Key Proposal Characteristics

The proposal comprises an area (proposal area) of up to 32 ha within a development envelope of approximately 36 ha. Clearing and earthworks will be limited to the proposal area. The location of the development envelope and nominal boundaries of the proposal area are shown on Figure 1.

The Key Characteristics of the proposal are outlined in Table 1.

Table 1. Key Characteristics of the Proposal

Proposal Summary		
Proposal Title	Gorgon Gas Development, Additional Construction Laydown and Operations Support Area	
Proponent Name	Chevron Australia Pty Ltd	
Short Description	Additional land on Barrow Island to support the construction and operation of the approved Gorgon Gas Development	
Characteristic	**Location**	**Disturbance Area**
Physical Elements		
Additional Construction Laydown and Operations Support Area	South of, and adjacent to, the approved Gorgon Gas Development's Gas Treatment Plant site (Figure 1)	Up to 32 ha within a development envelope of approximately 36 ha
Clearing of native vegetation and associated earthworks	Within the development envelope (Figure 1)	As required for the purpose of implementing the proposal
Operational Elements		
Water supply	Water will be supplied from the approved Gorgon Gas Development reverse osmosis facilities	
Power supply	Power will be supplied from the approved Gorgon Gas Development via overhead, surface or buried power lines	
Sanitary wastewater system	Wastewater, including domestic effluent generated during the construction of the proposal, will be treated together with wastewater from the approved Gorgon Gas Development by the approved Gorgon Gas Development sanitary wastewater systems	

Vegetation of the Development Envelope and Proposal Area

The vegetation formations (Mattiske and Associates 1993) that are mapped over the development envelope are presented in Table 2. The table provides a breakdown of the respective area of each of the vegetation formations present in the development envelope as shown on Figure 1 (Attachment 1), the mapped island wide extent of the vegetation formations involved and the area disturbed by previous development on Barrow Island. The proposal area over which clearing may occur would involve a smaller area within the development area and involve a smaller proportion of the same vegetation formations. The proportional increase in disturbance of each vegetation formation represented by the development envelope when added to the existing areas disturbed by the approved Gorgon Gas Development and Barrow Island oilfield is also provided.

Table 2. Vegetation Formations of the Development Envelope

Vegetation Formation	Total Area (m^2) of Vegetation Type Mapped on Barrow Island	Area (m^2) Disturbed by Oilfield	Area (m^2) Within Existing Gorgon Gas Development Tenure	Area (m^2) Within Development Envelope	Proportional (%) Additional Area Disturbed by Gas Development	Proportional (%) Increase in Cumulative Disturbance
D2: Hummock Grassland of Triodia angusta along minor creek-lines and drainage lines	10,966,838	2,379,188	295,117	**17,820**	0.24%	0.32%
F1: Hummock Grassland of Triodia angusta on red earth flats and drainage lines	15,671,859	434,320	662,104	**13,674**	0.11%	0.12%
L7: Hummock Grassland of Triodia wiseana with dense pockets of Melaleuca cardiophylla on limestone ridges	15,834,055	517,614	710,140	**105,340**	0.77%	0.83%
V1: Hummock Grassland of Triodia wiseana with mixed emergent shrub species on valley slopes	68,229,290	3,357,333	1,018,378	**183,818**	0.29%	0.31%

The vegetation associations mapped over the development envelope, proposal area and surrounds are shown on Figure 2. Table 3 presents the respective areas of each vegetation association present in the development envelope and proposal area, as identified on Figure 1, and the proportional increase in disturbance of each vegetation association that would result from clearing over the proposal area, assuming the boundaries shown on Figure 1. Note that mapping of vegetation to association level has only been undertaken over approximately 2, 500 ha or approximately 11% of Barrow Island and the actual island-wide level of disturbance is expected to be considerably lower.

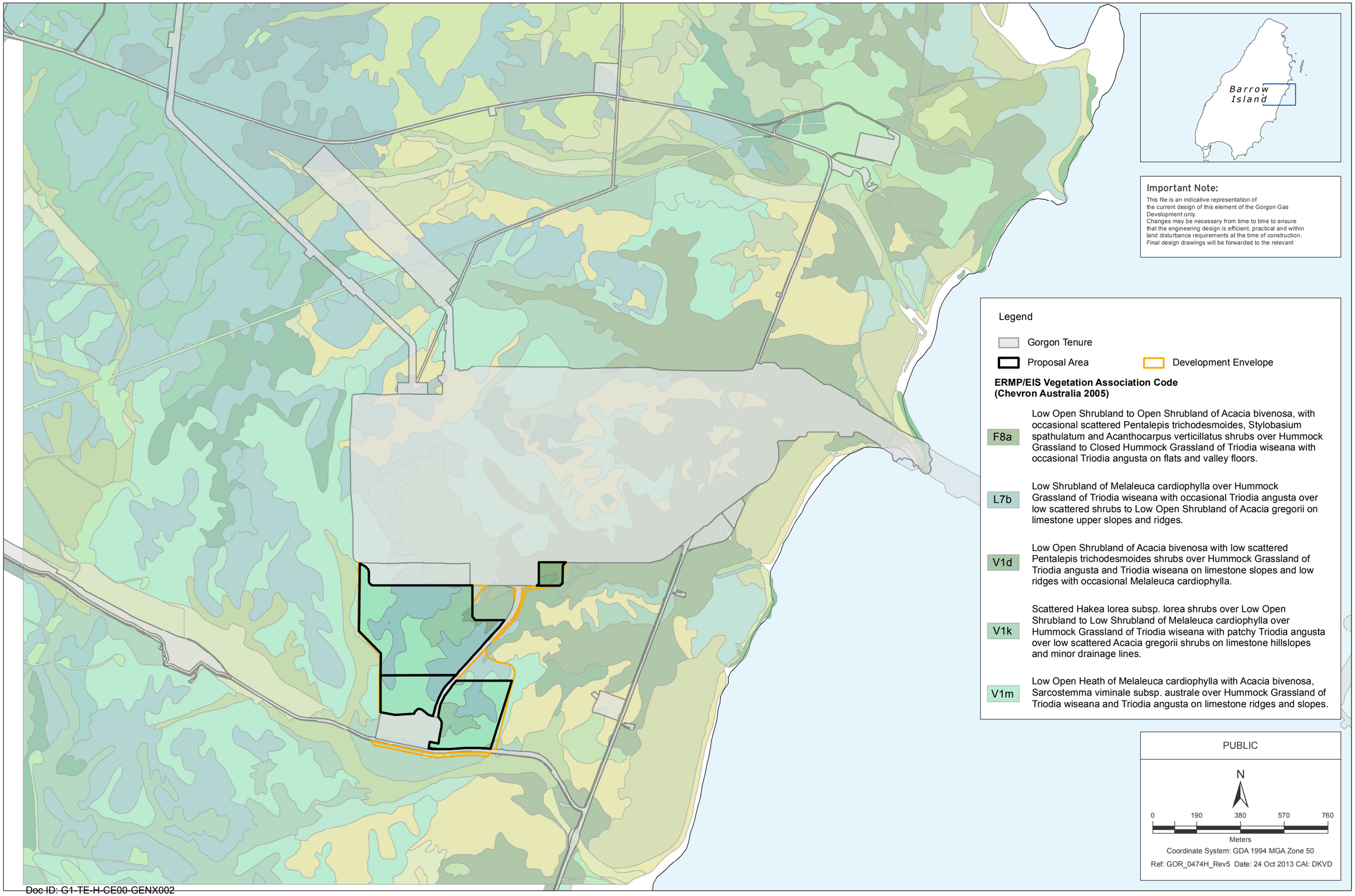
Table 3. Vegetation Associations of the Proposal Area

Vegetation Association[1]	Total Area (m^2) of Vegetation Association within Area Mapped[2]	Area (m^2) Within Existing Gorgon Gas Development Tenure	Area (m2) Within Development Envelope	Area (m^2) Within Proposal Area[3]	Increase (%) in Clearing of Area Mapped[3,4]
F8a: *Acacia bivenosa* shrubland over mixed *Triodia* hummock grassland on flats and valley floors	1,900,331	642,126	**7,918**	7,394	0.39%
L7b[5]: Open low shrubland of *Melaleuca* and *Acacia* over closed *Triodia* hummock grassland on limestone slopes and ridges	2,030,490	124,756	**128,095**	112,823	5.56%
V1d[5]: Shrubland of *Acacia bivenosa* with low scattered *Pentalepis* shrubs over mixed *Triodia* hummock grassland on limestone slopes and low ridges	93,741	5,796	**10,839**	7,367	7.86%
V1k[5]: Scattered *Hakea* over low open *Melaleuca* shrubland over *Triodia* hummock grassland on limestone hillslopes and minor drainage lines	1,211,395	316,495	**58,316**	49,404	4.08%
V1m[5]: *Melaleuca* and *Acacia* heath over mixed *Triodia* hummock grassland on limestone slopes and ridges	1,914,340	367,669	**156,669**	143,665	7.50%

NOTES: [1] Associations as described in assessment documents (ERMP, PER) for Gorgon Gas Development (Chevron Australia 2005; 2008)
[2] 'Area Mapped' is the total area of Barrow Island over which vegetation has been mapped to this level by survey to date. Mapping is restricted to vicinity of Gorgon Gas Development infrastructure and covers approximately 2,500 ha or approx 11% of the total area of Barrow Island (23 567 ha).
[3] Based on the nominal proposal area boundaries as shown on Figure 1
[4] Proportions presented are relative to the Area Mapped and not to the total extent of vegetation on Barrow Island.
[5] Vegetation association considered to be 'significant'

FIGURE 2

VEGETATION



Important Note:

This file is an indicative representation of the current design of this element of the Gorgon Gas Development only.
Changes may be necessary from time to time to ensure that the engineering design is efficient, practical and within land disturbance requirements at the time of construction.
Final design drawings will be forwarded to the relevant

Legend

Gorgon Tenure

Proposal Area

Development Envelope

ERMP/EIS Vegetation Association Code (Chevron Australia 2005)

F8a	Low Open Shrubland to Open Shrubland of Acacia bivenosa, with occasional scattered Pentalepis trichodesmoides, Stylobasium spathulatum and Acanthocarpus verticillatus shrubs over Hummock Grassland to Closed Hummock Grassland of Triodia wiseana with occasional Triodia angusta on flats and valley floors.
L7b	Low Shrubland of Melaleuca cardiophylla over Hummock Grassland of Triodia wiseana with occasional Triodia angusta over low scattered shrubs to Low Open Shrubland of Acacia gregorii on limestone upper slopes and ridges.
V1d	Low Open Shrubland of Acacia bivenosa with low scattered Pentalepis trichodesmoides shrubs over Hummock Grassland of Triodia angusta and Triodia wiseana on limestone slopes and low ridges with occasional Melaleuca cardiophylla.
V1k	Scattered Hakea lorea subsp. lorea shrubs over Low Open Shrubland to Low Shrubland of Melaleuca cardiophylla over Hummock Grassland of Triodia wiseana with patchy Triodia angusta over low scattered Acacia gregorii shrubs on limestone hillslopes and minor drainage lines.
V1m	Low Open Heath of Melaleuca cardiophylla with Acacia bivenosa, Sarcostemma viminale subsp. australe over Hummock Grassland of Triodia wiseana and Triodia angusta on limestone ridges and slopes.

PUBLIC

N

0 190 380 570 760

Meters

Coordinate System: GDA 1994 MGA Zone 50

Ref: GOR_0474H_Rev5 Date: 24 Oct 2013 CAI: DKVD

Fauna Habitats of the Proposal Area

Boodie warrens, raptor nests and termite mounds are the habitats considered to be 'significant' on Barrow Island (Chevron Australia 2012a). Figure 3 shows the distribution of these habitats over the development envelope, proposal area and surrounding areas, along with the broadscale landform habitat types that have been mapped across the island.

As can be seen from Figure 3, there are no boodie warrens or raptor nests in the development envelope (or proposal area). Mapping of termite mounds indicates that they occur within the proposal area in similar densities to other areas. Approximately 131 termite mounds are present over the entire development envelope out of the approximately 7000 termite mounds identified in the vicinity of the approved Gorgon Gas Development's infrastructure sites. The termite mound mapping covers an area of approximately 4145 ha out of the approximately 23, 500 ha Barrow Island land mass. Therefore, the termite mounds within the proposal area represent a very small proportion (<<2%) of all termite mounds on Barrow Island.

The vegetation within the area includes *M. cardiophylla* shrubland (Figure 2), which may provide preferred habitat for the White-winged Fairy-wren (Barrow Island). Recent studies of this species (Bamford and Moro 2011) suggest that the White-winged Fairy-wren (Barrow Island) is not restricted or even largely restricted to *M. cardiophylla* for nest site selection on Barrow Island, but is a generalist. *M. cardiophylla* is widespread on limestone ridges and flats in central and eastern parts of Barrow Island. The extent of *M. cardiophylla* in the development envelope represents less than 1% of its total mapped area (Buckley 1983) across Barrow Island.

Object and Principles of the *Environmental Protection Act 1986* (WA)

Chevron Australia has planned and will implement the proposal to be consistent with the object and principles of the *Environmental Protection Act 1986* (WA). Further detail on the consideration of the proposal against each of the principles is provided in Table 4.

Environmental Factors

The development envelope for this proposal falls entirely inside the area inland of Town Point within which development of the approved Gorgon Gas Development has been assessed in detail during the environmental approval processes for the initial (2 train) and revised (3 train) Gorgon Gas Development. The environmental values of the area, and the potential impacts associated with development within it, are well understood.

The proposal does not involve any activities or facilities that were not assessed as part of the approved Gorgon Gas Development. Rather, it involves conducting some of the same activities approved for the Gorgon Gas Development in a location on Barrow Island that will require clearing over an additional area of land, and siting facilities in a location not previously specified. Given that the land does not exhibit any environmental values that were not present within the development area of the approved Gorgon Gas Development, the potential impacts for the proposal can be predicted with confidence.

Table 5 provides information on the existing environment, potential impacts from the proposal, the management strategies proposed and the expected environmental outcomes for each of the EPA's environmental factors.

FIGURE 3

FAUNA

PUBLIC

N

0 250 500 750 1,000

Meters

Coordinate System: GDA 1994 MGA Zone 50

Ref: GOR_0474D_Rev6 Date: 24 Oct 2013 CAI: DKVD

Important Note:

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Final design drawings will be forwarded to the relevant

Legend

- Proposal Area
- Development Envelope
- Gorgon Tenure
- Raptor Nests
- Termite Mounds
- Active Boodie Warren
- Inactive Boodie Warren
- Bare Sand
- Clay Pans
- Coastal Complex and Dune System
- Creek or Seasonal Drainage Lines
- Flats
- Limestone Ridges
- Marine
- Tidal
- Valley Slopes and Escarpment Slopes

Table 4. Principles of the *Environmental Protection Act 1986* (WA)

Principle	Aim	Proposal Considerations
Precautionary	Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation	Chevron Australia proposes to manage potential impacts using measures consistent with those contained within the comprehensive framework of environmental monitoring and management plans approved for the Gorgon Gas Development, as relevant to the proposal. This framework includes environmental monitoring and management programs that aim to address uncertainties over environmental impacts This includes measures to implement precautionary management despite a lack of full scientific understanding of potential impacts, monitoring to improve scientific understanding and detect if/where effects exceed predictions, and adaptive management strategies to ensure no unacceptable environmental impacts.
Inter-generational equity	The present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations	Under the Approved Gorgon Gas Development, the GJVs have committed to a set of management measures aimed at ensuring the long-term conservation of the environmental values of Barrow Island as a Class A Nature Reserve. These include a Post-construction Rehabilitation Plan and a Decommissioning and Closure Plan. The GJVs intend to apply the same set of management measures to the proposal where applicable, e.g. where activities are the same, and with relevant amendments, to protect the Barrow Island environment and maintain it for future generations.
Biodiversity	Conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making	Achievement of this principle lies at the heart of the permission granted to the GJVs under the Barrow Island Act for the restricted use of Barrow Island for gas processing purposes. This responsibility underpins the GJVs' approach for developing and implementing the approved Gorgon Gas Development and the proposal. It is evidenced by the environmental management plans required under Ministerial Conditions for the approved Gorgon Gas Development for the management of potential environmental impacts. Potential effects on biodiversity from this proposal will be managed consistent with the objectives, management measures, contingency measures, triggers and monitoring which are currently approved for the Gorgon Gas Development and have ensured the approved Gorgon Gas Development has not led to any unacceptable effects on biodiversity. With the management proposed, the small scale of disturbance associated with this proposal will not compromise the biological diversity or ecological integrity of Barrow Island.
Valuation	Improved valuation, pricing, and incentive mechanisms should be promoted (e.g. 'polluter pays' principle, consideration of life cycle costs)	As the proponent on behalf of the GJVs, Chevron Australia's internal decision-making processes and tools will be used for the proposal. The environmental implications (including their associated costs where relevant) are incorporated into these systematic decision-making processes, which aim to deliver world-class performance in safety, health, environment, reliability, and efficiency.

Principle	Aim	Proposal Considerations
Waste minimisation	All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment	Reasonable and practicable measures will be taken to reduce wastes generated by the Proposal. These measures are driven by Chevron Australia's Operational Excellence[1] business philosophy, which includes the aim of managing the efficient use of resources, and by a key element of the ABU Policy 530, which requires 'working to prevent pollution and waste; striving to continually improve environmental performance; and limiting impacts from operations'. This principle is also reflected in the various environmental management plans that were approved for the Gorgon Gas Development including the Solid and Liquid Waste Management Plan. The proposal proposes to minimise waste consistent with the measures from these environmental management plans.

1: See http://www.chevron.com/about/operationalexcellence/

Table 5. Environmental Factors

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
Benthic Communities and Habitat To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.	The proposal is entirely terrestrial and located approximately 800 m (at its closest point) from the coast	The proposal does not involve any marine components or discharges to the marine environment. No potential impacts to benthic communities and habitat have been identified. *Not considered a preliminary key factor*	No potential impacts so no additional management required	With no impacts identified, the EPA objective is met	
Coastal Processes To maintain the morphology of the subtidal, intertidal and	The proposal is entirely terrestrial and located approximately 800 m (at its closest point)	The proposal is located away from the coast, removing the potential for impacts to coastal processes.	No potential impacts so no additional management required	With no impacts identified, the EPA objective is met	

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
supratidal zones and the local geophysical processes that shape them.	from the coast	*Not considered a preliminary key factor*			
Marine Environmental Quality To maintain the quality of water, sediment and biota so that the environmental values, both ecological and social, are protected.	The proposal is entirely terrestrial and located approximately 800 m (at its closest point) from the coast	The proposal does not involve any discharges to the marine environment. No potential impacts to marine environmental quality have been identified. *Not considered a preliminary key factor*	No potential impacts so no additional management required	With no impacts identified, the EPA objective is met	
Marine Fauna To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.	Turtle nesting occurs on Inga Beach and Yacht Club Beach North, to the east of the development envelope. The proposal is entirely terrestrial and located approximately 800 m (at its closest point) from these turtle nesting beaches.	The proposal does not involve any discharges to the marine environment that may affect marine fauna. Light emissions could affect turtles if received at turtle nesting beaches. No net increases are expected in the overall number of aircraft flights or vessel movements to Barrow Island as a result of the proposal. *Not considered a preliminary key factor*	• Construction and operation activities over proposal area generally limited to daylight hours • All facilities subject to the approved Gorgon Gas Development's Environmental Basis of Design, which includes specific lighting design requirements. • Monitoring of turtles on turtle nesting beaches conducted for approved Gorgon Gas Development with management feedback loops, as described in the approved Gorgon Gas Development Long-term Marine Turtle Management Plan.	No direct light spill to turtle nesting beaches. Negligible change to prevailing light regimes. No impact to turtles or other marine fauna predicted. EPA objective is met.	
Flora and Vegetation To maintain representation, diversity, viability and	No Declared Rare Flora (DRF) or Threatened Ecological Communities (TECs) or	Removal of vegetation in the proposal area. Potential disturbance to vegetation in adjacent areas	• Area of vegetation clearing restricted to that required for implementation of the proposal. • Development envelope location avoids	No impacts to DRF, TECs or PECs. Few individuals of *C. congener* (Priority 3)	Results of recent site-specific botanical survey over the

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained

ecological function at the species, population and community level	Priority Ecological Communities (PEC) known from the development envelope.
	
	Priority 3 species *Corchorus congener* likely to be present in development envelope, but not considered conservation significant on Barrow Island.
	
	Flora and vegetation of development envelope generally undisturbed and comprised of species and communities widely distributed elsewhere on Barrow Island.
		through erosion, dust, sedimentation, runoff or leaks or spills resulting from the proposal.
		
		Spread of weeds.
		
		Loss of vegetation in adjacent areas through accidental fire as a result of the proposal
		
		Considered a preliminary key factor
			PECs and any vegetation association in its entirety.
			• Vegetation clearing managed consistent with the measures described in the Terrestrial and Subterranean Environmental Protection Plan[1],which includes requirements in relation to:
			  ○ Weed hygiene
			  ○ Controls on area cleared
			  ○ Dust control
			• Potential risks of accidental fire arising from the proposal managed consistent with the measures described in the approved Fire Management Plan, which includes requirements in relation to provision of firefighting equipment.
			• All wastes managed consistent with the measures described in the Solid and Liquid Waste Management Plan, which includes requirements in relation to prevention of contaminated water from being discharged to the environment.
			• Leaks and spills managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1], which includes requirements in relation to selection of non-hazardous (or least hazardous) materials for use on site wherever practicable.
			• Prevention of introduction or spread of non-indigenous species will be managed through the Terrestrial and Marine Quarantine Management System[1]
			• Surface water management consistent
				may be impacted, but this species widespread on Barrow Island, also occurs on mainland and known to regenerate after disturbance.
				
				Removal of flora/vegetation over an area of approximately 0.1% of Barrow Island.
				
				Rehabilitation reduces extent of vegetation loss.
				
				Potential stressors to flora and vegetation from the proposal adequately managed such that residual effects, including cumulative effects[2], are environmentally acceptable.
				
				EPA objective is met.
					development envelope.

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
			with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1], which includes requirements in relation to mirroring natural hydrological regimes as closely as practicable • Monitoring of adjacent vegetation consistent with the monitoring techniques described in the Terrestrial and Subterranean Environment Monitoring Program. • Rehabilitation of vegetation in areas no longer required by the Gorgon Gas Development consistent with the measures described in the Post-Construction Rehabilitation Plan[3], which includes requirements in relation to collection and storage of topsoil, vegetation and seeds where practicable prior to clearing.		
Landforms To maintain the variety, integrity, ecological functions and environmental values of landforms and soils.	Landforms and soils in the development envelope are typical of broad areas on Barrow Island, with none restricted to the development envelope. Landforms identified as significant on Barrow Island are coastal foredunes, fossil beds, cliffs and gorges, and caves, rock shelters and sinkholes. None of these significant landforms have been	Removal or disturbance of landform and soil in the proposal area. Localised changes to landform or soils from erosion or sedimentation resulting from the proposal altering drainage patterns. Erosion from the proposal area, caused by wind, water, resulting in sedimentation in adjacent areas. *Not considered a preliminary key factor*	• Development envelope selected to avoid significant landforms on Barrow Island • Extent of excavation reduced via site selection and use of terracing • Topsoil managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1] • Surface water management consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1] • Rehabilitation of landforms in areas no longer required by the Gorgon Gas Development consistent with the	Localised disturbance or loss of landforms and soils that have widespread distribution on Barrow Island. Effects limited to very small (approx. 0.1%) extent of Barrow Island. Rehabilitation reduces extent of longer term impacts. No adverse effects on ecological function or environmental values of landforms/soils on	

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
	identified in the development envelope. Soils in the vicinity of the proposal are characterised by up to 10 m of sands and clays overlaying limestone.		measures described in the Post-Construction Rehabilitation Plan[3]	Barrow Island. Stressors to landforms and soils from the proposal will be adequately managed such that the residual effects, including cumulative effects[2], are environmentally acceptable. EPA objective is met.	
Subterranean fauna To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	The Barrow Island subterranean fauna community is listed by the DPaW as a Priority 1 PEC. Thirteen troglobitic and 43 stygofauna taxa have been recorded on Barrow Island. Ten of these species are listed as Schedule 1 species under the Wildlife Conservation Act. Sampling within 4km radius of development envelope indicates two Schedule 1 species are likely to occur in the development envelope, but both also recorded elsewhere on Barrow Island.	Localised loss of subterranean fauna and/or habitat within proposal area Alteration of surface inputs (recharge, nutrients) affecting habitat quality underlying proposal area Localised contamination of subterranean habitat and/or direct effects to subterranean fauna from leaks or spills *Considered a preliminary key factor*	• Proposal area size minimised as far as practicable, reducing the amount of vegetation clearing and earthworks required. • Extent of excavation reduced via site selection and use of terracing • All wastes managed consistent with the measures described in the Solid and Liquid Waste Management Plan, which includes requirements in relation to provision of spill response equipment and procedures. • Leaks and spills managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1], which includes requirements in relation to selection of materials and the design and installation of hazardous material storage areas • Surface water management consistent with the measures described in the Terrestrial and Subterranean	No Schedule 1 species expected to be adversely affected. Proposal may result in impacts to individuals of some subterranean fauna species that have broader distributions on Barrow Island. Very small reduction in the extent and/or quality of subterranean fauna habitat available on Barrow Island. Potential stressors to subterranean fauna from the proposal will be adequately managed such that the residual effects, including cumulative	Results of recent site-specific subterranean fauna study for the development envelope.

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
	Geology and geomorphology indicates habitats of development envelope likely to be connected to adjacent areas. No caves or other significant features recorded from the development envelope.		Environment Protection Plan[1], which includes requirements in relation designing surface water drainage systems that maximise infiltration of clean stormwater, where practicable • Monitoring of subterranean fauna populations consistent with the measures described in the Short Range Endemics and Subterranean Fauna Monitoring Plan • Monitoring of subterranean fauna habitat consistent with the measures described in the Terrestrial and Subterranean Environment Monitoring Program	effects[2], are environmentally acceptable. EPA objective is met.	
Terrestrial Environmental Quality To maintain the quality of land and soils so that the environment values, both ecological and social, are protected.	No existing contamination is expected at the development envelope as this area has experienced no previous industrial use.	Localised and temporary soil contamination as a result of inappropriate disposal of wastes or accidental leaks or spills of small volumes of hazardous materials. *Not considered a preliminary key factor*	• All wastes managed consistent with the measures described in the Solid and Liquid Waste Management Plan • Leaks and spills managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1]	No significant effects to land/soil quality through contamination. Potential stressors to terrestrial environmental quality from the proposal will be adequately managed such that the residual effects, including cumulative effects[2], are environmentally acceptable and the EPA objective is met.	
Terrestrial Fauna To maintain representation,	Four mammal species and one bird species protected under the Wildlife Conservation	Direct displacement or loss of fauna individuals through clearing and earthworks	• Proposal area size minimised as far as practicable, reducing fauna habitat loss	No adverse impacts to threatened fauna populations.	Results of recent site-specific fauna survey over the

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
diversity, viability and ecological function at the species, population and assemblage level.	Act are identified as likely to be present in the development envelope: • Barrow Island Euro (*Macropus robustus isabellinus*) • Spectacled Hare-wallaby (*Lagorchestes conspicillatus conspicillatus*) • Barrow Island Golden Bandicoot (*Isoodon auratus barrowensis*) • Boodie (*Bettongia lesueur*) • the White-winged Fairy-wren (Barrow Island) *(Malurus leucopterus edouardi)* These species have widespread distributions and secure populations on Barrow Island. No Boodie warrens or raptor nests within or adjacent to the development envelope. Termite mounds are	activities Increased resource competition in adjacent areas Habitat fragmentation and/or habitat loss Indirect effects to fauna in adjacent areas from dust, sedimentation, emissions (including noise and vibration) and/or leaks or spills in the proposal area Temporary loss of habitat from accidental fire resulting from the proposal. *Considered a preliminary key factor*	• Location of the development envelope selected to avoid key habitats and to be contiguous with existing infrastructure sites for the approved Gorgon Gas Development, to reduce the extent of overall indirect ('edge') effects to fauna. • Potential impacts from accidental fire arising from the proposal will be managed consistent with the measures described in the Fire Management Plan, which includes requirements in relation to including fire management information to inductions for site- based personnel • Potential impacts from clearing and earthworks managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1], which includes requirements in relation to: ○ relocating fauna prior to clearing ○ clearing in a manner that allows fauna to evacuate to undisturbed areas ○ earthworks management to minimise fauna entrapments in pits and trenches ○ monitoring of fauna populations linked to adaptive management responses in the event effects exceed predictions • Enforcing stringent controls on vehicle speed limits, including a maximum 40kmh limit from dusk to dawn • Requiring all drivers to have completed fauna awareness	Direct loss of relatively low numbers of individuals of small fauna (e.g. invertebrates) during vegetation clearing and earthworks activities. Direct displacement of relatively low numbers of fauna individuals. No impacts to population viability are expected. Localised habitat loss or modification, and possibly increased competition between fauna individuals where animals relocate from the area. Proposal expected to result in a reduction in construction duration and road traffic requirements for the approved Gorgon Gas Development and a corresponding reduction in effects on fauna from physical interactions.	development envelope.

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
	present in the development envelope but have widespread distribution elsewhere on Barrow Island.		inductions and Barrow Island specific driver training • Restricting construction activities to daylight hours wherever practicable • Prevention of introduction or spread of non-indigenous species will be managed through the Terrestrial and Marine Quarantine Management System[1] • Rehabilitation of fauna habitat in areas no longer required by the Gorgon Gas Development consistent with the measures described in the Post-Construction Rehabilitation Plan[3], which includes requirements in relation to selection of topsoils from similar vegetation communities for rehabilitation and spreading topsoil at appropriate depths	The stressors to terrestrial fauna from the proposal will be adequately managed such that the residual effects, including cumulative effects[2], are environmentally acceptable EPA objective is met.	
Hydrological Processes To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.	No permanent surface water bodies in the vicinity of the development envelope. No surface water features identified as significant on Barrow Island are present within the development envelope. The Proposal overlies only a very small portion of a shallow unconfined aquifer on Barrow Island.	Localised sedimentation of natural drainage systems from erosion following vegetation clearing. Disturbance to natural drainage patterns in areas adjacent to the proposal. Change in water infiltration and recharge rates where hardtopping and surface water drainage is installed and resulting in localised change in groundwater level *Not considered a preliminary key factor*	• Development envelope selected to avoid major drainage channels and other significant surface water features. • Use of hydrological modelling to inform drainage strategy and design • Majority of proposal area will not be hard-topped, to reduce impacts to infiltration • Management of drainage consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1] • Surface water management consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1]	Localised minor alteration of surface water drainage patterns but no significant changes to prevailing hydrological regimes of groundwater or surface water such that existing uses, including ecosystem maintenance, are not compromised. Stressors to hydrological processes adequately managed such that	

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
			• Monitoring of groundwater consistent with the monitoring described in Terrestrial and Subterranean Environment Monitoring Program • Monitoring of ecological elements that may be affected by altered hydrological regimes consistent with the monitoring as described in Terrestrial and Subterranean Environment Monitoring Program • Rehabilitation of surface water drainage patterns in areas no longer required by the Gorgon Gas Development consistent with the measures described in the Post-Construction Rehabilitation Plan[3]	residual effects, including cumulative effects[2], are environmentally acceptable. EPA objective is met.	
Inland Waters Environmental Quality To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected	No permanent surface water bodies in the vicinity of the development envelope. No surface water features identified as significant on Barrow Island are present within the development envelope. The shallow unconfined aquifer has a brackish boundary between fresh and saline water.	Localised surface water and groundwater contamination through spills or leaks, or solid or liquid wastes. *Not considered a preliminary key factor*	• All wastes managed consistent with the measures described in the approved Solid and Liquid Waste Management Plan • Leaks and spills managed consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1]	No significant reduction in quality of groundwater and surface water on Barrow Island. Potential stressors to inland waters environmental quality from the proposal will be adequately managed such that the residual effects, including cumulative effects[2], are environmentally acceptable. EPA objective is met.	

Factor and EPA Objective	Existing Environment (Vicinity of the Proposal)	Potential Environmental Impacts (and whether considered "preliminary key factor" for assessment)	Management of Impacts #	Expected Environmental Outcome	Additional Information to be Obtained
Air Quality To maintain air quality for the protection of the environment and human health and amenity.	Barrow island is an arid sub-tropical environment with a mostly hot and dry climate, which can result in elevated dust levels during windy conditions.	Temporary decrease in local air quality resulting from vehicle / equipment exhaust (NOx, SOx) Temporary decrease in local air quality resulting from dust emissions during construction *Not considered a preliminary key factor*	• Dust control measures implemented consistent with the measures described in the Terrestrial and Subterranean Environment Protection Plan[1] which includes requirements for dust suppression using reverse osmosis water and/or treated wastewater.	Dust generated during vegetation clearing and earthworks managed to avoid impacts to the environment and human health (based on experience gained from the approved Gorgon Gas Development). Gaseous emissions generated by this proposal are expected to be negligible, primarily consisting of emissions from vehicles and machinery associated with vegetation clearing and earthworks. The stressors to air quality from the proposal will be adequately managed such that the residual effects, including cumulative effects[2], are environmentally acceptable and the EPA objective is met.	
Amenity	No residential, recreational or tourism	The proposal does not have the potential to affect local	No potential impacts so no additional	With no impacts identified, the EPA	

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To ensure that impacts to amenity are reduced as low as reasonably practicable	land use on Barrow Island, with access generally restricted to workforce personnel and staff of the DPAW.	social amenity values. The proposal will have minimal requirement for goods, and these will be met via existing transportation arrangements for the approved Gorgon Gas Development. No additional transport movements to or from the island required. *Not considered a preliminary key factor*	management required	objective is met.	
Heritage To ensure that historical and cultural associations are not adversely affected.	The Western Australian Department of Indigenous Affairs Register of Aboriginal Sites lists 13 archaeological sites for Barrow Island, all outside the development envelope. To date, surveys conducted on Barrow Island have not identified any sites (including ethnographic and historical sites) within the Gorgon Gas Development or the development envelope. Development envelope does not contain landforms considered to be highly prospective for cultural heritage	Loss or damage to undiscovered heritage during clearing and earthworks *Not considered a preliminary key factor*	• Preconstruction heritage surveys to confirm the absence of heritage materials or sites of significance • Management of vegetation clearing and earthworks consistent with the measures described in the Aboriginal Cultural Heritage Management Plan, which requires that any materials discovered are appropriately recorded, reported and protected.	The proposal is not expected to impact on any cultural heritage sites. Management of earthworks minimises risk of impact to potential undiscovered heritage materials or sites. EPA objective is met.	

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	material.				
Human Health To ensure that human health is not adversely affected.	No sensitive land uses in the vicinity of the proposal area. The Barrow Island workforce are housed at the Butler Park (Construction Village), and Chevron Australia Camp which are approximately 2 km and 2.5 km south of the proposal area, respectively.	The proposal does not involve environmental stressors with the potential to adversely affect human health. *Not considered a preliminary key factor*	No stressors have been identified with the potential to impact on the social environment. Workforce and public health and safety is considered to be managed through meeting the appropriate standards for human health in the workplace, the effective implementation of Chevron Corporation's Operational Excellence Management System, Chevron Australasia Business Unit Policy 530 – Operational Excellence, and Chevron Corporation's incident- and injury-free culture.	With no impacts identified, the EPA objective is met.	
Offsets To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.	Environment and potential for impacts well understood. Appropriate management strategies previously developed for all activities proposed	Scale of potential impacts low and readily manageable. No significant residual effects. *Not considered a preliminary key factor*	No significant residual effects so no consideration of offsets required.	EPA objective is met.	
Rehabilitation and Closure To ensure that premises are closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed outcomes and land	For the Gorgon Gas Development, the GJVs have committed to decommissioning and rehabilitation strategy aimed at ensuring the long-term preservation of the environmental values of Barrow Island as a Class A Nature Reserve. These	Not rehabilitating may result in long-term loss of vegetation and flora species in the proposal area. Localised erosion of soils may result in sedimentation of natural drainage systems from erosion.	Decommissioning and rehabilitation managed via the same measures described for approved Gorgon Gas Development where applicable, including as described in the approved Post-construction Rehabilitation Plan.	Closure and rehabilitation of proposal area will be adequately managed such that areas/facilities are closed, decommissioned and rehabilitated consistent with agreed outcomes and	

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uses, and without unacceptable liability to the State.	include development and implementation of a Post-construction Rehabilitation Plan[3], a Project Site Rehabilitation Plan, and a Decommissioning and Closure Plan.	*Not considered a preliminary key factor*		land uses, and without unacceptable liability to the State. EPA objective is met.	

= The GJVs intend to apply the approved management measures developed for the approved Gorgon Gas Development to the proposal where applicable--e.g. where activities are the same--and with relevant amendments

1 = as approved for the approved Gorgon Gas Development and including associated sub-plans and procedures

2 = cumulative impacts include potential impacts by other actions on Barrow Island, eg WA Oil and the Gorgon Gas Development.

3 = as approved for the approved Gorgon Gas Development and including associated sub-plan