

Esso Highlands Limited



Papua New Guinea LNG Project

**Environmental and Social Management Plan
Appendix 23: Community Infrastructure
Management Plan**

PGGP-EH-SPENV-000018-027

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ACRONYMS

Acronym	Definition
CP	Contractor Plan
ESMP	Environmental and Social Management Plan
IFC	International Finance Corporation
LNG	Liquefied Natural Gas
OIMS	Operations Integrity Management System
PNG	Papua New Guinea
ROW	Right of Way

KEY DEFINITIONS

Contractor Plan: A Plan to be prepared by Contractor. To be used by Contractor to describe how the mitigation measures outlined in this Plan will be implemented.

Notification (refer Table 1): An action arising out of monitoring that is expected of Contractor when the Company needs to be notified immediately of a specific event or situation.

Works: Refer *Definitions and Interpretation* section of Invitation to Tender Principal Document.

Verification (refer Table 1): The primary method of monitoring expected of Contractor to a) confirm that relevant mitigation measures have been applied and b) that the measure has been effective. Contractor will be responsible for developing appropriate verification methods and systems.

Community Infrastructure/Services: Includes but is not limited to water, electric, power, communication lines as well as roads, paths, tracks, springs, culverts, washing areas, bridges and wharfs used by the community.

1.0 OBJECTIVES

Esso Highlands Limited (Company) has developed this Community Infrastructure Management Plan as part of its Environmental and Social Management Plan (ESMP) outlining a range of mitigation measures designed to avoid or reduce undesired community infrastructure management impacts during construction. This document establishes a basis and template for use by the Contractor to develop their own plans outlining not only mitigation measures but to also incorporate the roles and responsibilities described in the ESMP.

The objectives of the Community Infrastructure Management Plan are:

- Avoid or minimise the risk and /or consequential impacts of construction activities on existing community infrastructure and services, and hence disruption to community activities and well-being;
- Avoid delays to the construction schedule from community-related grievance arising from negative impacts on community infrastructure; and
- Reinstate community infrastructure disturbed as a result of construction activities to a condition at least as good as that prevailing prior to disturbance.

This Plan should be read in conjunction with other environmental and social management plans (EMPs and SMP's) Figure 1 outlines the relationship between EMP's and SMP's.

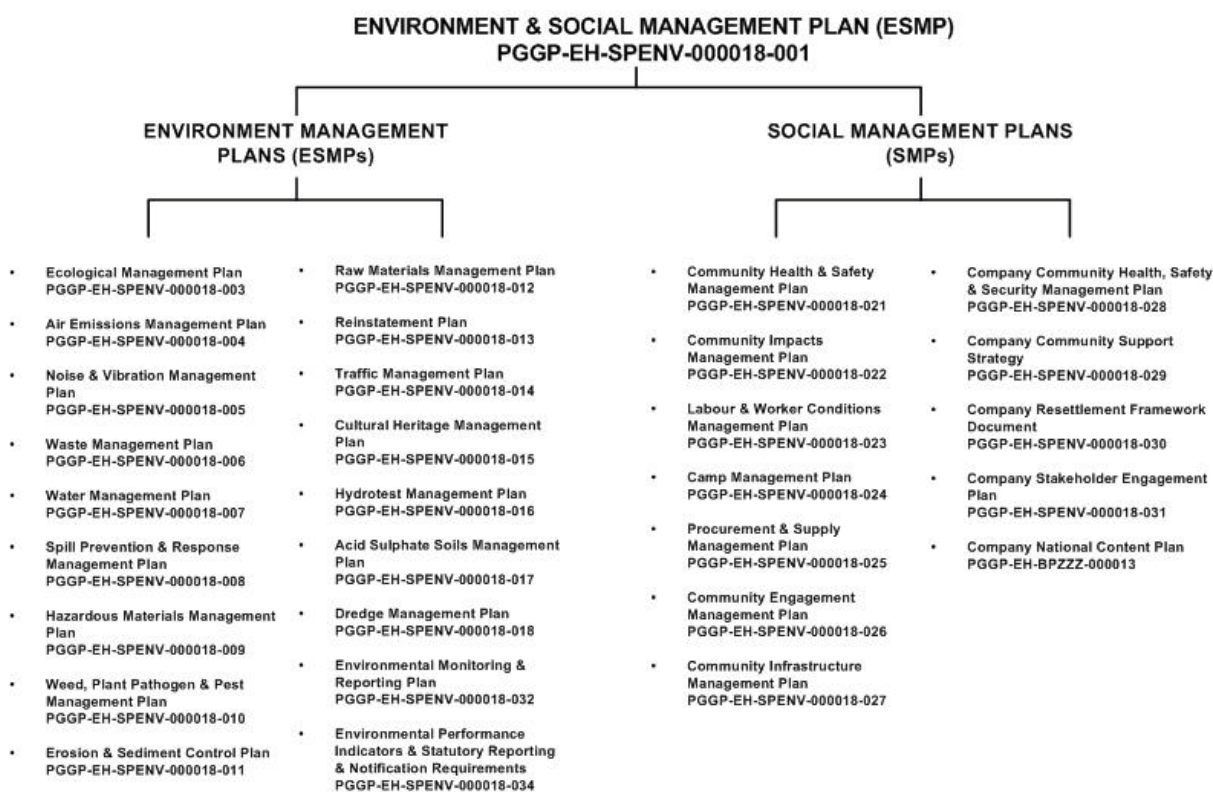


Figure 1: Environmental and Social Management Framework

2.0 LEGAL AND OTHER REQUIREMENTS

Legal and other requirements applicable to this Plan are identified in Attachment 1.

3.0 SURVEYS

Prior to commencement of Project Works, the Project shall complete the following surveys:

- Existing third party infrastructure and services (such as underground pipelines, cables, overhead power lines and structures, drainage systems) in areas designated for excavation or having the potential for disturbance during construction;
- Existing community infrastructure such as roads, tracks, washing areas, etc used by the community to conduct their daily activities that will be disturbed (or have the potential to be disturbed) as a result of construction activities;
- Condition of existing community infrastructure that will be used or affected by the Project; and
- Community usage of existing community infrastructure and services.

4.0 MANAGEMENT AND MONITORING

Figure 2 presents a flow chart summarising key management steps associated with implementation and review of this Plan, including steps to allow for continued improvement.

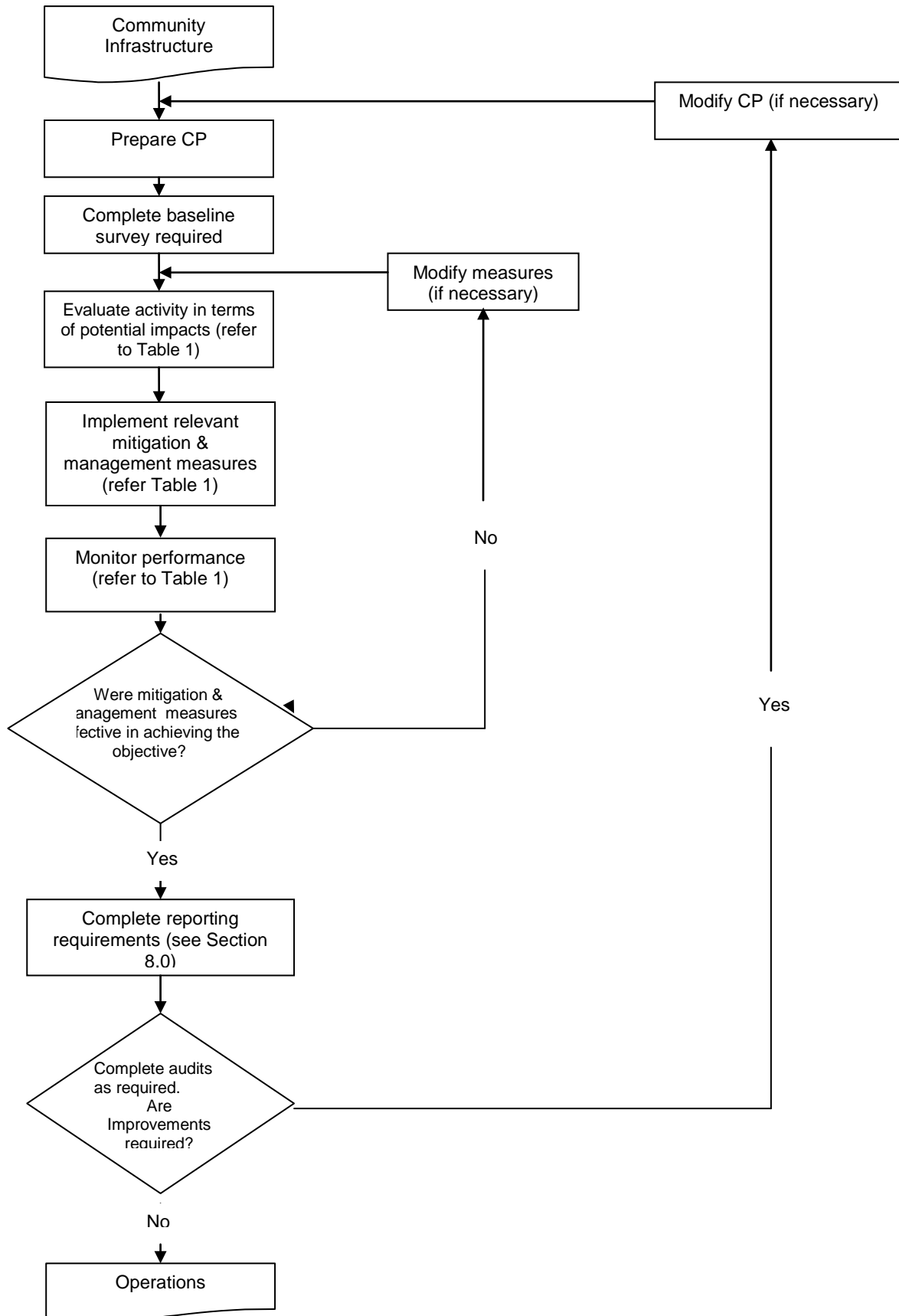


Figure 2: Community Infrastructure Management Process

Table 1 presents a summary of the potential impacts related to community infrastructure, together with mitigation and management measures designed to avoid or reduce these impacts and the monitoring required to determine the performance of these measures.

Contractor shall develop a CP which shall, as a minimum, incorporate the community infrastructure measures described in Table 1. Contractor shall not be limited to these measures and may propose others for Company approval

Monitoring to be undertaken as part of the Contractor Plan is described in Table 1. Contractor is responsible for developing area or site-specific procedures for the monitoring program (where necessary) based upon the final design details of the infrastructure.

Table 1: Management and Monitoring

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
Infrastructure and Services	Disruption to existing services and supplies (Objectives 1-3)	During the staking and marking of the pipeline trench centreline, existing third-party services (e.g., underground cables, pipelines, drainage systems) shall be located and marked where possible, prior to the commencement of excavation work. Warning posts and bunting shall be erected for overhead cables, and temporary crossing points shall be indicated. The same procedures shall be followed for new roads and general site works to the extent that these affect or have the potential to affect community infrastructure and services.	27.001	Verification	Prior to construction	Contractor
		All pipeline construction work methods and procedures by Contractor in the vicinity of existing facilities and pipelines shall be in accordance with PGHU-EO-YPZZZ-000002 – Pipeline Construction Near Existing Facilities – Minimum Requirements.	27.002	Verification	Prior to construction	Contractor
		The Project is expected to cross road, drainage/ irrigation channels, culverts and other community infrastructure in full consultation with their owners and without causing unmitigated or uncompensated damage.	27.003	Verification	Prior to construction	Contractor and/or Company

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
		When there will be planned disruption/damage to infrastructure/ services, these shall be identified by the Project as early as possible, and communicated to relevant authorities, and/ or owner/operator. Then, immediately prior to the planned disruption/ damage, (preferably the week prior to scheduled activities), the local residents will be updated regarding the latest estimates of timing and duration of proposed the Project activities and the timetable to reinstate disrupted/ damage infrastructure/services. Should the disruption/ damage result in loss of livelihood in the affected party's judgement, the validity of the claim, and any necessary compensation, will be determined by Contractor in consultation with impacted parties and to Company's satisfaction.	27.004	Verification	Ongoing	Contractor and/or Company
		During construction the Project may encounter unidentified services and structures and shall take care to avoid causing unnecessary disruption/ damage. When there is accidental disruption/damage to infrastructure/ services, the Project shall inform relevant authorities of the reason for the disruption/ damage and work with the owner/ operator to reinstate in the shortest time possible and / or provide in-kind compensation if appropriate.	27.005	Notification	Per incident	Contractor and/or Company
		Within one day of accidental disruption/ damage to infrastructure/ services, the Project shall provide information to relevant authorities and/ or owner/ operator providing details of the disruption/ damage, information on alternative measures (if appropriate) and any measures that will be taken to assess any damage caused as a result of the	27.006	Verification	Ongoing	Contractor and/or Company

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
		disruption. The Project shall inform local residents of the disruption and of its likely duration e.g., notices are placed on community noticeboards.				
		Where the Works comes into conflict with any utilities, Contractor shall coordinate operations with the relevant authority, owner/ operator and, if the service is required to be relocated or protected, shall carry out such relocation or protection to the approval of the relevant authority, owner/ operator.	27.007	Notification	Ongoing	Contractor and/or Company
Roads	Changing conditions Use of roads (new and existing) to transport pipe, equipment and staff to the ROW and various work fronts and facilities has the potential to damage roads or hasten their deterioration. Conversely, many existing roads will be upgraded and some new roads will be constructed, potentially resulting in a positive outcome for local communities, but equally, potentially resulting in adverse effects through induced access. (Objectives 1-3)	The Project shall document the initial baseline condition of all existing roads, bridges, wharfs, etc that will be used during construction. This baseline survey will be used as a basis for any necessary restoration on completion of Works.	27.008	Verification	Prior to construction	Contractor

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
		The Project shall maintain roads to a reasonable standard throughout the period they are used for construction and ensure that, upon completion of the Work, all roads used are left in a condition equal to the pre-disturbed condition as a minimum (and as documented in the initial baseline survey).	27.009	Verification	Ongoing	Contractor
		All existing traffic control devices, road signage and road furniture that the Project is required to move on account of the widening of the existing road formation or other Works shall be carefully dismantled and reinstated (or equivalent replaced) as required ¹ .	27.010	Verification	Ongoing	Contractor
		Contractor shall plan and implement the Works to take full account of traffic on existing roads and shall minimize the extent of any disruption to existing road traffic.	27.011	Verification	Ongoing	Contractor
		Contractor shall construct temporary road detours necessary at culverts or other construction locations to keep the existing road open to traffic during the Works.	27.012	Verification	Ongoing	Contractor
		Contractor shall provide all required traffic control devices, signage and other management necessary for the Works, and shall ensure they are in place prior to the commencement of Works.	27.013	Verification	Ongoing	Contractor
		Contractor shall ensure a Traffic Management Plan is developed prior to commencement of Works.	27.014	Verification	Ongoing	Contractor
		Contractor shall be aware of the vehicle weight and axle load limits applicable to the existing wharves and associated facilities, and the load limits applicable to existing roads and bridges and shall comply with all such load limits.	27.015	Verification	Prior to construction (and movement of heavy vehicles)	Contractor

¹ Roadwork includes supply and installation of all required road furniture to Papua New Guinea Department of Transport Standards. Road furniture includes, but is not limited to: • Regulatory traffic signs, • Direction signs, • Information signs, • Guide posts, • Guard rails.

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
		The Project shall actively consult as applicable, with relevant authorities, communities and landowners before building any new roads (in accordance with the Community Engagement Management Plan, and where relevant, the Resettlement Action Plan).	27.016	Verification	Prior to construction of new roads	Contractor and/or Company
		Roads designated by Company for closure on completion of construction activities shall be reinstated, as per the criteria described in the Reinstatement Plan.	27.017	Verification	On completion of construction	Contractor
Road access	Temporary Road Closures There may be some temporary or partial road closures required during construction resulting in restricted access to existing users. (Objectives 1-3)	Contractor shall minimize road closure time. Contractor shall keep Company informed of road closures/restrictions including scheduled dates for activities associated with pipeline road crossings.	27.018	Verification	Ongoing	Contractor
		Road closures resulting from Works must be in accordance with the Traffic Management Plan. Contractor must include contingency plans to enable the passage of emergency vehicles.	27.019	Verification	Ongoing	Contractor
		Works on existing roads shall be managed to allow for the flow of public traffic. The Project will inform communities in advance if/when road closures or restrictions are required (as described above). Diversions shall be clearly sign-posted. Alternative access routes shall be available. This shall include existing alternative roads as well as any routes specifically constructed.	27.020	Verification	Ongoing	Contractor and/or Company
	Access across Right of Way During the construction phase open trenches and other Works will limit access along or across the ROW.	The ROW shall be clearly demarcated. The Project shall be responsible for identifying the need for crossing points, and reaching agreement with landowners, land users and communities on the most appropriate number and locations to ensure that disruption is limited. Crossing points must be safe, clearly visible and illuminated where necessary.	27.021	Verification	Ongoing	Contractor and/or Company

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
	This may hinder access to gardens, grazing land or fields under cultivation, and general movements along paths, tracks and roads. It may also hinder access to schools, markets etc. The scale of impact will depend on the location of the crossing, the ability to identify convenient alternative crossing points, and the length of time the trench is open at these locations. (Objectives 1-3)	Contractor shall ensure that gaps are left in the spoil stock piles at strategic locations along the pipeline route to allow access for people and animals.	27.022	Verification	Ongoing	Contractor
		Contractor shall reinstate all crossings of tracks and roads and other access points on completion of activities in accordance with the Reinstatement Plan. Interim reinstatement measures to allow access may be required where disturbance has occurred but completion temporarily delayed.	27.023	Verification	Ongoing	Contractor
River access	River Passage Restrictions / Closures It may be necessary to temporarily restrict access along some rivers during construction to allow for the safe movement of equipment and materials. Access along main rivers will be maintained. (Objectives 1-3)	The Project shall consult with communities in advance if/when river access is closed or restrictions are required.	27.024	Verification	Ongoing	Contractor and/or Company

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
Electric Power supplies	Disruption of supplies to local communities as a result of excessive demand or damage to reticulation systems/support infrastructure (Objectives 1-3)	The Project is to be self-reliant with respect to electric power. In the event that electric power distribution system is damaged as a direct result of Works, the Project shall notify owner/s and provide assistance as appropriate to restore supply to local communities as soon as practicable, or provide an alternative source in an expeditious manner.	27.025	Verification	Ongoing	Contractor and/or Company
Water Supply & Distribution	Disruption to Water Supply (Objectives 1-3)	In the event that a water distribution system is damaged as a direct result of Works, the Project shall notify owner/s and provide assistance as appropriate to restore supply to local communities or relevant user as soon as practicable, or provide an alternative source in an expeditious manner.	27.026	Verification	Ongoing	Contractor and/or Company
	Disruption to drainage/irrigation flows. Disruption of drainage /irrigation channels leading to impeded drainage (and potentially flooding) during wet periods (Objectives 1-3)	The Project shall undertake surveys of drainage/irrigation systems as necessary to identify existing systems and devise temporary replacement measures if required, including liaison with land owners/land occupiers/land users in accordance with the Community Engagement Management Plan. The Project shall plan and execute Works so as to limit, and where practicable, avoid disrupting water flow through drainage/irrigation channels, or to provide alternative irrigation structures (temporary pipes or culverts, etc). Include provisions for drainage/irrigation management. At a minimum: <ul style="list-style-type: none"> • Maintain the integrity and viability of any existing active drainage/irrigation systems during Works (including the use of measures such as pumping, channel diversions and fluming); and • Reinstall or replace any disrupted drainage/irrigation systems to a standard 	27.027	Verification	Ongoing	Contractor and/or Company

Source of Impact	Potential Impact and Relevant Management Plans Objectives	Mitigation and Management (Design Feature / Specific Measure)	Item	Monitoring	Monitoring Frequency	Responsibility
		equal to the pre-disturbed.				
Telecommunications	Network congestion The mobile network will receive high usage during the construction process by Project personnel. Fixed networks may also be used wherever they are available. Fixed and mobile infrastructures are not well developed and have been implemented for low demand. (Objectives 1-3)	Contractor shall provide its telecommunication plans to Company which will hold discussions with the fixed line and mobile network providers on behalf of the Contractor. This is required prior to commencement of Works to inform the providers of Project activities and the likely Project-related demand for services. If predicted demand exceeds existing capacity, the Contractor will assist Company to resolve the issue without impacting the service to local community.	27.028	Verification	Ongoing	Contractor and/or Company

5.0 ROLES AND RESPONSIBILITIES

Contractor shall ensure sufficient resources are allocated on an ongoing basis to achieve effective implementation of this Plan.

The Contractor Plan shall describe the resources allocated to and responsibility for the execution of each task and requirement contained therein, and shall describe how roles and responsibilities are communicated to relevant personnel.

Company shall ensure sufficient resources are allocated on an ongoing basis to achieve effective implementation of Company's responsibilities in the Community Infrastructure Management Plan.

6.0 TRAINING, AWARENESS AND COMPETENCY

Contractor shall ensure that all personnel responsible for the execution of the tasks and requirements contained within the Plan are competent on the basis of education, training and experience.

The Contractor Plan shall describe the training and awareness requirements necessary for its effective implementation.

Contractor's training activity associated with the Contractor Plan shall be appropriately documented by means of a training needs assessment, training matrix/plan and records of training undertaken.

Project shall ensure that personnel responsible for the execution of tasks and requirements in the Community Infrastructure Management Plan are competent on the basis of education, training and experience.

Project training activity associated with the Community Infrastructure Management Plan shall be appropriately documented by means of a training needs assessment, training matrix/plan and records of training undertaken.

7.0 PERFORMANCE INDICATORS

Table 2 outlines the indicators for measuring and verifying performance in relation to community infrastructure management. However Contractor may, subject to agreement with the Company, modify or add to these indicators to enhance the Contractor's Contractor Plan based on lessons from the performance indicators.

Table 2: Performance Indicators

ID #	Performance Indicator	Measurement	Internal Assessment Frequency*	Relevant Management Plan Objective†
1	Timely restoration of damaged community infrastructure.	Average number of days taken to effect repairs from date of grievance lodgement.	Monthly#	1

* Frequency is determined by the Company and may vary subject to Contractor's performance.

† See Section 1.0.

Company will report on this using the centralized grievance database and discuss performance with Contractor.

8.0 REPORTING AND NOTIFICATION

Contractor shall submit to Company a monthly report addressing the performance indicators (see Table 2).

Other reporting or notifications required as part of the implementation of this Plan are summarised in Table 1.

ATTACHMENT 1

LEGAL AND OTHER REQUIREMENTS

Contractor shall comply with applicable Papua New Guinea (PNG) Laws and Regulations, applicable International Finance Institution requirements and applicable International Treaties and Conventions. In addition, Contractor shall comply with certain other requirements defined by the Company.

The following requirements form the basis of this Plan, however Contractor should not rely upon them as an exhaustive list of legal and other requirements.

PNG Laws & Regulations

PNG laws relevant to community infrastructure include:

- Industrial Safety (Building Works) Order 1967.

International Treaties and Conventions

Typically, international conventions and treaties mandate actions that the signatory countries must undertake and they do not require direct action by private companies, however some treaties and conventions may require direct action by private companies.

There are no international treaties and conventions relevant to the construction phase from a community infrastructure perspective.

International Finance Institution Requirements

- International Finance Corporation (IFC) Performance Standard 1: Social and Environmental Assessment and Management Systems and its objectives are:
 - To avoid, or where avoidance is not possible, minimize, mitigate or compensate for adverse impacts on workers, affected communities, and the environment; and
 - To ensure that affected communities are appropriately engaged on issues that could potentially affect them.
- IFC Performance Standard 4: Community Health, Safety and Security and an objective is:
 - To avoid or minimize risks to and impacts on the health and safety of the local community during construction from both routine and non-routine circumstances

Requirement 6 of this Performance Standard states “The client will design, construct, operate and decommission the structural elements or components of the project in accordance with good international industry practice.”

Requirement 7 of this Performance Standard states “Where there is a potential for the community (including workers and their families) to be exposed to hazards, particularly those that may be life-threatening, the client will exercise special care to avoid or minimize their exposure by modifying, substituting or eliminating the condition or substance causing the hazards.”

Requirement 12 of this Performance Standard states “The client will assess the potential risks and impacts from project activities and inform affected communities of significant potential hazards in a culturally appropriate manner.”

Other Requirements

Company will follow Company’s Operations Integrity Management System (OIMS). The following OIMS elements apply to infrastructure management:

Element 2: Risk Assessment and Management

Element 3: Facilities Design and Construction

Element 10: Community Awareness and Emergency Preparedness

10.1 Community expectations and concerns about our operations, including those of the workforce, are recognized and addressed in a timely manner.

The Project will also follow ExxonMobil's Best Practices in External Affairs (BPEA) regarding Community Relations Management. The BPEA provides, *"[w]herever Company operates around the world, we form collaborative partnerships and consult with community leaders to help build economic and social capacity that benefits communities and our business over the long term. Our BPEA initiative, which is part of our OIMS, is our strategic planning tool for global external affairs."*