessment Guideline 12, Environmental Protection Authority, Perth.

# **Appendix 2**

## **Identified Decision-making Authorities and Recommended Environmental Conditions**



### Identified Decision-making Authorities

Section 44(2) of the *Environmental Protection Act 1986* (EP Act) specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities, and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified for this consultation:

Decision making authority	Approval
1. Minister for Lands	<i>Land Administration Act 1997</i>
2. Minister for State Development	<i>State Agreement Acts</i>
3. Minister for Mines and Petroleum	<i>Petroleum and Geothermal Energy Resources Act 1967</i>
4. Director General, Department of Environment Regulation	<i>Environmental Protection Act 1986</i> Works Approval and licence
5. Director General, Department of Parks and Wildlife	<i>Wildlife Conservation Act 1950</i> Taking of protected flora and fauna

**Note: In this instance, agreement is only required with DMAs 1 - 3 since these DMAs are Ministers.**

RECOMMENDED ENVIRONMENTAL CONDITIONS

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED  
(PURSUANT TO THE PROVISIONS OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)**

GORGON GAS DEVELOPMENT – BARROW ISLAND

**Proposal:** Additional Construction Laydown and Operations Support Area (A full description of this Proposal is provided in Schedule 1 of this Statement).

**Proponent:** Chevron Australia Pty Ltd  
Australian Company Number 086 197 757

**Proponent Address:** Level 24 QV1 Building  
250 St Georges Tce  
PERTH WA 6000

**Assessment Number:** 1988

**Report of the Environmental Protection Authority Number:** 1499

This Statement authorises the implementation of the Proposal described and documented in Schedule 1. Schedule 2 details definitions of terms and phrases used in the implementation conditions and procedures.

Pursuant to Section 45B of the *Environmental Protection Act 1986*, the implementation conditions agreed and set out in Ministerial Statement No. 800 dated 10 August 2009, as amended by the implementation agreement set out in Ministerial Statement 865 dated 2 June 2011 (Ministerial Statement 800), apply in relation to the Proposal, subject to the Proponent complying with the following additional conditions:

**1 Offsets**

- 1-1 To offset the significant residual impact caused by the proposal on up to 32 hectares of a Class A Nature Reserve including habitat for specially protected fauna under the *Wildlife Conservation Act 1950*, the Proponent shall provide an additional contribution to the Threatened Species Translocation and Reintroduction Program, managed by the State, and referred to in point 3 of the Preamble of Ministerial Statement 800. The additional contribution, will accord with the current funding contributions provided for in the Program, but will extend it for a further two years.

- 1-2 Should the Proponent demonstrate that rehabilitation has substantially commenced for any area within the development envelope shown in Figure 1 of Schedule 1 in accordance with the Post-Construction Rehabilitation Plan, identified in condition 32 of Ministerial Statement 800, within five years of the date of this Statement, the CEO may approve a reduction in the contribution required under Condition 1-1.

## **2 Monitoring and Reporting**

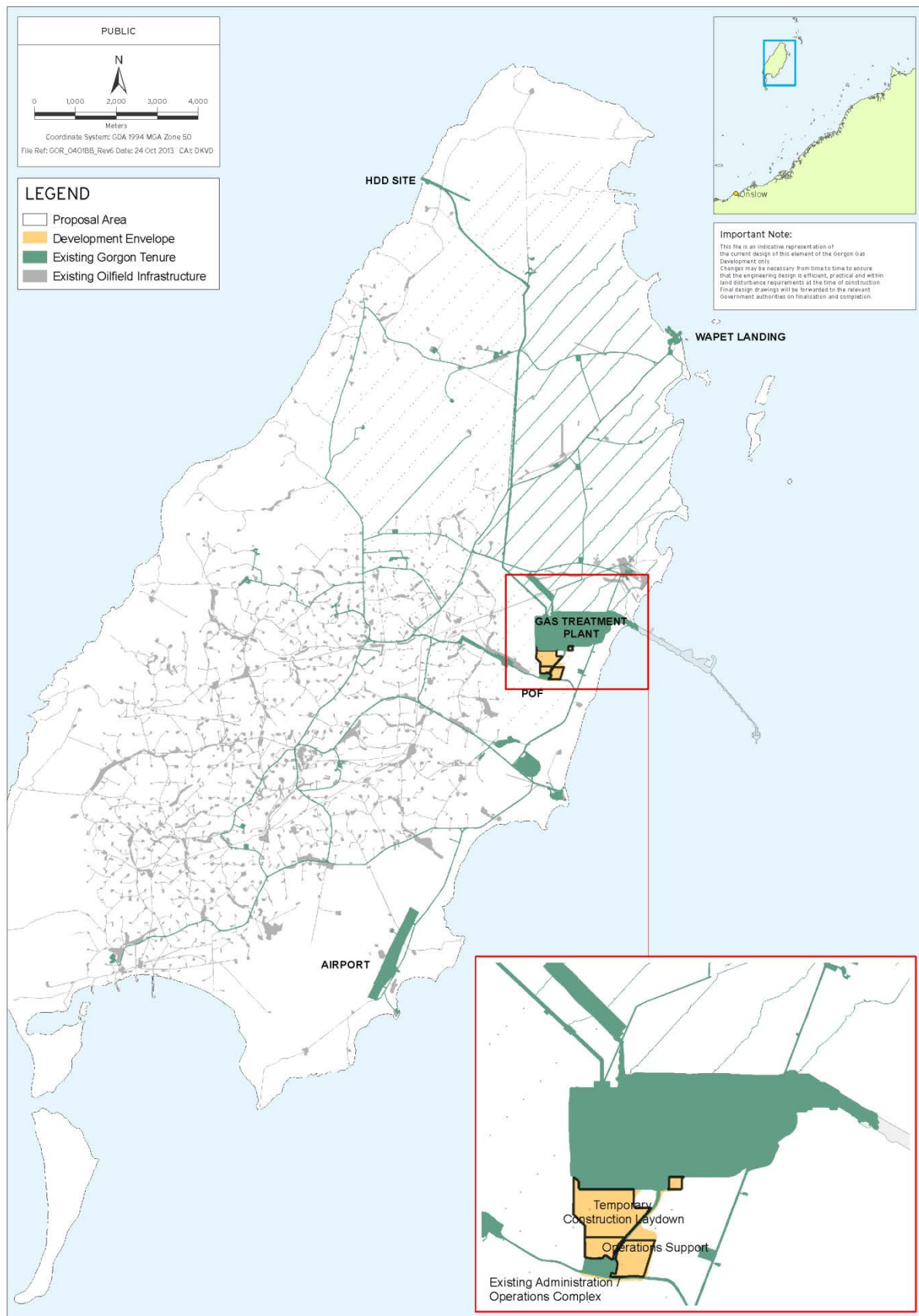
- 2-1 The Proponent shall ensure that all implementation, management, monitoring, compliance assessment and reporting, environmental performance reporting, protocol setting and record keeping requirements which apply to Proposal under the implementation conditions set out in Ministerial Statement No. 800 are carried out on a joint basis with the Gorgon Gas Development Proposal referred to in Ministerial Statement No. 800.
- 2-2 The Proponent shall ensure that the first Compliance Assessment Report, Environmental Performance Report and Five Year Environmental Performance Report, Quarantine Management System Review, Fire Management Plan Review, and Annual Audit and Review of the Effectiveness of Lighting Features which are required under the implementation conditions set out in Ministerial Statement No. 800 following the date of this Statement are submitted within one year (or five years, as relevant) of the submission of the previous Report or Review..
- 2-3 For the purpose of their being a single set of environmental management documents relating to the Proposal and the Gorgon Gas Development Proposal referred to in Ministerial Statement No. 800, the Minister may approve an amendment or addendum to any plan, report, system or program which applies to Proposal under implementation conditions set out in Ministerial Statement No. 800 if the Minister finds that the aims objectives or purposes and certain requirements of the plan, report, system or program have been met in respect of the Proposal.

Table 1: Description of the Proposal

Proposal Title	Gorgon Gas Development – Additional Construction Laydown and Operations Support Area
Short Description	<p>The proposal is for the use of an additional 32 hectares of uncleared land, within a 36 hectare development envelope, on Barrow Island for the purposes of an additional construction laydown and operational support area, required to support the construction and operation of the Gorgon Gas Development referred to in Ministerial Statement No. 800.</p> <p>The location and authorised extent of proposal is illustrated in Figure 1.</p>

Figure (attached)

Figure 1 Locality map and development envelope



**Figure 1: Locality map and development envelope**

## Schedule 2

Term or Phrase	Definition
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or his delegate.
Uncleared Land	Has the meaning given by the <i>Barrow Island Act 2003</i>

### **Schedule 3**

## **GORGON GAS DEVELOPMENT – ADDITIONAL CONSTRUCTION LAYDOWN AND OPERATIONS SUPPORT AREA**

### **Coordinates that define the Development Envelopes**

Coordinates defining the Development Envelopes as shown in Figure 1 of the Ministerial Statement are held by the Office of the EPA, dated 5 December 2013.

## Notes

The following notes are provided for information and do not form a part of the implementation conditions of the Statement:

- The proponent for the time being nominated by the Minister for Environment under section 38(6) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal unless and until that nomination has been revoked and another person is nominated.
- If the person nominated by the Minister, ceases to have responsibility for the proposal, that person is required to provide written notice to the Environmental Protection Authority of its intention to relinquish responsibility for the proposal and the name of the person to whom responsibility for the proposal will pass or has passed. The Minister for Environment may revoke a nomination made under section 38(6) of the *Environmental Protection Act 1986* and nominate another person.
- To initiate a change of proponent, the nominated proponent and proposed proponent are required to complete and submit *Post Assessment Form 1 – Application to Change Nominated Proponent*.