Framework Environmental Management Plan

QCLNG Gas Collection Header and Export Pipeline

QCLNG-BG00-ENV-PLN-000007

Rev 2

December 2011

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TITLE: Framework Environmental Management Plan – QCLNG Gas Collection Header and Export Pipeline

PURPOSE AND SCOPE:
This document comprises a Framework Environmental Management Plan (Framework EMP) which has been developed to provide linkage between various management plans and other documents prepared by QGC and the Contractor, that combine to address the requirements for an EMP specified in Condition 3 of EPBC Approval 2008/4399, provided by the Department of Sustainability, Environment, Water, Population and Communities (SEWPC).

This document is applicable only to the Gas Collection Header and mainland Export Pipeline extending to Mainline Valve 7. A pipeline crossing at The Narrows connecting the mainland Export Pipeline with the LNG Facility on Curtis Island is covered by a separate EMP.

Revision Record

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Reason for Issue</th>
<th>Responsible</th>
<th>Accountable</th>
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<tr>
<td>A</td>
<td>4 April 2011</td>
<td>Issued for QGC internal review</td>
<td>E Clement</td>
<td>B French</td>
</tr>
<tr>
<td>0</td>
<td>6 April 2011</td>
<td>Submission to SEWPC</td>
<td>E Clement</td>
<td>B French</td>
</tr>
<tr>
<td>1</td>
<td>16 May 2011</td>
<td>Revised with SEWPC comments</td>
<td>B. French</td>
<td>A. Wharton</td>
</tr>
<tr>
<td>2</td>
<td>20 December 2011</td>
<td>Revised in line with SEWPC RFI</td>
<td>B. French</td>
<td>J. MacDermott</td>
</tr>
</tbody>
</table>
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1.0 INTRODUCTION

1.1 Scope

The Australian Department of Sustainability, Environment, Water, Population and Communities (SEWPC) approved the Pipeline component of the Queensland Curtis LNG (QCLNG) Project under Sections 130(1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) on 22 October 2011. Approval was subject to fulfilment of a range of conditions by QGC Pty Ltd (QGC) as specified in EPBC Approval No 2008/4399 (Pipeline Approval).

This document is a Framework Environmental Management Plan (Framework EMP) which has been developed to provide linkage between various management plans and other environmental documentation developed for the Gas Collection Header (GCH) and mainland Export Pipeline components (the Pipeline) of the Queensland Curtis LNG Project (QCLNG). These documents have been developed by either QGC, third party entities on behalf of QGC, or MCJV, the Pipeline Construction Contractor (the Contractor).

The Framework EMP demonstrates how QGC are addressing the Environmental Management Plan (EMP) requirements specified in Condition 3 of EPBC Approval 2008/4399. The scope of the Framework EMP includes those aspects of the Project relating to construction, operation and decommissioning phases of the Pipeline. It includes both the Right of Way (RoW) and associated adjacent activities such as Project related vehicle access tracks, construction camps and pipe lay-down areas outside of the RoW. However, due to the comparatively greater potential for environmental impact, the primary focus of the Framework EMP and associated documentation is on the construction phase.

This document is applicable only to the GCH and mainland component of the Export Pipeline extending to Mainline Valve 7. Works associated with a pipeline crossing at The Narrows connecting the mainland Export Pipeline with the LNG Facility on Curtis Island are addressed in a separate EMP and are not covered by this EMP Framework.

1.2 Objectives

Conditions 2, 3 and 4 in the Pipeline Approval relate to the requirements for an EMP, excluding The Narrows.

Condition 2 states that: “The proponent must prepare an Environmental Management Plan to manage the impacts of construction, operation and decommissioning of the pipeline (other than in relation to the Narrows) on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef”.

Condition 3, sections (a) to (i) outlines the specific requirements to be addressed in the EMP.

Condition 4 allows for certain activities to commence prior to Ministerial approval of the EMP, stating that the EMP “must be submitted for the approval of the Minister” and that “Commencement must not occur without approval (except for activities critical to commencement and associated with mobilisation of plant equipment, materials, machinery and personnel prior to start of pipeline construction which will have no adverse impact on MNES)”.

The primary objective of this Framework EMP is to clearly demonstrate how QGC is meeting the requirements of Condition 3 of the SEWPC Pipeline Approval and any associated Conditions. This is achieved by providing a description of the measures being undertaken by QGC and the Contractor to meet each of the subcomponents to Condition 3, with reference to where these measures are contained within existing documentation where appropriate.
1.3 Document Revisions and Approval

This document has been prepared by the QCLNG Environment team and shall be reviewed and endorsed in accordance with the Document Information Sheet on Page 2 and the Project Document Approval Procedure.

This document bears a revision status identifier that will change with each revision. All revisions to this document (after approval and distribution) will be subject to review and endorsement by the same functions as the original.

1.4 Distribution and Intended Audience

This document is intended for Pipeline Project Team members as well as other Project stakeholders, and specifically the Federal Department of Sustainability, Environment, Water, Population and Communities (SEWPC).

The document will be made available via the Document Management System and by direct distribution to relevant external parties. This document will be updated during subsequent project lifecycle stages and changes communicated to the project team as applicable.

On approval by SEWPC this Framework EMP will be published on the QGC website.

1.5 Definitions

Table 1 outlines the definitions which are contained within this document.

Table 1: Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Contractor, the Contractor</td>
<td>McConnell Dowell Constructors (Aust) Pty Ltd – Consolidated Contracting Company Australia Pty Ltd Joint Venture for the QCLNG Project (MCJV). MCJV is undertaking the construction of the GCH and Export Pipeline to Mainline Valve 7.</td>
</tr>
<tr>
<td>Department</td>
<td>Department means the Australian Government department responsible for administering Part 4 of the EPBC Act.</td>
</tr>
<tr>
<td>Environmental Impact Statement</td>
<td>The QCLNG Project Environmental Impact Statement, comprising both the draft and Supplementary EIS.</td>
</tr>
<tr>
<td>Environmental Authority</td>
<td>Level 1 Environmental Authority issued under the Queensland Environmental Protection Act 1994, and specifically Environmental Authority PEN 100953310 for Petroleum Pipeline Licence (PPL) 153 and PPL 154 granted on 20 August 2010 and 10 September 2010 respectively (or as subsequently amended)</td>
</tr>
<tr>
<td>Export Pipeline</td>
<td>The mainland component only of the Export Pipeline from Miles to Mainline Valve 7.</td>
</tr>
<tr>
<td>MCJV</td>
<td>McConnell Dowell Constructors (Aust) Pty Ltd consolidated Contracting Company Australia Pty Ltd Joint Venture</td>
</tr>
<tr>
<td>Minister</td>
<td>Minister means the Minister responsible for Part 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act.</td>
</tr>
</tbody>
</table>
Term | Meaning
--- | ---
MNES | Matters of National Environmental Significance under the EPBC Act - including potential MNES such as listed species identified in the Significant Species Management Plan (SSMP), and actual MNES identified through pre-clearance surveys of the GCH, Export Pipeline, and Camp Location development areas to date (also identified in the SSMP).

Surveyed MNES are as follows:
- Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community – TEC Management Plan 1;
- *Cycas megacarpa* – SSMP 13;
- *Cadellia pentastylis* – SSMP 7;
- *Egernia rugosa* (Yakka Skink) – SSMP 47;
- *Furina dunmali* (Dunmall's Snake) – SSMP 48;
- *Paradelma orientalis* (Brigalow Scaly Foot) – SSMP 50;
- *Geophaps scripta scripta* (Squatter Pigeon) – SSMP 59;
- *Chalinolobus dwyeri* (Large-eared Pied Bat) – SSMP 63;
- *Nyctophilus timoriensis* (South-eastern Long-eared Bat) – SSMP 66.

Plan | Plan includes a report, study, plan, or strategy (however described).

Pipeline Approval, the Approval | Approval: To develop, construct, operate and decommission a 730km pipeline network to link coal seam gas fields in the Surat Basin, Queensland to the proposed Queensland Curtis LNG Plant located on Curtis Island as described in referral EPBC 2008/4399

Pipeline | Gas Collection Header and Export Pipeline from Miles to Mainline Valve 7

QCLNG Project, the Project | The QCLNG Project, including upstream gas collection, the pipeline corridor and the Curtis Island LNG site, plus ancillary sites including temporary construction access corridors, plus associated shipping and vessel activity.

QGC | QGC, A BG-Group business, for the purpose of this document, the Proponent.

QGC documentation | Environmental documentation produced by either QGC or third party entities, primarily environmental consultancies, on behalf of QGC.

Proponent | Proponent means the person to whom the approval is granted, and includes any person acting on behalf of the proponent.

Right of Way | Corridor of land accessed for pipeline construction, nominally 40m wide

SEWPC Conditions, the Conditions | Conditions contained within the Approval: to develop, construct, operate and decommission a 730km pipeline network to link coal seam gas fields in the Surat Basin, Queensland to the proposed Queensland Curtis LNG Plant located on Curtis Island as described in referral EPBC 2008/4399.

1.6 Acronyms and Abbreviations

Table 2 outlines the acronyms and abbreviations which apply to this document:
Table 2: Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Acronym/Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEMP</td>
<td>Construction Environmental Management Plan</td>
</tr>
<tr>
<td>DERM</td>
<td>Department of Environment and Resource Management (Queensland)</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Authority, as per definition above</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement, as per definition above</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>EPI</td>
<td>Environmental Protection Instruction</td>
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<tr>
<td>ERE</td>
<td>Endangered Regional Ecosystem</td>
</tr>
<tr>
<td>EVNT</td>
<td>Endangered, vulnerable and near threatened</td>
</tr>
<tr>
<td>GCH</td>
<td>Gas Collection Header pipeline</td>
</tr>
<tr>
<td>MAP</td>
<td>Management Action Plan as contained with the CEMP</td>
</tr>
<tr>
<td>MNES</td>
<td>Matters of National Environmental Significance under the EPBC Act.</td>
</tr>
<tr>
<td>MLV7</td>
<td>Mainline Valve 7</td>
</tr>
<tr>
<td>OCRE</td>
<td>Of Concern Regional Ecosystem</td>
</tr>
<tr>
<td>PPL</td>
<td>Petroleum Pipeline Licence</td>
</tr>
<tr>
<td>REA</td>
<td>Rapid Ecological Assessment</td>
</tr>
<tr>
<td>REAP</td>
<td>Rapid Ecological Assessment Report</td>
</tr>
<tr>
<td>RoW</td>
<td>Right of Way</td>
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<tr>
<td>SEWPC</td>
<td>Federal Department of Sustainability, Environment, Water, Population and Communities</td>
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<tr>
<td>SMP</td>
<td>Species Management Program</td>
</tr>
<tr>
<td>SSMP</td>
<td>Significant Species Management Plan</td>
</tr>
<tr>
<td>TEC</td>
<td>Threatened Ecological Community</td>
</tr>
</tbody>
</table>

2.0 FRAMEWORK EMP

2.1 Overview

This Framework EMP is intended to provide sufficient details to demonstrate QGC’s commitments to meeting the requirements of the sub-components of Condition 3 of the Pipeline Approval, as well as to act as a ‘roadmap’ to the actual environmental documentation which will be used by QGC and the Contractor in addressing the conditions.

Construction has been identified as the point in the Pipeline development where the majority of impacts to and disturbance of MNES will occur. As such, construction requires a proportionately higher degree of environmental management planning to ensure that potential impacts on MNES are minimised, controlled and mitigated in accordance with the conditions of the Approval. Environmental management planning for operation and decommissioning phases is also incorporated into certain aspects of the Framework EMP and associated documentation as appropriate. However, post-construction management planning is of a reduced magnitude due to the lower likelihood and anticipated smaller scale of impacts on MNES during these phases of the Project, when compared with the anticipated footprint of construction impacts.
The operational phase of the Pipeline is expected to have limited potential for further impacts on MNES. This is primarily due to the nature of the partially subterranean pipeline infrastructure. Under normal Pipeline operating conditions such infrastructure requires minimal maintenance and inspection throughout its operational life and such activities are confined to the RoW and already impacted access tracks. Aerial monitoring inspections are likely to be undertaken on a monthly to half year basis and ground inspections on a half yearly to yearly basis. Inspections are likely to occur at a greater frequency early in the Pipeline lifecycle and once stabilisation is achieved the monitoring requirements will be reduced. However, should additional activities be required during the operational phase which may involve any ground disturbance they will be conducted in accordance with the requirements of this Framework EMP and associated documentation.

Similarly, decommissioning is anticipated to have limited potential for further impacts on MNES. However, this is difficult to assess due to the timeframes involved (useful life of Pipeline infrastructure being approximately fifty [50] years). Difficulties also arise due to the lack of similar pipeline infrastructure projects across the world that have been decommissioned to date. Despite this lack of clarity, it is planned that an EMP (or similar) will be developed specifically for and prior to the decommissioning phase of the Pipeline. Such an EMP will include rehabilitation planning in accordance with specific legislative, regulatory and industry practice requirements at that time. For example, current industry practice for pipeline infrastructure decommissioning includes processes such as partial removal (retieval), filling and purging of pipeline entirety or remaining sections (i.e. such as major infrastructure crossings or other sensitive areas) and the use of inert gas whilst maintaining cathodic protection. This is generally followed by filling of pipeline sections and/or vent points with grout sealants and removing cathodic protection. As is the case for the development of the EMP, the decommissioning methodology will also be conducted in accordance with the relevant practices and standards of the industry at the time when decommissioning occurs. As such decommissioning processes, and their associated impacts on MNES, may radically change within the useful operational lifetime of the Pipeline, the specific content of such a decommissioning phase EMP has not been documented within this Framework EMP or associated documents at this time.

A summary of key documentation referred to in the Framework EMP is provided in Section 2.2 and the relationship between the key documents and the Framework EMP is shown in Figure 1 below.
2.2 Associated Documents

Table 3 provides a brief outline of the key documents referred to in the Framework EMP. It should be noted that a range of additional documentation relating to the environmental management of Pipeline works has been prepared by QGC and the Contractor in accordance with all other requirements outlined in the remaining Conditions of EPBC Approval 2008/4399 and relevant State Government permits and approvals.

All documentation relating to Conditions other than Conditions 2, 3 and 4, unless referred to within Conditions 2, 3 or 4, is outside the scope of this Framework EMP and is not described further herein.

### Table 3: Key Documentation referred to within the Framework EMP

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>EPBC Approval 2008/4399 Conditions of EPBC Approval 2008/4399</td>
<td>Federal Government Approval and conditions to develop, construct, operate and decommission a 730km pipeline network to link coal seam gas fields in the Surat Basin, Queensland to the proposed Queensland Curtis LNG Plant located on Curtis Island as described in referral EPBC 2008/4399.</td>
<td>SEWPC</td>
<td>EPBC Approval 2008/4399</td>
<td>Oct. 2010</td>
</tr>
<tr>
<td>Framework EMP Framework Environmental Management Plan - QCLNG Gas Collection Header &amp;</td>
<td>QGC, third party entities on behalf of QGC and the Contractor have prepared a range of documentation that address the requirements of an EMP as specified in Condition 3 of the Pipeline Approval. The purpose of the Framework EMP is to:</td>
<td>QGC</td>
<td>QCLNG-BG00-ENV-PLN-000007</td>
<td>May 2011</td>
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<tr>
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<tr>
<td>Export Pipeline</td>
<td>• Provide an overview of the documentation prepared; and • Specify how the specific requirements of Condition 3 of the Pipeline Approval have been met.</td>
<td></td>
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</tr>
<tr>
<td>EMP – Export Pipeline Environmental Management Plan – QCLNG Export Pipeline from Miles to MLV7</td>
<td>This EMP for Level 1 petroleum activities was prepared in accordance with the obligations in the Queensland Environmental Protection Act 1994, covering construction and operation of the Export Pipeline from Miles to MLV7 component of the QCLNG Project. The EMP was prepared in support of the application for a level 1 Environmental Authority on PPL 154 which was approved by DERM (Environmental Authority No. PEN 100953310) on 10th September 2010. The document intent is to ensure environmental requirements for the construction and operation of the QCLNG Export Pipeline are outlined in a clear and concise manner. Note that the Contractor's CEMP provides more detailed plans for environmental management on site during construction.</td>
<td>QGC</td>
<td>QCLNG-BG00-ENV-PLN-000003</td>
<td>June 2010</td>
</tr>
<tr>
<td>EMP - GCH Environmental Management Plan – QCLNG Gas Collection Header Pipeline</td>
<td>This EMP for Level 1 petroleum activities was prepared in accordance with the obligations in the Queensland Environmental Protection Act 1994, covering construction and operation of the Gas Collection Header component of the QCLNG Project. The EMP was prepared in support of the application for a level 1 Environmental Authority on PPL 153 which was approved by DERM (Environmental Authority No. PEN 100953310) on 20th August 2010. The document intent is to ensure environmental requirements for the construction and operation of the QCLNG Gas collection Header are outlined in a clear and concise manner. Note that the Contractor's CEMP provides more detailed plans for environmental management on site during construction.</td>
<td>QGC</td>
<td>QCLNG-BG00-ENV-PLN-000002</td>
<td>May 2011</td>
</tr>
<tr>
<td>Pre-clearing Ecological Survey Report - QCLNG Export Pipeline and Gas Collection Header</td>
<td>This Pre-clearing Ecological Survey Report addresses Conditions 5 to 7 of the SEWPC Pipeline Approval. It documents pre-clearing surveys undertaken along the RoW for the Gas Collection Header and mainland component of the Export Pipeline between May and August 2010. The report details the Pre-clearing survey methodology and significant findings in relation to the EPBC Threatened Ecological Communities (TEC), Endangered and Of concern Regional Ecosystems (ERE and OCRE), EVNT flora species and other ecological features.</td>
<td>Unidel on behalf of QGC</td>
<td>QGC020-ENV-RPT-0007</td>
<td>March 2011</td>
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<tr>
<td><strong>Pre-clearing Ecological Survey Report – QCLNG Camps 1, 2 and Aldoga Laydown</strong></td>
<td>This Pre-clearing Ecological Survey Report addresses Conditions 14 of the SEWPC Pipeline Approval. It documents pre-clearing surveys undertaken for Camps 1, 2 and the Aldoga Laydown area between September 2010 and April 2011. The report details the Pre-clearing survey methodology and significant findings in relation to the EPBC Threatened Ecological Communities (TEC), Endangered and Of concern Regional Ecosystems (ERE and OCRE), EVNT flora species and other ecological features.</td>
<td>Unidel on behalf of QGC</td>
<td>QGC020-ENV-RPT-0013</td>
<td>May 2011</td>
</tr>
<tr>
<td><strong>Pre-clearing Ecological Survey Report – QCLNG Camps 3, 4 and 5</strong></td>
<td>This Pre-clearing Ecological Survey Report addresses Conditions 14 of the SEWPC Pipeline Approval. It documents pre-clearing surveys undertaken for Camps 3, 4 and 5 between September and November 2010. The report details the Pre-clearing survey methodology and significant findings in relation to the EPBC Threatened Ecological Communities (TEC), Endangered and Of concern Regional Ecosystems (ERE and OCRE), EVNT flora species and other ecological features.</td>
<td>Unidel on behalf of QGC</td>
<td>QGC020-ENV-RPT-0012</td>
<td>April 2011</td>
</tr>
<tr>
<td><strong>SSMP Significant Species Management Plans – QCLNG Pipeline</strong></td>
<td>The scope of this document is to provide SSMPs for any State or Federal listed non-marine TEC, Threatened or Near Threatened flora or fauna species that may be impacted upon by the construction and operation of the GCH and Export Pipeline to MLV7. The SSMPs have been prepared to assist QGC manage the environmental impacts upon these species and TECs under both the EPBC Act – including impacts to species’ habitat, NC Act and the Department of Environment and Resource Management (DERM) ‘Back on Track’ program. The SSMPs include a description of the locations where mapping and surveys have identified likely and actual presence of species’ habitats and listed ecological communities, as well as specific management approaches (as applicable). Mitigation measures from the SSMPs have been incorporated by the Contractor into the management actions contained within the CEMP which will ensure Contractor ownership and effective implementation of these commitments.</td>
<td>Unidel on behalf of QGC</td>
<td>QCLNG-BG00-ENV-RPT-000002</td>
<td>March 2011</td>
</tr>
<tr>
<td><strong>SMP Species Management Program – Tampering with the Breeding Place of a</strong></td>
<td>The Species Management Program (SMP) was prepared to obtain authorisation from DERM to potentially remove or tamper with protected animal breeding places during the construction phase of the GCH and Export Pipeline.</td>
<td>Unidel on behalf of QGC</td>
<td>QCLNG-BG00-ENV-RPT-000004</td>
<td>March 2011</td>
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<tr>
<td>Protected Animal Species Gas Collection Header and Export Pipeline</td>
<td>The SMP has been developed in accordance with Appendix 1, Condition 9 and Appendix 3, Condition 6 of the Coordinator General's Report on the QCLNG EIS and the requirements under Section 332 of the Nature Conservation (Wildlife Management) Regulation 2006. The SMP outlines the management, monitoring and mitigation actions that will be undertaken in the event a protected animal’s breeding place is encountered whilst clearing is undertaken during the construction of the GCH and Export Pipeline.</td>
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</tr>
<tr>
<td>Weed Survey &amp; Management Plan QCLNG Pipeline Weed Survey and Weed Management Plan</td>
<td>A Weed Survey was undertaken along the extent of the proposed RoW alignment for the GCH and Export Pipeline to record the occurrence and locations of declared and other significant weeds. The Weed Survey and Management Plan has been developed to meet condition 3(f) of the Pipeline Approval as well as Coordinator General's Condition 10 for the preparation of a weed management plan specifically relating to the QCLNG Pipeline.</td>
<td>AXM on behalf of QGC</td>
<td>QCLNG-BG00-ENV-RPT-000003</td>
<td>Feb. 2011</td>
</tr>
<tr>
<td>Weed Maps Properties with Presence of Weeds</td>
<td>Detailed maps associated with Weed Survey and Weed Management Plan above to be used in conjunction with the CEMP and integrated into Environmental Constraints Maps.</td>
<td>Unidel on behalf of QGC</td>
<td>QCLNG-BX00-ENV-MAP-000052-14 to QCLNG-BX00-ENV-MAP-000052-24</td>
<td>Feb. 2011</td>
</tr>
<tr>
<td>CEMP QCLNG Export Pipeline and Gas Collection Header Construction Environmental Management Plan</td>
<td>The CEMP is prepared by the Contractor and is a core part of the overall construction environmental management documentation used across the Pipeline project. There is a single CEMP coverings construction activities relating to both the Gas Collection Header and the Export Pipeline works. It addresses environmental management measures, including roles and responsibilities, for construction activities for the Gas Collection Header and mainland component of the Export Pipeline. The CEMP is applicable to construction activities both within and external to the RoW. The CEMP (and twelve included Management Action Plans) is a working document detailing environmental management measures and processes to be implemented by site personnel. Monitoring and reporting requirements are also documented, including reporting to QGC any incidents or unplanned or unmitigated impacts on environmental values including MNES, for further reporting to SEWPC by QGC. This document is regularly reviewed and updated during the Project.</td>
<td>Contractor (MCJV)</td>
<td>QCLNG-BG00-ENV-PLN-000001</td>
<td>Nov. 2010</td>
</tr>
</tbody>
</table>
2.3 Compliance with Pipeline Approval

Condition 3 (a) to 3 (i) of EBPC Approval 2008/4399 outlines detailed requirements for what must be included in an EMP for the Pipeline (excluding the Narrows). The following Sections 2.3.1 to 2.3.9 provide details of how these requirements have been met by QGC. Details of the key documents referred to in the sections below are included in Table 3.

Condition 14 also requires that “Disturbance of vegetation related to the construction and maintenance of the pipeline must be confined to the RoW. Any proposed siting of the construction camps, vehicle access tracks and pipe lay-down areas outside the ROW during construction must be undertaken so as to minimise potential adverse impacts on MNES and must comply with conditions 5 to 13”, meaning pre-clearance surveys are required, and disturbance limits for MNES also apply for areas of construction activity outside of the RoW.

Commencement (as defined in Condition 67) of construction activities that will impact MNES, both within and outside of the RoW, must not occur without the prior approval of this Framework EMP by SEWPC, except where they are, in accordance with Condition 67:

a. Minor physical disturbance necessary to undertake pre-clearance surveys or establish monitoring programs or associated with the mobilisation of the plant, equipment, materials, machinery and personnel prior to the start of pipeline development or construction;

b. Activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impacts on MNES, and only if the proponent (QGC) has notified the Department (SEWPC) in writing before any activity is undertaken.

2.3.1 Condition 3 (a)

Condition 3 (a) requires that the EMP must include “provisions for detailed pre-clearance surveys by a suitably qualified ecologist along the entire length of the RoW, in accordance with conditions 5 to 10”.

The requirements of this Condition are addressed in the following QGC and Contractor documentation:

Environmental Management Plans for Export Pipeline and Gas Collection Header

Two EMPs were prepared by QGC to support Petroleum Pipeline Licence (PPL) Applications 154 and 153 made under the Petroleum and Gas (Production and Safety) Act 2004 (P&G Act). These are EMP- Export Pipeline from Miles to Mainline Valve 7 (QCLNG-BG00-ENV-PLN-000003) (EMP- Export Pipeline) and EMP- Gas Collection Header Pipeline (QCLNG-BG00-ENV-PLN-000002) (EMP – GCH).

Both EMPs provide a general description of Environmental Values along the respective pipeline RoWs Table 6.8 in the EMP- GCH and Table 6.9 in the EMP- Export Pipeline provide Flora and Fauna Protection Management Plans (Construction), which commit to (amongst other commitments) detailed field investigations being completed for the final RoW alignment for both the GCH and Export Pipeline prior to commencement of construction activities.
Pre-clearing Ecological Survey Reports

In accordance with the commitments outlined in the EMPs, QGC engaged ecological consultancy Unidel to undertake detailed pre-clearing surveys along the RoW of the entire GCH and mainland portion of the Export Pipeline between May and August in 2010. Pre-clearing surveys were also conducted by Unidel for areas outside of the RoW, in accordance with condition 14 of the Approval, QCLNG Camps 1, 2 and the Aldoga Laydown between September 2010 and April 2011, and for Camps 3, 4, and 5 between September and November 2010. Ecologists undertaking the pre-clearing surveys were suitably qualified and approved by the Department in writing. Whilst some pre-clearing surveys were undertaken prior to formal approval of the ecologists involved, approval of these ecologists was granted by SEWPC in October 2010.

The pre-clearing survey methodology and significant findings in relation to the EPBC Threatened Ecological Communities (TEC), Endangered and Of Concern Regional Ecosystems (ERE and OCRE), EVNT flora species and other ecological features are fully documented in Pre-Clearing Ecological Survey Report – QCLNG Export Pipeline and Gas Collection Header (QGC020 – ENV-RPT-0007), Pre-Clearing Ecological Survey Report – QCLNG Camps 1, 2 and Aldoga Laydown (QGC020-ENV-RPT-0013) and Pre-Clearing Ecological Survey Report – QCLNG Camps 3, 4 and 5 (QGC020-ENV-RPT-0012. The survey methodology included a walkthrough survey conducted using random meander technique (Cropper 1993). This involved traversing the study area in no set pattern, but roughly back and forth, whilst searching for species of interest identified in desktop searches. This methodology is recognised by ecologists as a sound survey method when applied to the identification of habitat features and threatened flora species in particular. Ecological values targeted during the surveys included:

- presence and extent of TEC under the EPBC Act
- presence and extent of ERE and OCRE mapped under the VM Act;
- presence of EVNT flora species listed under the EPBC Act and/or the NC Act; and
- presence of EVNT fauna species and other ecological and environmental features incidentally observed including:
  - regionally significant flora;
  - hollow bearing trees;
  - Brachychiton species (bottle trees and kurrajongs);
  - grass and fig trees;
  - rocky and gravel outcrops;
  - adjoining wetlands; and
  - fauna breeding sites.

Where environmental values were encountered, their position was recorded on a hand-held GPS device and if they occurred as a population they were counted. Photographs were also taken to record the condition of ecological values that were encountered at each camp site. A summary of the findings during the survey were then recorded on a Project Environmental Clearance form and formally documented in the respective Pre-Clearance Report.

QGC and Unidel discussed with SEWPC the pipeline pre-clearing survey methodology on several occasions prior to the conduct of surveys. It is noted that (at the time of discussion and surveys):

- there were no SEWPC guidelines for ecological communities, flora species or for a number of significant fauna groups (e.g. reptiles, mammals)
- the guidelines that were available note that some of the detailed methods outlined would not be applicable in all circumstances and that alternative methods would be appropriate in some cases.

No incidental observations of any EPBC listed fauna were recorded during the surveys. It is recognised however that some listed fauna species will (i.e. are likely to) occur along the 730km of pipeline RoW. The precautionary principle has been adopted for endangered, vulnerable and near threatened (EVNT) fauna species. Those that have the potential to occur in the RoW are assumed to be present and appropriate mitigation measures, such as sequential clearing and using fauna spotter-catchers have been adopted. These measures are outlined in the species management plans that have been prepared. This approach of assuming that possible EVNT fauna species are present along the RoW was discussed and endorsed (subject to review of species management plans) by SEWPC during negotiation of the Project approvals and conditions.

It is unlikely that clearance of any additional areas outside of those areas already surveyed will be required for the GCH and EP therefore further pre-clearance surveys are not anticipated. However, should any additional pre-clearance surveys be required, they will be undertaken in accordance with the current SEWPC survey guidelines (where applicable), or if this approach is not practical, further discussion will be undertaken with SEWPC regarding an appropriate survey methodology.

**Significant Species Management Plans**

Findings from the pre-clearing surveys have been used in the development of a number of Significant Species Management Plans (SSMPs) which are documented in *Significant Species Management Plans – QCLNG Pipeline* (QCLNG-BG00-ENV-000002). Feedback from regulators during the QCLNG Project approval process emphasised the necessity for QGC to adopt a precautionary approach with regards to the management of significant species. Accordingly SSMPs have also been prepared where Threatened and Near Threatened flora and fauna and TECs may not have been recorded during the pre-clearance surveys, but it is still considered possible that they may be identified along the RoW during construction.

The SSMPs outline management strategies and mitigation measures to minimise any potential impacts and to ensure that appropriate management information will be available in the case of identification of significant species or TECs which may be identified along the Pipeline RoW or in other Project affected areas outside the RoW during pipeline construction works. Mitigation measures include the commitment for additional pre-clear and grade walkthrough inspections to be undertaken by suitably qualified, experienced and licenced fauna spotter-catchers prior to any clearing activities being undertaken.

This commitment to undertaking pre-clear and grade walkthrough inspections outlined in the SSMPs is also reiterated in the construction environmental management documentation.

The SSMPs also include measures for tampering with the breeding place of a protected animal species under the Queensland Nature Conservation Act 1992. These measures are contained within Appendix 2, *Species Management Program – Tampering with the Breeding Place of a Protected Animal Species* (QCLNG-BG00-ENV-RPT-000004).

If an impact to Threatened or Near Threatened flora or fauna or a TEC is identified during pipeline construction (other than to those that have already been confirmed as present during the Pre-clearance surveys and for which location specific information is included in the SSMP), the relevant SSMP will be amended, or if necessary a new SSMP developed, to include the location specific information and resubmitted to the Minister in accordance with Condition 10 of the Pipeline Approval.

**Construction Environmental Management Documentation**

The area of listed flora within the RoW and camp and laydown areas has already been identified in pre-clearing surveys and is calculated to be less than the disturbance limits specified in the EPBC conditions. As no additional areas will be cleared outside the already defined RoW and camp/laydown boundaries, it is anticipated that the clearance levels of listed flora will not exceed those already identified. However, clearance areas will still be recorded and reported for offsetting and audit purposes in accordance with the requirements of the Protected Plant Exemption granted under the Nature Conservation (Protected Plants) Conservation Plan 2000 and Clearing Permits for EVNT species under the Nature Conservation Act.
To confirm currency of the pre-clearing survey information prior to commencement of construction activities, validation inspection of the current Unidel Pre-Clearance Survey Report will be undertaken. This validation inspection will be in the form of a Rapid Ecological Assessment, (REA). The REA is a recognised survey tool and will be used to validate the baseline dataset on the location of listed flora and the habitat of listed fauna derived from the pre-clearing survey report. An environmental verification checklist, which will be completed prior to works commencing, will identify the starting Kilometre Point (KP) and KP end point for any listed threatened flora, or the habitat of any listed threatened fauna.

A Flora Survey Form will be completed during walkthrough inspections conducted prior to the commencement of clear and grade activities and the details updated into a register of clearance areas. This register will specify the nature of the listed vegetation or listed species habitat type, the areas cleared and the location. Any additional habitat of any listed species which is identified by licenced spotter-catchers during the pre-clear and grade walkthrough will also be recorded in the register. This register will be audited as part of the routine site environmental inspection process to ensure compliance with disturbance limits and details reported in line with project and State and Federal regulatory reporting requirements.

2.3.2 Condition 3 (b)

Condition 3 (b) requires that the EMP must include “measures to minimise native and riparian vegetation clearance and to minimise the impact on listed species, their habitat and ecological communities in accordance with management plans required for MNES under this approval”.

Measures to minimise vegetation clearance and the potential associated impacts to listed species, their habitat and ecological communities are outlined in the following documentation:

Environmental Management Plans for Export Pipeline and Gas Collection Header

Table 6.8 in the EMP- GCH and Table 6.9 in the EMP- Export Pipeline are Flora and Fauna Protection Management Plans (Construction), which among other commitments outline measures to minimise native and riparian vegetation clearance as a result of Pipeline construction activities.

Significant Species Management Plans

The SSMPs outline management strategies as well as construction focused mitigation measures to minimise the impacts to any listed species, their habitat and ecological communities which may be identified along the Pipeline RoW or in other Project affected areas outside the RoW during clearing and construction activities.

Examples of construction focused mitigation measures outlined in the SSMPs are provided below (refer to SSMPs for specific requirements for individual significant species):

**General mitigation measures**

- As part of routine pre-start meetings, work crews will be briefed on any known and potential environmental constraints occurring in that work location, including any likely significant flora and fauna species, populations and TECs they may encounter;
- Prior to clearing of the RoW or associated sites, limits of clearing areas including “no go” zones, will be clearly marked out with appropriate flagging material and/or barricade webbing as determined by the site Environment Representative (Note: further details on barricading are contained within the Flora and Fauna Protection Management Plans (Construction) in the GCH and Export Pipeline EMPs)
- Fire management measures shall take into account the need to protect remnant vegetation from frequent and hot fires. On site fire management practices, including a ‘No Fires’ policy, shall be in accordance with Contractor HSSE requirements, relevant construction permits and method
statements and appropriate dedicated fire fighting equipment will be available at high risk construction sites to manage any fires that may start up and to avoid wildfires breaking out;

- Vehicle activities will be restricted to roads, access tracks and hardened surfaces wherever possible to reduce the possibility of wildfire, spread of weeds and any potential impact on significant or other species;

- The Pipeline Weed Management Plan will be implemented to minimise the impact of weeds on survival and reproduction of significant species;

- If clearing of significant species or significant species habitat is determined to be unavoidable, the appropriate management strategies outlined in the SSMP shall be followed, which detail the various notifications and permit applications/approval processes depending on the State and Federal listing status;

- Should non-compliance with the mitigation measures or management strategies outlined in the SSMP occur on site an investigation shall be undertaken by all responsible parties to be followed by corrective action procedures if required. Work in the area will cease at the time of the non-compliance until advised by the site Environment Representative.

**Mitigation measures for Significant Flora**

- All disturbance of vegetation related to the construction and ongoing maintenance of the pipeline will be limited to the RoW and associated sites, with the total clearing width of the RoW being no greater than 40 m;

- Cleared vegetation will not be pushed into adjacent vegetated areas or other environmentally sensitive areas such as waterways and gullies.

- Dust suppression measures will be implemented to minimise dust deposition on foliage.

- If significant flora species or significant species habitat is identified within the proposed clearance area during clearing, the following additional measures will be implemented:
  
  o Relocation of site infrastructure where possible or reduction of the clearing width of the RoW to avoid the significant species Tagging of individuals and/or barricading of the area in an appropriate manner following the principles of the Australian Standard (AS) 4970-2009 Protection of Trees on Development Sites;

  o Continuation of clearing works at the site of the identified significant species to depend on the location and scale of the significant species or significant species habitat in respect to the clearance area and if it is possible for clearance to continue in a manner which complies with the principles of AS 4970-2009 Protection of Trees on Development Sites. If advised by the site Environment Representative that a suitable level of protection can be afforded then clearance can continue around this area. Otherwise clearance works are to move ahead as far as deemed necessary by the site Environment Representative to ensure protection of the significant species;

**Mitigation measures for Significant Fauna**

- Pre-clear and grade walkthrough to be undertaken by suitably qualified, experience and licenced fauna spotter-catchers prior to any clearing activities being undertaken. Where possible, clearing areas should be reduced to avoid any specific high risk micro-habitat areas identified by the fauna spotter-catchers.

- Wherever practicable signage should be erected to increase the general awareness amongst work crews of the presence of certain significant fauna species and particularly any roosts in the area;
• Fauna handlers shall subject areas of likely habitat to mild disturbance prior to clearing to encourage
the natural relocation of resident reptiles and other terrestrial fauna;

If significant fauna species are found prior to or during clearing activities, they shall be relocated from the
clearing area to a suitable location by a licenced fauna handler. Appropriate permits for fauna relocation
shall be held by the Contractor and any injured fauna will be transported to a veterinarian or recognised
wildlife carer immediately for treatment.

Species Management Program

The Species Management Program: Tampering with the Breeding Place of a Protect Animal Species –
Gas Collection Header and Export Pipeline (SMP) provides details of the measures which shall be
undertaken to minimise and manage the impacts of clearing on a protected animal’s breeding place.

Construction Environmental Management Documentation

Construction environmental management documentation translates information contained within the pre-
clearing survey reports, SSMPs and the SMP into a range of ‘on ground management actions’ which
minimise native and riparian vegetation clearance and the impacts to listed species, their habitat and
ecological communities. Such management actions include:

• Minimising clearance areas wherever possible and ensuring maximum RoW clearing widths do not
exceeded (40 m), or 30 m in riparian and micro habitat areas where possible. Clearing boundaries
will be marked on design drawings and delineated in the field in line with barricading details provided
in Table 6.8 and Table 6.9 of the EMPs for the GCH and Export Pipelines respectively, prior to any
construction works commencing.

• Ensuring that the pipeline alignment avoids, where possible, vegetated areas and areas with fauna
habitat value.

• No remnant vegetation to be cleared for access tracks, camps or other temporary areas and
specifically no additional work areas to be cleared within 200m of any Environmentally Sensitive
Areas.

• Implementation of methods on site to prevent vegetation being pushed into adjacent vegetation or
environmentally sensitive areas such as gullies, waterways or other drainage lines.

• Implementation of dust suppression measures to minimise dust deposition on foliage.

Prior to construction works commencing, a Rapid Ecological Assessment (REA) validation inspection of
the current Unidel Pre-Clearance Survey Report will be undertaken. The assessment will include the
review of current flora, fauna and weed species present prior to clearing. If previously unidentified listed
species, or the habitat of listed species, are identified along the RoW or elsewhere outside of the RoW in
areas of activity related to construction, the details will be recorded in a Rapid Ecological Assessment
Report (REAP). This information will then be used to inform further action or notification to Federal or
State agencies as appropriate.

A Fauna Survey Form will be used on site to record all survey, removal and relocation activities. The
form will include the following information: the date, location, weather conditions, name of the spotter
catcher, scientific and common species names, the number of species and the actions - such as
relocation, treatment, death etc. This information will be retained as part of the construction team
environmental records and provided to DERM on a three monthly basis as a Return of Operations form in
accordance with Damage Mitigation Permit requirements. Any injuries or deaths to vertebrates will also
be reported to DERM within 24 hours. A similar Flora Survey Form will also be completed which captures
all flora reporting information (refer Section 2.3.1).

A range of methods will be used by the Contractor to ensure the implementation of management actions
such as:
• Environmental Constraints Maps outlining any known key ecological or environmentally sensitive areas, other sensitive receptors, environmental issues and constraints;

• Environmental March Charts linking construction timeframes and environmental constraints;

• Pre-starts/Tool box Talks held to communicate known environmental constraints to the workforce;

• Environmental checklists which are a mechanism to ensure all relevant environmental issues are identified, managed and implemented and to facilitate the identification and early resolution of any problems which may occur;

• Various work method statements and instructions.

2.3.3 Condition 3 (c)

Condition 3 (c) requires that the EMP must include “measures to manage the impact of clearing on each listed species and ecological community in accordance with management plans required for MNES under this approval”.

The measures to manage the impact of clearing activities on listed species, their habitat and ecological communities correspond to those outlined in response to Condition 3(b) and Section 2.3.2 should be referred to for demonstration of QGC’s commitment to this condition.

2.3.4 Condition 3 (d)

Condition 3 (d) requires that the EMP must include “measures to regenerate vegetation on the RoW where natural regeneration is not successful to a condition at least equivalent to the RoW condition prior to commencement”.

The requirement of this Condition is addressed in the following documentation:

Environmental Management Plans for Export Pipeline and Gas Collection Header

The Revegetation and Rehabilitation Management Plan (Table 6.28 in the EMP-GCH and Table 6.35 in the EMP-Export Pipeline) and the Flora and Fauna Protection Management Plan (Construction) (Table 6.8 of the EMP-GCH and Table 6.9 of the EMP-Export Pipeline) outline a range of measures to be implemented to address the requirements for the regeneration of vegetation on the Pipeline RoW.

Significant Species Management Plans

Measures for rehabilitation and recovery of the RoW are outlined in each of the SSMPs with the overall intention being to encourage ongoing natural re-vegetation and to return the site as much as practicable to the floristic composition and density of the pre-clearance ecosystem while allowing necessary maintenance of the Pipeline RoW to occur.

Construction Environmental Management Documentation

Construction environmental management documentation specifies a range of measures relating to how reinstatement and rehabilitation of the RoW shall be undertaken, in order to both support the natural regeneration of vegetation and to supplement this with additional revegetation if natural regeneration is not deemed to be a success.

Successful rehabilitation of the RoW is to be achieved through the use of site specific rehabilitation actions plans developed in conjunction with landowners. These plans are developed based on the findings of the REA which determines baseline/benchmark pre-construction conditions such as general land condition, vegetation cover and species composition. Such site specific rehabilitation actions plans will ensure native species, preferably endemic to the area, are used wherever appropriate based on the nature of the landscape attributes and landowner requirements.
To maximise the potential for successful rehabilitation, reinstatement of the RoW will commence immediately after backfilling of the trench is completed with the spreading of topsoil to follow immediately. Topsoil will be sourced from in-situ stockpiles along the RoW so that it will contain local seed species. The use of the naturally occurring seed bank contained in this topsoil will be a key part of the natural regeneration process, in combination with other reinstatement works and an effective weed management strategy.

Additional rehabilitation / regeneration management actions include:

- Restricting access to planted or seeded areas until the site is successfully established;
- Ensuring necessary maintenance is provided (e.g. watering, weeding);
- Ensuring stable landforms are re-established to original topographic contours;
- Ensuring that natural drainage patterns are retained where practicable;
- Maintenance of drainage erosion and sediment control measures in erosion prone areas until the project practical completion stage or sooner if the land is stabilised;
- Scattering of un-mulched vegetation over the RoW in filter strips aligned with land contours;
- Ensuring that any imported topsoil which is used is from a weed and pest free source;
- Implementation of the Pipeline Weed Management Plan.

Regular (visual) inspections following reinstatement works to evaluate weed management and rehabilitation success will be undertaken weekly until the site is considered stable, where these will be relaxed to monthly inspections to assess for ongoing success. Following the completion of initial rehabilitation maintenance, regular (monthly) inspections will be conducted to replace plant losses and implement weed management along revegetated sites.

Reinstated surfaces shall be considered successful when the site can be managed for its designated land use (without any greater management input than for other land in the area being used for a similar purpose, taking into consideration that a pipeline RoW will have operational restrictions and corresponding revegetation limitations. The success of reinstatement and rehabilitation will be assessed by comparing the health, vigour, and percentage of cover and species diversity of the rehabilitated area with that of adjoining land, where this is practical given pipeline operational requirements. Monitoring shall be undertaken in accordance with a recognised groundcover monitoring technique as recommended by DERM. A commitment to ensuring a certain density of species establishment will be included in detailed site specific rehabilitation action plans and seeding will be carried out where results are unsatisfactory.

### 2.3.5 Condition 3 (e)

Condition 3 (e) requires that the EMP must include “measures to minimise impacts on fauna during pipeline construction, including:

- measures to protect MNES in the areas of the ROW where trenching is being undertaken, including measures to exclude listed terrestrial fauna from gaining access to those areas of the ROW where trenching is being undertaken;
- mechanisms to allow fauna to escape from the pipeline trench;
- daily morning surveys for trapped fauna;
- mechanisms for a suitably qualified person to relocate fauna;
- record keeping for all survey, removal and relocation activities”.

The requirements of this Condition are addressed in the following documentation:
Environmental Management Plans for Export Pipeline and Gas Collection Header

The *Flora and Fauna Protection Management Plan (Construction)* (Table 6.8 of the EMP-GCH and Table 6.9 of the EMP-Export Pipeline) outlines a range of mitigation measures to minimise the impacts to fauna during construction of the Pipeline.

**Significant Species Management Plans**

Mitigation measures contained with the SSMPs, refer section 2.2, outline how significant fauna are to be protected from the impacts associated with construction of the Pipeline. This includes the provision for fauna ramps; checking of trenches each morning as part of routine operations and twice daily in areas where any significant species is identified; the presence of a licenced fauna handler to undertake any necessary fauna relocations; and fauna reporting requirements.

**Construction Environmental Management Documentation**

Construction environmental management documentation incorporates the management actions contained with the SSMPs to ensure that appropriate measures are in place to minimise impacts to fauna during pipeline construction.

An integral component of minimising impacts to fauna is the integration of suitably qualified and experienced fauna spotter-catchers into site based activities wherever necessary.

The key component of the spotter-catchers roles is the inspection of the RoW and ancillary areas prior to clearing works to identify any potential interface/conflict with fauna or potential hollow bearing vegetation. The spotter-catchers will also be present during clearing works to relocate any identified fauna. If any injured fauna is identified it will be relocated to a predetermined veterinarian or wildlife carer for treatment.

As part of the trenching methodology, fauna egress ramps will be constructed in the trench at the end of each construction day. These trenches will be checked by the spotter-catchers prior to works commencing each day to ensure any entrapped fauna is relocated. All records of these day-to-day activities will be recorded on a Fauna Monitoring Form and maintained as part of the construction team environmental records. Return of Operations will also be issued to DERM every three months under Damage Mitigation Permits requirements.

During vegetation clearing and trenching operations particularly, all care will be taken to ensure any impact to native fauna and habitat is minimised. Management actions shall include but will not be limited to the following:

- Clearing vegetation in a sequential manner which directs fauna away from clearing activities and into adjacent vegetation;
- Avoiding the clearing of large riverine trees where possible;
- The presence of suitably qualified and experienced spotter-catchers (DERM Permit Holders) prior to, and during land clearing, to identify habitat trees, nests, roost and fauna, and remove/relocate/transport animals nests etc.
- The documentation of any fauna relocation procedures and outcomes;
- The establishment and appropriate management of artificial habitats (e.g. nest boxes and roost sites). particularly in areas where natural nesting/roosting sites are limited. Sites should be close to preferred feeding trees and drinking sites.
- Clearing of non-hollow bearing trees prior to hollow bearing habitat trees to allow fauna to self-relocate. Where possible, habitat trees shall be left overnight from the time of felling any non-habitat trees nearby. Any felled habitat trees shall be left on the ground for a short period of time to give any trapped fauna an opportunity to escape.
• The directing of any temporary lighting away from light-sensitive areas such as nesting areas and the use of light shades and low lighting in any construction and operational areas where these are located adjacent to remnant vegetation and other environmentally sensitive areas;
• Erecting signage to increase the general awareness amongst work crews of specific fauna species in the area and their habitat;
• The checking of work sites, particularly trenches, each morning and after periods of inactivity, to ensure fauna are not trapped. Where significant species have been identified or their habitat is present, fauna spotters/handlers will inspect and remove any fauna from pipeline trenches twice daily (early morning and late afternoon) while the trenches are open and will have access to the site in all weather;
• The checking of the open trench for trapped fauna by site personnel prior to any backfilling activities and where required calling a fauna spotter/handler to move any fauna to a safe location away from the trench;
• The contact details for local veterinary or wildlife carer services to be made available to project staff so treatment for any native animal can be easily accessed. DERM will be notified within 24 hours of any injury or death to native vertebrates;
• Restricting fauna access to the RoW and trench wherever possible. Fauna exit ramps to be provided from the trench at maximum 500m intervals with the provision of fauna shelters or similar every 250m and through access where practical;
• The checking of the directing of any temporary lighting away from light-sensitive areas such as nesting areas and the use of light shades and low lighting in any construction and operational areas where these are located adjacent to remnant vegetation and other environmentally sensitive areas;
• The checking of the directing of any temporary lighting away from light-sensitive areas such as nesting areas and the use of light shades and low lighting in any construction and operational areas where these are located adjacent to remnant vegetation and other environmentally sensitive areas;
• The checking of the directing of any temporary lighting away from light-sensitive areas such as nesting areas and the use of light shades and low lighting in any construction and operational areas where these are located adjacent to remnant vegetation and other environmentally sensitive areas;
• The checking of the directing of any temporary lighting away from light-sensitive areas such as nesting areas and the use of light shades and low lighting in any construction and operational areas where these are located adjacent to remnant vegetation and other environmentally sensitive areas;

2.3.6 Condition 3 (f)

Condition 3 (f) requires that the EMP must include “machinery wash down procedures and ongoing monitoring to minimise the spread and establishment of weeds in the ROW. Monitoring of weed infestations within disturbed areas must occur at least monthly during construction and then quarterly for a period of two years after completion of construction. Appropriate weed control measures must be implemented.

After the two-year period, the frequency of monitoring must be reconsidered by the proponent, based on the success of control measures, the level of infestations and pipeline maintenance activities”

The management measures which are in place to meet the requirements of this Condition are addressed below:

Environmental Management Plans for Export Pipeline and Gas Collection Header

Weed and Pest Management Plans for Construction and Operation respectively are provided at Tables 6.10 and 6.11 of the EMP-GCH and 6.11 and 6.12 of the EMP- Export Pipeline. These management plans describe the vehicle and plant wash down requirements in weed infested areas and ongoing monitoring for weeds and pests that will occur during both the construction phase and operations phase.

Pipeline Weed Survey and Weed Management Plan and Maps

The QCLNG Pipeline Weed Survey and Weed Management Plan (QCLNG-BG00-ENV-RPT-000003) documents weed surveys undertaken along the Pipeline RoW, as well as outlining weed management recommendations such as the location of vehicle and plant wash down locations.

This document has been supplemented by additional work undertaken by a third party sub-consultant and the series of maps Properties with Presence of Weeds (QCLNG-BX00-ENV-MAP-000052-14 to QCLNG-BX00-ENV-MAP-000052-24) have been produced. These maps clearly identify areas of weed infestation and the proposed locations for vehicle and plant wash down facilities along the GCH and Export Pipeline
RoW. This information as well as feedback from consultation undertaken with local councils along the Pipeline RoW, has been integrated into the CEMP and other construction environmental documentation to ensure the on-site implementation of robust weed management controls.

**Construction Environmental Management Documentation**

The construction environmental management documentation addresses both machinery wash down procedures and weed monitoring and reporting requirements, providing a range of weed control measures to be undertaken during the construction and operation of the Pipeline.

The Contractor’s objectives relating to weed control include but are not limited to:

- No increase in abundance or distribution of weed populations as a result of project activities;
- Appropriate treatment of weeds to be undertaken prior to the commencement of rehabilitation works;
- Washdown stations to include appropriate tools to enable an effective washdown and/or blowdown process as required and to be suitably maintained and fully operational during the entire Pipeline construction period; Washdown registers and logs to be completed in a consistent manner and to correspond to vehicle movements.

To ensure these objectives are met, all vehicles, machinery, plant, equipment, demountable buildings, fill, sand and other high risk materials are to be declared weed free using a DERM Weed Hygiene Declaration Form before entering the Pipeline RoW or any Project areas. AQIS clearance will be required for overseas equipment arriving in Australia. Green Stickers will be affixed to all vehicles after the weed declaration is made and confirmed. The Weed Hygiene Declaration Form shall be kept in the respective vehicle and a copy maintained with plant records. A Weed Washdown Log shall be appended to the Weed Hygiene Declaration Form to support any and all washdowns undertaken whilst on site.

Washdown facilities will be used by all plant and vehicles before leaving any weed affected areas or properties. These facilities will be established in accordance with detailed washdown requirements documented in construction environmental management documentation. They will be located on the boundaries of all weed infested areas and accompanied by a washdown register. Vehicle movements will be limited in weed infested areas and on revegetated areas or outside of the RoW. Travel will only be undertaken on approved access roads. Project Weed Maps and washdown locations will be updated on an on-going basis if any new weed species are identified along the RoW or existing weeds spread into new areas.

Weed washdown facilities will be managed so as to not leave a weed seed bank at the site and will include the following components in most instances:

- a high pressure pump (or similar) fitted with a spray handle long enough to reach under the vehicle;
- a water supply tank & sump pit for collection of water;
- a washdown ramp placed on top of crushed rock surface;
- a suitably sized compressor (hose with blowdown handle); and
- appropriate signage and a register of all plant and vehicles passing through the facility.

Prior to the establishment of borrow pit or quarry or other ground-breaking/vegetation clearing activity beyond the RoW a site survey will be conducted by an appropriately qualified and experienced person to identify the presence of weeds. Any new weed distributions will be recorded in the GIS weed dataset and updated on the Project Weed Maps. If weeds are detected, appropriate weed control will be undertaken at this location prior to any activities commencing at the site. If any weeds of ‘major concern’ are detected, the site shall be designated as a weed affected area and machinery and vehicles cleaned and
inspected at an appropriately located washdown facility prior to leaving the site. If the location where material is to be taken is weed free, any material brought onto this site will be from a weed free source. Similarly, any plants or seeds introduced onto site for rehabilitation purposes shall be sourced from a weed free location.

To further minimise the risk of spreading weeds personnel clothing is to be thoroughly cleaned free of all mud and vegetative matter whenever leaving any weed infested area.

Where any weed infestations are identified either by site inspections or Weed Mapping, appropriate treatment measures will be initiated before any earth moving machinery or vehicles enter the Project area. Weed affected areas are to be delineated by highly visible weather resistant field markers, erected on posts at entry and exit points of each area. No vehicle will proceed until the area has been delineated and recorded on the weed, or other pest register, and control measures including washdown facilities are appropriately implemented.

Where weeds are detected within the work site, they shall be removed or destroyed using manual means or an approved pesticide by an appropriately licenced contractor under the Agricultural Chemicals Distribution Control Act 1966 (ACDC Act).

The proposed treatment method shall consider in particular the sensitivity of the receiving environment and the potential for off target impacts, as well as the landowner’s requirements, particularly in relation to any organic or similar farming status.

As a minimum, monitoring of weed infestations along the RoW or in any other disturbed area associated with Pipeline activities will be undertaken on a monthly basis during the construction period and then on a quarterly basis for a period of two years following completion of construction.

To ensure the currency of record keeping with relation to weed management data the following will be undertaken:

- The location of any seeding or flowering weed species of concern will be reported to the site Environmental Advisor and appropriate management measures implemented;
- Any weed information gathered on the construction site will be transferred to the Flora and Weed Database and updated onto the environmental constraints maps;
- Inspections of reinstated areas will be undertaken for evidence of declared weeds;
- A register of all completed vehicle/plant washdowns undertaken at each washdown location will be maintained in addition to individual vehicle/plant washdown logs and records of Weed Hygiene Declarations.
- Maintenance of all herbicide application records will be undertaken in accordance with the requirements of the ACDC Act.
- Maintenance of personnel training and induction records relating to weed identification, management and control.

2.3.7 Condition 3 (g)

Condition 3 (g) requires that the EMP must include “measures to manage and control feral animals that may spread due to the establishment of the ROW”.

The nature of Pipeline construction means that stockpiled timber will only be present along the RoW for a maximum period of six months. Due to this short timeframe it is considered that there will be only minimal risk of a beneficial impact to feral animal populations arising from the establishment of the Pipeline RoW.
Despite the low likelihood of spreading of feral animals, management measures are outlined in the following documentation:

**Environmental Management Plans for Export Pipeline and Gas Collection Header**

A performance objective and management measures with respect to the control and management of feral animals is outlined in The *Flora and Fauna Protection Management Plan (Operation)* provided at Table 6.9 of the EMP-GCH and Table 6.10 of the EMP-Export Pipeline.

Also, although not explicitly covered under the *Weed and Pest Management Plans for Construction and Operation* (provided at Tables 6.10 and 6.11 of the EMP-GCH and 6.11 and 6.12 of the EMP-Export Pipeline) the purpose and intent of these plans is to prevent the spread of feral animals.

**Construction Environmental Management Plan**

Construction environmental management document provides site based measures for how feral animals will be managed both on the RoW and around all ancillary areas such as camps and laydown facilities. A key management component is ensuring that all pipeline pre-construction operations remain in the Project area and all construction works & associated disturbance shall be limited to RoW work area, ancillary areas & access tracks.

Management and control of feral animals will include but shall not be limited to:

- Reporting the identification of any feral animals to the relevant local council including details such as species, location and number;
- Undertaking any appropriate action measures in accordance with local council requirements;
- Elimination of hazards such as the storage of site waste in suitable, secured waste bins and undertaking regular waste removal;
- Undertaking works in accordance with the Wild Dogs Barrier Fence and Darling Downs Moreton Rabbit Board Fence approvals.

**2.3.8 Condition 3 (h)**

Condition 3 (h) requires that the EMP must include “measures for the management of ignition sources during construction, maintenance and decommissioning of the pipeline to protect habitat values from wild fire”

**Environmental Management Plans for Export Pipeline and Gas Collection Header**

The *Fire Management and Prevention Plan* (contained at Table 6.23 of the EMP-GCH and Table 6.29 of the EMP-Export Pipeline) outlines a range of requirements for the management of ignition sources to ensure that habitat values are protected from wild fire.

**Significant Species Management Plans**

The SSMPs clearly state that fire management measures shall take into account the need to protect remnant vegetation from frequent and hot fires. Mitigation measures contained within the SSMPs outline that on site fire management practices shall be in accordance with the HSSE requirements of the Contractor, and that relevant construction permits and method statements shall be in place as well as appropriate fire fighting equipment.
Construction Environmental Management Plan

The construction environmental management documentation specifies measures which shall be undertaken on site to manage ignition sources during Pipeline construction and maintenance activities. Management of ignition sources reduces the possibility of wildfire and the corresponding potential for impact to fauna. A key component is the implementation of a ‘No fires’ policy on site.

Further measures to minimise ignition sources include the restriction of vehicle activities to roads, access tracks and hardened surfaces wherever possible and the undertaking of work method risk assessments, leading to the development of appropriate permits and work method statements for at risk activities such as welding and grinding (heat work). To minimise the risk of fire occurring from the conduct of heat work, a Work Method Statement for Double Joining outlines the following control measures which must be in place prior to the commencement of these works:

- No flammable materials to be left in range of sparks;
- Appropriate, regularly maintained fire extinguishers to be available with all welding crews and all personnel trained on how to use them correctly;
- Communication of the emergency response plan to all personnel and copies maintained in vehicles;
- Daily work permit from the appropriate authority potentially required on days of total fire ban.

2.3.9 Condition 3 (i)

Condition 3 (i) requires that the EMP must include “measures for the management of acid sulphate soils”.

Due to the elevation of the majority of the GCH and mainland section of the Export Pipeline, there is considered to be little likelihood of acid sulphate soils (ASS) occurring within the maximum depth of pipeline trenching activity.

Soil maps included at Appendix 1 to the QCLNG Pipeline Soil Management Procedures (QCLNG-BG00-ENV-PCE-000007) indicate that ASS are not present along the RoW for the GCH and to MLV7 on the Export Pipeline. These maps have been produced from desktop data provided by the Department of Resource Management (DERM) and these results are expected to be verified on the ground as part of a soils survey process to be undertaken by the Construction Contractor prior to undertaking work in a defined area.

Despite little likelihood of ASS being encountered along the Pipeline RoW provisions for management of ASS are contained within the following documentation:

Environmental Management Plan – Export Pipeline

Table 6.19 in the EM- Export Pipeline is an Acid Sulphate Soils Management Plan which refers to measures which should be followed if Potential Acid Sulphate soils (PASS) or ASSs are encountered. Table 6.19 is an outline document designed to be built on by a detailed ASS Management Plan to be developed for the Narrows section of the Export Pipeline which is not covered within this Framework EMP.

Construction Environmental Management Plan

Should ASS be encountered, the CEMP addresses management measures in both Table 16 Acid Sulphate Soil MAP and Acid Sulphate Soils Work Instruction (QCLNG-BG00-ENV-WIN-000017).
2.4 Monitoring and Reporting

Each of the documents referenced under this Framework EMP includes details of monitoring and reporting commitments relevant to the specific management actions.

In general, environmental monitoring of the Pipeline project shall include (but will not be limited to) the maintenance of accurate records to substantiate all activities associated with, or relevant to, the conditions of the Approval. This includes the documentation and keeping of auditable records (for internal QCLNG, SEWPC or other external audit), relating to monitoring of disturbance and/or clearing of any listed threatened species or ecological communities (or other MNES). Such records will include the location and size of the affected area, affected listed threatened species and/or ecological communities and any further management actions and monitoring to be implemented.

Records of disturbance and/or clearing will be maintained for Pipeline activities during construction, operation and decommissioning, both within the RoW and for associated activities outside the RoW. Details on the approach to documentation of disturbance in relation to listed flora and fauna is included in Sections 2.3.1 and 2.3.2 of this Framework EMP, as well as in the Monitoring and Auditing section of Tables 6.8 and 6.9 of the GCH and Export Pipeline EMPs respectively.

SEWPC reporting commitments are outlined in the conditions of the Approval and those specifically related to MNES are clearly outlined in Section 5.1 of the SSMP.

SEWPC reporting commitments include:

- notifying SEWPC if it is determined during Pipeline construction that clearing of any listed Threatened flora or the habitat of any listed Threatened fauna is unavoidable;
- notifying SEWPC in writing of the actual date of commencement within 20 business days of commencement;
- identifying if an offset is required for any unavoidable impacts and undertaking any necessary discussions with SEWPC;
- updating or developing a SSMP and submission of this SSMP to SEWPC for approval;
- notifying SEWPC when first becoming aware of a non-compliance with the conditions of Approval or an associated plan to be approved by the Minister; and
- producing and publishing an Annual Environmental Return.

2.5 Schedule of Development

Maintenance of a Project Schedule of Development is the responsibility of the Pipeline Construction Contractor. Due to a range of project variables such as weather conditions this schedule is subject to ongoing review and updating and a new revision is submitted to QGC on a monthly basis. Inclusion of such a variable project schedule in this Framework EMP has inherent difficulties and is of limited value in terms of identifying when particular protected matters, such as listed flora species are likely to be cleared.

However, for the following two listed flora species and one TEC where there is a known impact from the GCH and Export Pipeline QGC can provide the following details:

- *Philotheca sporadica* was surveyed on the GCH and has been lawfully cleared by QGC in July 2011 post the SEWPC approval of the SSMP and receipt of a clearing permit from the Queensland DERM.
- *Cycas megacarpa* was surveyed on the Export Pipeline and has been lawfully cleared by QGC in September 2011, post SEWPC approval of the SSMP and receipt of a clearing permit from the Queensland DERM. Details of the translocation of this species are included in the Translocation and Management Plan for *Cycas megacarpa* approved by SEWPC in accordance with Condition 25 of the EPBC approval.

- Brigalow TEC has been surveyed at a number of locations along the GCH and Export Pipeline and this area is reflected in the SEWPC disturbance limits. While clearance of the GCH areas had been completed by December 2011, current project schedule estimates indicate that clearance of the pockets of TEC along the Export Pipeline will be undertaken between January and July 2012. Specific clearance dates will be incorporated within the vegetation clearance records which capture clearing details for monitoring of compliance with disturbance limits.
APPENDIX A – RELEVANT SEWPC CONDITIONS