

Esso Highlands Limited



Papua New Guinea LNG Project

**Environmental and Social Management Plan
Appendix 10: Raw Materials Management Plan**

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1.0 OBJECTIVES

Esso Highlands Limited (Company) has developed this Raw Materials Management Plan as part of its Environmental and Social Management Plan (ESMP).

The objectives of the Raw Materials Management Plan are to:

1. Extract aggregate from Company approved locations
2. Maximise use of cleared timber and purchase any additional timber from Company approved sources.

For the purposes of this plan, quarry shall include all sources of aggregate other than material obtained beneficially during preparation of the pipeline trench or other Project facilities and roads/tracks.

The Raw Materials Management Plan should be read in conjunction with other Company plans:

- Ecological Management Plan
- Air Emissions Management Plan
- Noise and Vibration Management Plan
- Water Management Plan
- Weed, Plant Pathogen and Pest Management Plan
- Erosion and Sediment Control Management Plan
- Reinstatement Plan
- Traffic Management Plan
- Cultural Heritage Management Plan.

2.0 LEGAL AND OTHER REQUIREMENTS

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

3.0 SURVEYS

Contractor shall check that all applicable surveys described in the Ecological Management Plan, Water Management Plan, Weed Plant Pathogen and Pest Management Plan and Cultural Heritage Management Plan have been completed for new quarries.

4.0 MANAGEMENT AND MONITORING

Table 1 presents a summary of the potential impacts related to raw materials together with mitigation and management measures to avoid or reduce these impacts.

Contractor shall develop a Raw Materials Management Plan, which will as a minimum incorporate the measures described in Table 1 but shall not be limited to these measures.

Due to differing scopes of work and work locations, not all management and mitigation measures in the Raw Materials Management Plan are applicable to all Contractors. Company's Environmental and Social Mitigation Register defines which management and mitigation measures are applicable to each Contract scope of work.

In Table 1, any mitigation and management commitments that were contained in the PNG LNG Project Environmental Impact Statement (EIS) are identified by a code commencing

with an 'M' in the 'Mitigation Item Reference Number' column. Some mitigation measures have been reworded to provide further clarity or more detailed information regarding required measures. In these instances, the code is displayed in italics, and these reworded measures supersede what is in the EIS.

Other mitigation and management commitments required by Company are identified in Table 1 with a code commencing with an 'A'.

Monitoring required as part of the Raw Materials Management Plan is also described in Table 1.

Contractor shall develop site-specific procedures for the monitoring program, to be agreed by Company.

Table 1: Management and Monitoring

Table 1: Management and Monitoring						
Source of Impact	Potential Impact and Relevant Management Plan Objective[†]	Mitigation and Management (Design Feature/Specific Measure)	Mitigation Item Reference Number	Monitoring	Monitoring Frequency	Responsibility
Obtaining quarry material for construction	Environmental impacts associated with construction and operation of a quarry, e.g., loss of vegetation and original flora and fauna habitat, erosion and consequent water quality impacts, weeds, plant pathogens, pests, traffic, air, noise and cultural heritage aspects. (Objective 1)	Social and environmental survey and assessment is required to be undertaken for any Company or Contractor new quarries.	A76	Social and Environmental Assessment	As required	Contractor and Company
		Ensure existing or abandoned quarries owned or operated by third parties and used by the Project are in possession of the necessary permits.	A77	Verification	As required	Contractor and Company
		For third party quarries ¹ , extend duty of care by undertaking preliminary environmental risk evaluation of the service/ activity. To the extent practical include contractual site specific mitigation measures the quarry operator will be expected to implement including measures relating to quarry reinstatement, traffic management dust control and safety/stability where applicable.	A107	N/A	As required	Contractor
		No quarries beyond cut to be established on the Hides Ridge where practicable.	M67	Verification	Ongoing	Contractor
		Reduce the number of quarries developed by using previously worked (old) quarries, where practicable, and using limestone generated by construction activities for road base material.	M68	Verification	Ongoing	Contractor
		Source quarry and aggregate material only from quarries approved by Company.	M69	Verification	Ongoing	Contractor

[†] Third-party quarry is defined as a non-Company or Contractor quarry whose viability and existence do not depend exclusively on the Project.

Table 1: Management and Monitoring						
Source of Impact	Potential Impact and Relevant Management Plan Objective[†]	Mitigation and Management (Design Feature/Specific Measure)	Mitigation Item Reference Number	Monitoring	Monitoring Frequency	Responsibility
		Ensure no aggregate material is extracted from any water body including ephemeral streams.	A108	Verification	Ongoing	Contractor
		To the extent practicable, new quarries should be sited as close to existing or previously used roads as practical in order to reduce land disturbance associated with access road building and maintenance.	A78	Verification	Ongoing	Contractor
		To the extent practicable new quarries should be preferentially sited on (hierarchical order): a) previously disturbed land, b) lands featuring pioneer and/or secondary growth species versus primary/old growth species.	A79	Verification	Ongoing	Contractor
		Potential quarry sites should not be located near caves with colonies containing protected bat species.	M105	Verification	Ongoing	Contractor
		Require that in-country timber is acquired from legal Company approved sources.	M113	Documenting sources and volumes of procured timber	Monthly	Contractor
Poor management of forest resources	Vegetation clearing (through non-permitted logging activities), resulting in: <ul style="list-style-type: none"> Loss of flora and fauna habitat Introduction of weeds, plant pathogens and pests. Soil erosion. 	Promote use of timber felled during wellpad, RoW, roadways, support infrastructure sites, and facility site clearing for project uses to the extent practical.	M72	Verification	Ongoing	Contractor
		Remove trees, debris or soil inadvertently deposited below the high water mark of watercourses where safe to do so and, where practicable, in a manner that reduces disturbance of the bed and banks. Use material for reinstatement.	M138	Verification	Ongoing	Contractor
		Complete excavations, including quarries, in a	A80	Verification	Ongoing	Contractor

Table 1: Management and Monitoring						
Source of Impact	Potential Impact and Relevant Management Plan Objective†	Mitigation and Management (Design Feature/Specific Measure)	Mitigation Item Reference Number	Monitoring	Monitoring Frequency	Responsibility
	(Objective 2)	manner that renders rock faces stable and safe.				
Post aggregate extraction site conditions at quarries.	Community health and safety hazards posed by unstable rock faces and water hazards. (Objective 1)	Where practicable, complete excavations in a manner that minimizes the potential for the development of water hazards (e.g., steep-sided, deep and unmarked/unprotected depressions).	A81	Verification	Ongoing	Contractor

† See Section 1.

5.0 ROLES AND RESPONSIBILITIES

Contractor shall ensure sufficient resources are allocated on an ongoing basis to achieve effective implementation of the Raw Materials Management Plan.

Contractor's Raw Materials Management Plan shall describe the resources allocated to and responsible 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 Raw Materials 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 Raw Materials Management Plan are competent on the basis of education, training and experience.

Contractor's Raw Materials Management Plan shall describe the training and awareness requirements necessary for its effective implementation.

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

Company shall ensure that all Company personnel responsible for the execution of Company's tasks and requirements in the Raw Materials Management Plan are competent on the basis of education, training and experience.

Company's training activity associated with the Raw Materials 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 indicators for measuring and verifying performance in relation to the Raw Materials Management Plan.

Table 2: Performance Indicators

ID #	Performance Indicator	Measurement	Internal Assessment Frequency	Relevant Management Plan Objective [†]
1	All aggregate procured from Company-approved quarry	Documenting sources and volumes of aggregate	Quarterly	1
2	All in-country timber acquired from Company approved sources	Documenting sources and volumes of timber	Quarterly	2
Performance Indicators to be further developed and agreed between Contractor and Company				

[†] See Section 1.

8.0 REPORTING AND NOTIFICATION

Contractor shall report to Company the results of the surveys undertaken in accordance with Section 3.0 and integrate the results, including additional mitigation and management measures as agreed with Company, with the Raw Materials Management Plan.

Contractor shall report the results of the environmental and social assessments undertaken in respect of all new quarries.

No quarry shall be utilised by Contractor without Company agreement.

Contractor's monthly report to Company shall include:

- Results of the surveys prescribed in Section 3
- Number and results of verification inspections prescribed in Table 1
- Performance Indicators as applicable in the reporting period.

Attachment 1: Legal and Other Requirements

LEGAL AND OTHER REQUIREMENTS

Contractor shall comply with applicable Papua New Guinea Laws and Regulations, applicable International Finance Institution (IFI) requirements and International Treaties and Conventions (where applicable).

Papua New Guinea Laws and Regulations

The Environment Act 2000 contains numerous general provisions that promote environmental protection, regulate environmental impacts associated with development activities, and safeguard the life supporting capacity of air, water land and ecosystems (refer to Sections 4 and 5 for example), but none that specifically relate to the use of aggregate and timber in the context of the Project.

International Financial Institution Requirements

The following International Finance Corporation (IFC) Performance Standards apply to the use of aggregate and timber during construction:

- IFC Performance Standard 1: *Social and Environmental Assessment and Management System*, which establishes requirements for assessment, management organizational capability, training, community engagement, monitoring, and reporting.
- IFC Performance Standard 3 and Guidance Note 3 deal with *Pollution Prevention and Abatement* and include provisions relating to noise, vibration, air emissions, erosion and sedimentation, and waste.
- IFC Performance Standard 4: *Community Health, Safety and Security*, which requires Projects to avoid or minimize adverse impacts due to Project activities on soil, water, and other natural resources in use by affected communities, as well as traffic safety
- IFC Performance Standard 6: *Biodiversity Conservation and Sustainable Natural Resource Management*, in relation to sustainable use of natural resources.