

Geothermal Energy Development Project -Exploratory Test Drilling

Volume V - Environmental and Social Management Plan

September 2023

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Mott MacDonald P^o de la Castellana, 79 Planta 7 28046 Madrid Spain

T +34 910 389 528 mottmac.com

Government of Grenada Ministry of Climate Resilience, The Environment and Renewable Energy Ministerial Complex, Botanical Gardens, St Georges, Grenada

Geothermal Energy Development Project -Exploratory Test Drilling

Volume V - Environmental and Social Management Plan

September 2023

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1 Introduction

1.1 Overview

The Government of Grenada (GoG) is actively seeking to reduce Grenada's dependence on imported fossil fuel for electricity generation, by exploring and increasing the use of renewable energy options. Of the options under consideration, geothermal is considered the most promising to replace existing diesel power generation, due to the significant geothermal potential indicated on mainland Grenada (sufficient to support a 15MWe power plant in the first instance) baseload electricity production (unlike power generated variable renewable sources such as solar or wind).

With technical assistance from the governments of Japan and New Zealand, and funding provided by the Caribbean Development Bank (CDB), GoG has been investigating potential geothermal sources on mainland Grenada. Following a series of studies and surface-based investigations completed over several years, the Geothermal Energy Development Project is currently focusing on the exploratory test drilling phase (hereafter referred to as 'the Project') and now requires an internationally compliant Environmental and Social Impact Assessment (ESIA), which includes an Environmental and Social Management Plan (ESMP, this document).

The ESMP has been prepared in accordance with GoG national laws, regulations and guidelines for environmental and social protection and the International Finance Corporation's (IFC) Performance Standards (PS), associated PS Guidance Notes, and the World Bank Group Environmental Health and Safety (EHS) Guidelines (2007).

1.2 Objective and scope

The objective of this ESMP is to:

- Clearly describe the specific components of the ESMP.
- Establish the objectives of the ESMP.
- Define the roles and responsibilities for implementation and maintenance of the ESMP.
- Define the actual working arrangements for the environmental management during the site establishment, exploratory drilling and decommissioning activities of the project.

This ESMP applies to all aspects of the exploratory and drilling phase activities. In addition, this document acts as a guide to the supporting documentation that together constitutes the environmental and social management framework for the Project activities. Responsibilities for implementation are outlined in the ESMP. Where responsibilities fall to contractors, these may be implemented via the contractor's own ESMP which will be required to be approved by GoG prior to use. As a minimum, contractors must comply with the requirements of this ESMP, which will be included in the tender documentation provided to contractors.

The implementation of this ESMP ensures EHS performance is in accordance with international standards (including the relevant World Bank operational policies and World Bank Group (WBG) EHS guidelines) and best practice. Guidance on requirements for ESMP for power plants is also discussed and addresses:

- Organisation and responsibilities
- Training and awareness
- Emergency procedures and response
- Record keeping

• Performance monitoring, reporting and auditing.

1.3 Structure of the ESMP

The ESMP is structured according to the following chapters:

- Chapter 1: Introduction
- Chapter 2: Project description
- Chapter 3: Legal and administrative requirements
- Chapter 4: Institutional arrangements
- Chapter 5: Environmental and social management plan
- Chapter 6: Commitments for implementation and funding
- Chapter 7: Monitoring and reporting
- Chapter 8: Capacity development and training programme

2 **Project description**

In 2015, responding to requests from GoG, the New Zealand Ministry for Foreign Affairs and Trade (MFAT) and Japan International Cooperation Agency (JICA) funded technical assistance (TA) to execute preliminary surface-based exploration activities in Grenada which indicated the presence of underground geothermal reservoirs that could potentially support utility-scale power generation. The TA activities included a pre-feasibility assessment, environmental and social preliminary scoping exercise, and a preliminary drilling plan which was produced in 2016.

Seven locations were initially identified as possible drilling locations for deep slim hole exploration wells. This list was refined to a shortlist of three locations, following an initial assessment of water requirements and accessibility of the sites.

In 2016, Jacobs New Zealand Limited (Jacobs) undertook an infrastructure assessment to confirm the feasibility of access to the three shortlisted areas. As part of this study, one of the key aspects identified was the provision of a reliable water supply. In 2018, Jacobs subsequently produced an Exploration Drilling Plan, Water Resources Assessment and Drilling Site Definition Report. The Drilling Site Definition Report (dated 23 July 2018) further refined the proposed drilling site options, detailed water requirements and well pad locations. The report identified four possible drilling locations (Site B: Castle Hill, Site C: Tricolar, Site D: Barique, Site F: Florida/Plaisance). Subsequent analysis narrowed down the two preferred sites to:

- Site C: Tricolar (St. Patrick Parish)
- Site F: Florida/Plaisance (St. John Parish)

Subsequent to the ESIA Scoping Consultation, further engineering review and analysis by Jacobs resulted in modifications to the proposed well pad at Site C (Tricolar).

2.1 Overview of Project locations

The two selected exploratory drilling pad locations are identified in Figure 2.1 Error! Reference source not found. and are described further in Sections 2.1.1 and 2.1.2.

Figure 2.1: Proposed exploratory drilling site locations



Grenada_Geothermal_ESIA_Social | Proposed Exploratory Drilling Site Locations P01 | 06 Jul 2023

Source: Mott MacDonald

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2.1.1 Site C: Tricolar

Site C (Tricolar) is located to the north-east of Mount St Catherine. The site is generally well concealed with some areas currently cultivated for banana and nutmeg (amongst others) and surrounded by more mature secondary vegetation/forest habitat.

Figure 2.2: Photograph of site C (well pad location)



Source: Mott MacDonald water quality monitoring survey, June 2023

Figure 2.3: Photograph of site C (well pad location)



Source: Mott MacDonald water quality monitoring survey, June 2023

Figure 2.4: Photograph of site C (pump station location)



Source: Mott MacDonald water quality monitoring survey, June 2023

Figure 2.5: Photograph of site C (pump station location)



Source: Mott MacDonald water quality monitoring survey, June 2023

2.1.2 Site F: Florida/Plaisance

Site F (Florida/Plaisance) is situated to the southwest of Mount St Catherine and borders a forested area, which is also partly used as a plantation. The proposed pad location is reasonably flat with a slight incline. The land is currently used for some low-level agriculture. An access track runs through the middle of the site.

Figure 2.6: Photograph of site F



Source: Mott MacDonald ESIA scoping site visit 2019

Figure 2.7: Photograph of site F



Source: Mott MacDonald ESIA scoping site visit 2019

Figure 2.8: Photograph of site F (banana plantation)



Source: Mott MacDonald ESIA scoping site visit 2019

Figure 2.9: Photograph of site F (cocoa plantation)



Source: Mott MacDonald ESIA scoping site visit 2019

3 Legal and administrative requirements

3.1 National

-

Grenada is a constitutional monarchy in which the formal Head of State is a Monarch but is limited by the nation's supreme law, the Constitution, which entered into force in 1974. There is an Executive branch, in which King Charles III is the hereditary Chief of State but is represented by the Governor General. The Prime Minister is the Head of Government as well as the leader of the majority party and is appointed by the Governor General after legislative elections. There is also a legislative branch, which has a bicameral parliament that is comprised of the Senate and the House of Representatives.

Grenada's constitution was made on 19 December 1973 and came into operation on 7 February 1974. It covers the fundamental rights and freedoms of citizens to be enjoyed by all as the basis for freedom, justice and human dignity.

In Grenada, there are several government agencies which are responsible for overall land management and environmental protection and a full range of laws, regulations, policies, acts and decrees with the intention of providing the necessary legislative framework for the different agencies dealing with these matters. The ones relevant to this project are summarized in Table 3.1 and discussed in Sections 3.1 and 3.2.

Торіс	Legislation			
Energy and Geothermal	National Energy Policy, 2011			
	Draft Goals and Policies of the Updated National Energy Policy (NEP), 2023			
	Electricity Supply Act, 2016 (and Electricity Supply (Customer Service) Regulations, 2016)			
	Electricity Supply (Customer Service) Regulations, 2016			
	Draft Geothermal Resources Environmental and Planning Regulations, 2011			
Environment	Physical Planning and Development Control Act, No 25 of 2002			
	Waste Management Act of 2001 (and Solid Waste Management Act of 1995)			
	Environmental Levy Act, 1997			
	Abatement of Litter Act, 1990			
Biodiversity	National Biodiversity Strategy and Action Plan (NBSAP) (2016-2020)			
	Forest, Soil and Water Conservation Act, 1984			
	National Forest Policy, 1999			
	National Parks and Protected Areas Act, 1991			
	Grand Etang Forest Reserve Act, 1906			
	Birds and Other Wildlife Act, 1957			
	Wild Animals and Birds Sanctuary Ordinance, 1964			
	National Sustainable Development Plan 2020-2035			
	Plan and Policy for a System of National Parks and Protected Areas in Grenada and Carricou, 1988			
Water	Water Quality Act, 2005			
	National Water and Sewerage Authority Act, 1990			
	Final Draft National Water Policy, 2019			
Land management	Land Settlement Act, 1969			

Table 3.1: Summary of key national legislation

Торіс	Legislation		
	Land Transfer Valuation Act, 1992		
Land Acquisition Act, 1998			
	Grenada National Land Policy, 2019		
Labour	Employment Act, 1999		
Human rights	Constitution of Grenada, Part I: Protection of fundamental rights and freedoms, adopted in 1973, reinstated in 1991, and amended in subsequent years		
Emergency preparedness	Disaster (Emergency Powers) Act, 1984		
	National Disaster Plan, 2005		
Cultural heritage	National Trust Act, 1967		

Source: Prepared by Ecoengineering and Mott MacDonald in 2023 based on several sources

3.2 International

The Project will be undertaken in accordance with all the international treaties and conventions ratified by Government of Grenada, including those related to biodiversity, climate change, species protection and labour rights.

The Project will also comply with international financial institutions lending requirements. For this Project, relevant standards include:

- IFC Performance Standards 2012
- World Bank General Environment, Health and Safety (EHS) Guidelines
- EHS Guidelines for Geothermal Power Generation
- World Bank Environmental and Social Framework

The Project also aims to meet good international industry practice (GIIP).

4 Institutional arrangements

4.1 Overview

Key parties involved in the project will be the Government of Grenada through the Ministry of Climate Resilience, the Environment and Renewable Energy (MCRERE) and the Geothermal Project Management Unit (GPMU) which is established within the Ministry.

For the exploratory drilling phase, the project intends to issue multiple contracts. An infrastructure development contract will deliver the necessary infrastructure (access roads, water supply, well pads and ancillary facilities) to support the drilling activity. A separate package of contracts will cover the provision of a specialised drilling rig and other equipment and services necessary for drilling and testing of the wells.

It is the responsibility of the Government of Grenada via the MCRERE and its agents and contractors to make sure this ESMP is followed so that the execution of the Project does not cause unacceptable impacts. This ESMP will be updated or revised to address prevailing conditions. Responsibilities for implementation of identified mitigation or management actions may fall to various actors. All contractors will be responsible for implementing the site-specific ESMP.

4.2 Roles and responsibilities

The next sections describe the institutional arrangements for the ESMP and identify which party is responsible for carrying out the mitigation and monitoring measures (i.e.: for implementation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).

4.2.1 Ministry of Climate Resilience, the Environment and Renewable Energy (MCRERE)

The Government of Grenada, represented by the Ministry of Climate Resilience, the Environment and Renewable Energy, is responsible for the overall management and delivery of the exploratory drilling project.

The MCRERE will mobilise a combination of technical assistance consultants and in-house human resources to oversee and address environmental, socio-economic, health and safety issues as necessary for implementing the ESMP.

The roles, responsibilities, and main tasks relating to the ESHS function are as follows:

4.2.1.1 Environment officer

Engaged by the GoG, and independent from contractors, to oversee and monitor compliance with environmental policy and with the obligations set out in the applicable national and international legislation, this ESMP and environmental permits on a day-to-day basis.

Main tasks will be:

- Take prime responsibility for practical implementation of environmental management.
- Oversee and ensure the implementation of the ESMP (with support from the Contractor site/project manager as per section 4.2.2 of this ESMP) and ensure all contractors and sub-contractors are in compliance with the ESMP requirements.
- Oversee and report environmental performance of the ESMP to the MCRERE.

- Provide training to site construction and operation workers regarding environmental, social, labour, and biodiversity risks.
- Review contractors' and sub-contractors' environmental protection/mitigation measures to ensure compliance with the ESMP.
- Coordinate audits and inspections to check that committed impact mitigation measures are being implemented.
- Act as the first point of contact on environmental matters for government authorities, other external bodies, and the general public.
- Report ESMP non-compliances, if any, to the contractors' Site Managers.
- Conduct and report environmental monitoring on waste management, water resources, air quality, noise and biodiversity.

4.2.1.2 GPMU Community Liaison Officer (CLO)

Reporting to the GPMU, the CLO will be responsible for overseeing social aspects for the Project, including managing stakeholder engagement and grievance mechanism.

Main tasks will be:

- Oversee and report on social issues governed by the ESMP, stakeholder engagement plan (SEP), and other social plans.
- Responsible for implementing the livelihood restoration policy framework (LRF) (Volume IV of this ESIA) and the development and implementation of a livelihood restoration plan (LRP) following guidance provided in the LRF).
- Liaise with relevant government ministries with responsibility for land acquisition/lease negotiation, valuation and compensation to affected persons.
- Act as the main point of contact for community stakeholders to request information or lodge grievances including those regarding land acquisition/ leasing and compensation.
- Process and work to resolve community grievances in a timely and satisfactory manner according to the Project's grievance mechanism.
- Implement the stakeholder engagement plan and community grievance mechanism.
- Monitor the implementation of the workers grievance mechanism.
- Report to the Ministry of Legal Affairs, Labour and Consumer Affairs on issues related to labour matters, workers terms and conditions, and the implementation of the workers grievance mechanism, if any identified by the CLO during their daily routine overseeing social aspects for the Project.
- Report to the Ministry of Finance on issues related to land acquisition, livelihood restoration, compensation payments, if any identified by the CLO during their daily routine overseeing social aspects for the Project.
- Internal and external reporting as required.

4.2.1.3 H&S officer

Responsible for overseeing health, safety and security at site.

Main tasks will be:

- Take prime responsibility for practical implementation of safety management.
- Oversee and ensure the implementation of the safety management plans (with support from the contractors' Site Manager) and ensure all contractors and sub-contractors are in compliance with safety requirements.
- Oversee and report safety performance to the contractors' Site Manager.

- Coordinate regular audits and inspections to check that committed impact mitigation measures are being implemented.
- Act as the first point of contact on safety matters for government authorities, other external bodies, and the general public.

4.2.2 Ministry of Legal Affairs, Labour and Consumer Affairs and Ministry of Finance

Technical assistance consultants and in-house human resources will also be provided by other ministries:

- The Ministry of Legal Affairs, Labour and Consumer Affairs will implement the measures anticipated in this ESMP related to Project workers' rights and labour management. This will include monitoring contractors on labour matters to verify the workers terms and conditions and the implementation of the workers grievance mechanism.
- The Ministry of Finance, who is responsible for land acquisition and compensation payments for the Project, will implement the measures related to livelihood restoration.

4.2.3 Contractors

The project will employ separate contractors to deliver the infrastructure works, and the exploration drilling and testing activities. These contractors have not yet been identified. All contractors will be responsible for ensuring that performance of the Project complies with this plan, all applicable laws relating to the environment or social management, good international industry practice with respect to environmental and social matters, and all requirements of IFC PSs.

Key environmental management requirements of the main contractors will include:

- Implementing the requirements of the ESMP as defined in sections below.
- Providing site layout plans that identify key activities areas.
- Producing detailed management plans and method statements relating to key activities that include specific reference to the mitigation requirements contained herein during the Project progression.
- Providing all training necessary to oversee and implement ESMP requirements.
- Being responsible for producing a comprehensive suite of EHS management and coordination procedures.
- Identifying a full time person on site with dedicated E&S responsibilities to oversee works on site.
- Requiring third party sub-contractors to implement relevant requirements of the construction ESMP or follow lead contractor policies and procedures.
- Holding temporary permits, notification of works, and documentation required to support permit implementation.

The contractors as part of the tender process will be required to demonstrate how they intend to oversee works and the day-to-day implementation of the requirements of this ESMP for their activities and those undertaken by any sub-contractors. This requirement will be included in the contractor tender specifications and form part of the selection process.

The contractor's site/project managers will have ESHS responsibilities and will be responsible for oversight. In addition, contractors will be required to appoint an ESHS officer to oversee implementation of the ESMP requirements applicable to their works. The key tasks for these roles are described below.

4.2.3.1 Contractor site/project manager

The contractor site or project manager will be required to work to coordinate efforts based on inputs from the Ministry and assist in the allocation of staff with the skills for applying the ESMP. It is envisaged that the Site Manager will:

- Nominate personnel to assist the site or project manager, as required, and ensure that they are adequately qualified to understand and implement the ESMP.
- Be responsible for communications with the Ministry and other project management regarding environmental and community issues and non-compliances.

4.2.3.2 Contractor ESHS officer

Each of the contractors will be required to have an ESHS officer who will be responsible for the compliance with the relevant measures identified in the ESMP (along with good international industry practice), which are relevant to the work being undertaken.

The ESHS officer is required to have relevant experience and qualifications on similar natured projects. The ESHS officer will be suitably trained.

Control of sub-contractors

The contractors ESHS officers will be responsible for ensuring sub-contractors' performance, including ensuring that sub-contractors are adequately informed of the requirements of the ESMP and can adhere to the requirements. Contractors will ensure that their sub-contractors are fully aware of all the occupational health and safety and labour rights requirements that must be implemented. Contractors will be expected to identify the procedures for monitoring and reporting on sub-contractor performance.

5 Environmental and social management plan (ESMP)

5.1 Overview

Sections 5.2 and 5.3 address individual Project activities through specific E&S mitigation and monitoring measures; this will act as the framework for implementing actions identified in the ESIA. Table 5.1 presents the ESMP structure that is presented in sections 5.2 and 5.3.

Sub-section	Discipline / media
Table 5.2	General environmental and social management
Table 5.3	Air quality management
Table 5.4	Surface water management Including water quality
Table 5.5	Noise management
Table 5.6	Landscape and visual management
Table 5.7 (& 5.3.2)	Traffic and transport management
Table 5.8(& 5.3.3)	Waste and material management
Table 5.9(& 5.3.5 to 5.3.15)	Social and cultural heritage
Table 5.10 (& 5.3.16)	Ecological management
Table 5.11 (& 5.3.9)	Occupational health and safety management
Supporting plans - Minimum r	equirements
5.3.1	Emergency response plan / pollution incident control plan (contingency plan)
5.3.2	Traffic management plan
5.3.3	Waste and materials management plan
5.3.4	Air quality management plan
5.3.5	Human resources policy and procedures
5.3.6	Recruitment and local content strategy
5.3.7	Worker code of conduct
5.3.8	Labour grievance mechanism
5.3.9	Occupational health and safety plan (OHS)
5.3.10	Site security management plan
5.3.11	Stakeholder engagement plan
5.3.12	Community grievance mechanism
5.3.13	Livelihood restoration plan
5.3.14	Human rights policy
5.3.15	Data security policy
5.3.16	Ecological management plan
5.3.17	Biodiversity management plan
5.3.18	Chance finds procedure

Table 5.1: ESMP structure

5.2 Main plans

Table 5.2: General site environmental and social management

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI
Comply with national permit requirements	Environmental permits where applicable	Develop permit matrix (name, phase, requirements and lead)	MCRERE	Prior to appointment of contractors	Permit matrix – monthly checking
Implement good international industry site management	Notification of works	 Plan ahead and give regulators advance warning of potential problems and start of works. Always display on site the emergency number for regulators and local community at key worksites. Ensure site personnel know the correct procedure for reporting incidents. 	MCRERE	Prior to site establishment	Monthly updates
	Selecting and managing contractors and sub-contractors	Contractors to provide work completion certificates and EHS certificates as proof of their past environmental performance prior to hiring. Ensure sub-contractors have a copy of the ESMP as part of the tender process. Ensure sub-contractors attend environmental training session. Audit the performance of sub-contractors during the project.	MCRERE (management of main contractors) and Main contractors (management of sub-contractors)	Part of contractor tender process	Proof of checks, training records Site inspection records
	Management and site control	Nominate persons within contractor's organisation with defined responsibility for EHS role in Project. Require all method statements to include EHS requirements. Through relevant training, ensure everyone on site is aware of their responsibilities and liabilities with respect to the environment. Through site induction, make staff and visitors aware of Project environmental issues and environmental standards. Display warning signs at key work sites prominently. Make GoG Project's environmental policy available to all on site. Adequately protect primary work sites against vandalism, theft and breakage. Drilling contractor to be responsible for security of the site at all times while the services are being performed.	Contractors	Throughout project life	Proof of checks, training records Site inspection records
_	All site works	Secure the worksite boundary. Establish a safe working environment with an occupational health and safety (OHS) plan that addresses potential hazards, identifies preventive and protective	Contractors	Throughout Project life	Training records Incident logs

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI
		measures, including training and use of PPE, and describes documentation and reporting of accidents, diseases and incidents. See Table 5.11 for more details about OHS. Design and establish signage and theft deterrents.			Site inspection records Emergency preparedness and response plan
	Liaison with the local communities	Identify the key local representatives and keep them informed of progress. See Table 5.11 for more details about OHS.	GPMU CLO	Throughout project life	Complaints register Monthly audits Communication records
		Display contact board at the perimeter of key work sites stating contact details in the event of an emergency, a grievance or comment. Use this board to display information about project phasing and other relevant matters.	Contractors GPMU CLO	_	Daily site walk around
		Implement the requirements of the grievance mechanism and stakeholder engagement plan (SEP).	GPMU CLO		Grievance logs
		Deal with any complaints that arise quickly and in accordance with the defined grievance procedure. Create a log of complaints and ensure they are properly followed up and resolved.	GPMU CLO	_	Grievance logs Number of complaints
	Security (around work site	Develop and implement a site security management plan based on a risk assessment (See Table 5.9 on social management for additional details).	Contractors	Throughout project life	Daily site walk around
	boundary)	Ensure all security staff are appropriately vetted and trained about use of force the security plan, and emergency response	Contractors	Before employee starts work	Training records
Ensure general site housekeeping and environmental protection	Daily and weekly site inspections of construction work sites	Work sites will be subjected to "walk-round" site inspection by the contractors' EHS management staff on a daily basis	Contractors	Throughout project life	Site inspection records Number of complaints Target zero

Table 5.3: Air quality management

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise dust emissions	Site clearance, earthworks,	Provide personal protective equipment to workers on site, such as dust masks where dust levels are likely to be excessive.	Site clearance contractor	During construction	Site inspection records
during construction	material handling	Locate activities and rock / earth stockpiles away from identified receptors (2 households).			
		Cover, seed or fence stockpiles to prevent wind whipping.			
		Bunding and sealing of topsoil and subsoils.			
		Keep stockpiles for the shortest possible time.			
		Consider the prevailing wind direction when siting stockpiles to reduce the likelihood of affecting sensitive receptors.			
		No bonfires.			
		Minimise amounts of material handling and avoid double handling.			
		Sealing or re-vegetate completed earthworks as soon as reasonably practicable after completion.			
		Ensuring all vehicles carrying loose or potentially dusty material to or from the site are fully sheeted.			
		Use of modern (less than 5 years old) vehicle / construction fleet to minimise emissions.			
		Ensuring that the engines of all vehicles and drilling equipment on site are not left running unnecessarily.			
		Plan site layout – machinery and dust causing activities (e.g., access roads, stockpiles) should be located away from the site boundary and sensitive receptors where practicable.			
		Minimise dust generating activities.			
		Use water as a dust suppressant where applicable (e.g., using towed water bowsers with spreader bars) and ensure an adequate water supply.			
		No site runoff of water or mud.			
		Minimise movement of construction traffic around site.			
		Regular (bi-weekly) visual monitoring of dust episodes, soiling of vegetation, dust resuspension on the roads and dust clouds.			
		Maintained logbook: record any exceptional incidents that cause dust, either on- or off- site, and the action taken to resolve the situation in the log book.			

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise NOx, PM ₁₀ and H2S,	Drilling of wells	Use of modern (less than 5 years old) vehicles which achieve internationally recognised emission limits for NO_{x} .	Drilling contractor	Throughout drilling	Records of H2S personal
emissions on: On-site		Provide Project workers with personal exposure H2S monitors during the periods when drilling is taking place.			exposure monitoring
occupational receptors		Release of engine combustion emissions from sufficient height to allow proper dispersion.			Records of visual monitoring
Off-site		Engines used to power the drilling rig are required to meet best International practices such as the emissions guidelines included in the IFC EHS general guidelines.			Update log book Emergency
occupational		Use of low sulphur-content diesel fuel where feasible.			preparedness
receptors Off-site flora		Locate engines away from common working areas and on-site receptors to reduce exposure to emissions where practicable.			and response plan
and fauna		Ensure engines are modern and properly maintained through regular inspections.			
		Plan site layout – machinery and dust causing activities (e.g., access roads, stockpiles) should be located away from the site boundary and sensitive receptors where practicable.			
		Ensure mud and cutting stockpiles are kept for the shortest possible time.			
		Use water as a dust suppressant where applicable (e.g., using towed water bowsers with spreader bars) and ensure an adequate water supply.			
		Minimise amounts of material handling and avoid double handling.			
		Regular (bi-weekly) visual monitoring of dust episodes, soiling of vegetation, dust resuspension on the roads and dust clouds.			
		Maintained logbook: record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.			
		Resolve all dust issues identified through reinforcing the measures above.			
		Site emergency preparedness and response plan to be put in place for drilling activities at each drilling location to control the effects of well blowout, in the unlikely event that it occurs (and to be aligned with municipality emergency response plans).			
Minimise H ₂ S emissions on:	Well testing	Have a H_2S detector and CO_2 and CH_4 monitor for monitoring air emissions at all of the well pad installation sites.	Well testing contractor	During well testing	Monitoring reports of
On-site occupational		Provide Project workers with personal exposure H2S monitors during the periods when well testing is taking place.		-	ambient monitoring from
receptors		During each well test, collect data on steam volume, temperature, NCG and other pollutant levels.			well testing

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Off-site occupational receptors Off-site flora and fauna		Release of steam via a silencer/rock muffler Provision of facility emergency response teams, and workers in locations with high risk of exposure with personal H ₂ S monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use. Provision of adequate ventilation of occupied buildings and rig spaces to avoid accumulation of H ₂ S and CO ₂ . Provide workers with a fact sheet or other readily available information about the chemical composition of H ₂ S with an explanation of potential implications for human health and safety. Site emergency preparedness and response plan to be put in place for drilling activities at each drilling location to control the effects of well blowout, in the unlikely event that it occurs (and to be aligned with municipality emergency response plans). Disclose the emergency response plan to relevant receptors (farm workers at both Site C and F and the nearby village at Site F).			Records of H2S personal exposure monitoring Records of well test data Evidence of workers being issued with factsheet Emergency preparedness and response plan Records of disclosure of emergency response plan to relevant receptors

Table 5.4: Surface and groundwater management including water quality

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI	
Minimise impacts on: surface water	Surface water abstraction		Drilling contractor	Site establishment.	Site inspection records	
flow and level		water needs, during the construction and operational phases. This shall	oonnaoto.	drilling and	Flow monitoring	
		be submitted to the regulator (NAWASA) for approval, prior to extraction of any water. The minimum flow shall be set by the regulator as requirement of the project an abstraction licence.		well testing	Abstraction licence requirements met	
Minimise impacts on catchment	Site clearance and changes to local drainage regime		W2: If possible, undertake construction work during the dry season and prepare a flood risk management plan, detailing:	Drilling contractor	Site establishment,	Site inspection records
flood risk		 standard precautions to minimise flood risk at construction and operational sites; 		drilling and well testing	Permit requirements met	
		 emergency procedures to be implemented should flooding of the construction or operational sites occur or be anticipated. 				

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI
Minimise impacts on: surface water and groundwater	Well construction	W3: Prepare (as part of the Waste and Materials Management Plan (WMMP) detailed in Table 5.8), and implement, a drilling mud and cuttings management plan, which details:	Drilling contractor	Drilling and well testing	Site inspection records Water quality
quality		 procedures for monitoring and the available capacity of storage ponds / areas; 			monitoring Waste testing results
		 measures to prevent uncontrolled releases; 			Permit requirements
		 laboratory test requirements for hazardous substances, to confirm the suitability of material for re-use or disposal; 			met
		 procedures to follow in the event of accidental release of geothermal fluids or drilling mud, to contain the release and notify relevant parties; and 			
		• an emergency remediation procedure for large spills or releases.			
Minimise impacts on: surface water and groundwater	All activities with potential to pollute the water environment (i.e.,	W4: Prepare and implement a water quality management plan, to ensure that best measures to protect surface water and groundwater quality, and manage storm runoff, are adhered to. This should include:	Drilling contractor	Site establishment, drilling and well testing, decommissioni ng	Site inspection records Water quality monitoring Flow monitoring
quality	construction, well drilling and testing, and decommissioning)	 positioning site compounds and laydown areas away from sensitive water features; 			
		 refuelling and maintenance of vehicles and equipment in designated bunded areas and off-site where feasible; 			
		 use of drip trays, bunded storage, and spill kits on site, to minimise the potential for releases and spills of oils/solvents/hydrocarbons etc; 			
		 no direct discharges to surface watercourses; 			
		 undertake site stripping during the dry season, if possible; 			
		 use of silt traps and other measures to control silt laden run off from sites, especially during the rainy season; 			
		 use cross-drainage structures where building new roads to avoid altering drainage paths or damming waters and causing flooding; 			
		 ensure that adequate stormwater containment and settlement areas are provided; and 			
		 procedures to prevent the release of residual fluids during decommissioning of tanks, pipelines, etc. 			
Prevent any increase in catchment flood risk	Road drainage design	W5: Ensure that all permanent drainage systems are designed in line with technical norms and to take account of future climate variability; and, to ensure that existing flood risk is not exacerbated and is reduced, if possible.	Contractor	Site establishment	Review of design ar site inspection by relevant authority

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI	
Minimise impacts on: surface water flow and level, surface water and	All activities with potential to pollute the water environment or affect groundwater flow	W6: Prepare and implement a comprehensive surface water and groundwater monitoring plan, to enable the early detection of any adverse effects on water quality, water level or flow rates; and demonstrate that other mitigation measures have been effective.	Contractor	Site establishment, drilling and well testing,	Site inspection records Water quality monitoring	
groundwater quality, level and spring discharge	pathways (i.e. construction, well drilling and testing, and	 The plan should stipulate trigger levels for key indicator parameters (for water quality and minimum environmental flow) and, the actions to be taken (and by whom) should they be breached; 		decommissioni ng	Flow monitoring	
	decommissioning)	• The plan should be submitted to the relevant authorities for approval prior to implementation;				
		 Monitoring should begin prior to commencement of any construction works, in order to provide baseline data at the chosen monitoring locations; 				
		• All chemical analysis must be undertaken at an accredited lab and all results / data are to be submitted to the relevant authorities within 15 days of receipt by the contractor; and				
		• The relevant authorities are to be notified 5 days in advance of taking the samples, so that they may accompany these surveys.				
Prevent any increase in flood risk locally to Site C	Site C pumping station design	W7: Flood risk assessment to confirm the level of risk presented by construction of the Site C pumping station within the floodplain, and to inform the design of compensatory flood storage or local flood protection measures, if required.	GoG designer	Pre- construction	Flood risk assessment report	
Minimise impacts on: groundwater quality,	Well construction	W8: Use of conductor casing to protect groundwater quality during early stages of drilling. Final depth to be informed by a groundwater risk assessment informed by geotechnical investigation, prior to construction phase.	Drilling contractor	Pre- construction (ground investigation) and drilling	Well design drawings Groundwater risk assessment report Daily site reports	
Compensate for significant impacts on: groundwater quality, level and spring discharge (should these not be mitigated by other means)	Well construction and testing	W9: Provide an alternative source of groundwater in the event of significantly decreased spring flow following well construction and testing. This will include a hydrogeological investigation to identify a suitable source of groundwater, followed by construction of new spring collection tank / borehole, pipework, pump etc.	GoG	Decommission ing phase	Water quality monitoring Flow monitoring	

Objective	Activity	Action	Responsibility	Timescales	Monitoring / KPI
Minimise impacts on: groundwater quality, level and spring discharge local to Site C	All activities with potential to pollute the water environment or affect groundwater flow pathways at Site C (i.e. construction, well drilling and testing, and decommissioning)	W10: Site C hydrogeological study and additional baseline monitoring, to address data gaps and inform a more robust assessment of the risks to identified groundwater receptors.	GoG	Final ESIA	Site C Hydrogeological study report ESIA Addendum report

Table 5.5: Noise management

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Avoid nuisance	Site establishment	The contractor will prepare a site specific noise control plan It should include the following general methods of noise control:	Contractors	Throughout Site Establishment	Site inspection records
generated by daytime works		 The selection of low noise plant and equipment using equipment with lower comparative sound power levels where possible; 			Noise monitoring reports
affecting closest sensitive		• Plant and equipment to be examined on a daily basis for defects prior to the start of works and under no circumstances should defective equipment be used;			
receptors up to		 Avoid unnecessary revving of engines; 			
500m		Equipment to be switched off when not in use;			
		 Noisy activities to be limited to daytime working hours where possible; 			
		 Plant and equipment to be positioned as far as possible from sensitive areas; 			
		 Location of static plant (e.g., generators) to take advantage of any screening to break the line of sight from receptors; 			
		 Site operatives to be briefed on keeping noise to a minimum; and 			
		 Identify and implement appropriate Personal Protective Equipment (PPE) requirements. 			
	Construction traffic	Limit vehicle speeds on site and access roads where they are close proximity to dwellings.	Contractors	Throughout the construction	Site inspection records
		Traffic should be managed to avoid the need for traffic to queue up.		phase	Noise monitoring
		Schedule timing of deliveries to avoid disturbance at the two residential receptors.			reports
		Maintain access roads to minimise discontinuities in the road surfaces which may give rise to vehicle body noise and rattle.			

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Avoid noise nuisance from day and night affecting closest sensitive receptors	Drilling Well testing	 Place barriers or shrouds close to the main sources of noise of the drilling rig and the testing equipment to limit the spread of noise. Prioritising quiet equipment in the selection process. Informing nearby dwellings on the timing and duration of works and when the noisiest stages are likely to occur. Display warning signs about high noise levels around the well pad site boundary. Provision of hearing protection to those working within 250m of all drilling and well testing sites. Spot check monitoring at commencement of activities at well pad using sound level meter at the nearest residential properties/sensitive receptor for comparison against standards. Record and investigate complaints using sound level meter via the community grievance mechanism. 	Contractors Drilling contractor and other contractors	Throughout drilling and well testing Monitoring upon complaints via community grievance mechanism	Noise monitoring reports Community grievance mechanism (showing resolution of any noise complaints)
		Identify and implement appropriate PPE requirements.			

Table 5.6: Landscape and visual management

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise adverse impacts on viewsheds and landscape character	Site establishment	 Keep construction traffic to a minimum especially near the well pad where two residential receptors are noted. Implement good housekeeping practices including stockpile areas and dust suppression measures. Set out a material management plan to minimise the number of vehicle movements required. Careful locating of construction compounds. Proper storage of topsoil. Extent of all disturbed areas to be restricted as far as practicable. Installations to be constructed with sustainable materials, materials to reduce the visual impact and material that enhance the aesthetics of the project area. 	Site clearance contractor Drilling contractor Well testing contractor	Mitigation ongoing throughout site establishment	Site inspection records
Minimise adverse impacts on viewsheds and	Drilling Well testing	Implement good housekeeping practices to maintain the appearance of the site.	Drilling contractor Well testing contractor	Mitigation ongoing throughout drilling and well testing	Site inspection records

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
landscape					

character

Table 5.7: Traffic and transport management

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise road hazards, congestion and damage to road infrastructure	Site establishmen t Drilling Well testing	 Contractors to develop a transport management plan (TMP) and implement Adoption of best transport safety practices across all aspects of Project operations with the goal of preventing traffic accidents and minimising injuries suffered by Project personnel and the public. Measures should include: Emphasising safety aspects among drivers; Requiring licensing of drivers; Adopting limits for trip duration and arranging driver rosters to avoid overtiredness; Avoiding potentially hazardous routes and times of day to reduce risk of accidents; and Regular maintenance of vehicles and use of manufacturer approved parts to minimise potentially serious accidents caused by equipment malfunction or premature failure. During upgrading of road network the following measures should be implemented: Minimising pedestrian interaction with construction vehicles; Coordination with emergency responders to ensure that appropriate first aid is provided in the event of accidents; Using locally sourced materials, whenever possible, to minimise transport distances; Locating secondary project components such as worker accommodation close to project sites and arranging worker bus transport to minimising external traffic; and Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions. 5.3.2Ministry of Climate Resilience, The Environment and Renewable Energy to review contractors' EHS Plan to ensure continuity with EHS requirements (including commitment to this ESMP and implementation of a Traffic Management Plan 5.3.2). Ministry of Infrastructure & Physical Development, Public Utilities, Civil Aviation and Transportation to review contractors' traffic management plan as part of audit programme. 	Contractors MCRERE Ministry of Infrastructure & Physical Development, Public Utilities, Civil Aviation and Transportation	Throughout project life	Site inspection records EHS statistics and incident reporting relating to traffic incidents

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
		Reporting of accidents and statistics by contractor to Ministry of Climate Resilience, the			
		Environment and Renewable Energy ESHS unit.			
		In the case of a road/traffic accident, the national police should be immediately contacted.			

Table 5.8: Land contamination, materials and waste management

Objective	Activity	Action	Responsibilit y	Timescale	Monitoring / KPI
Reduce the use of raw materials/ potentially finite and or scarce resources	Site establishmen t Drilling	Re-using materials on site wherever possible, with most significant opportunity of which is with respect to excavated materials. Implementing good housekeeping and operating practices, including inventory control to reduce the amount of waste resulting from materials that are out-of-date, off-specification, contaminated, damaged, or excess to plant needs. Implementing procurement measures that recognise opportunities such as ordering the correct amount of materials to be delivered when needed, reducing the amount of packaging used by suppliers and establishing a take back system with suppliers. Seeking ways to reduce raw material consumption. Substituting raw materials or inputs with less hazardous or toxic materials wherever economically and technically feasible.	Contractors	Mitigation ongoing throughout site establishment and drilling	N/A
Appropriate spoil handling and disposal	Site establishmen t	Topsoil and overburden will be carefully removed from each of the proposed spoil disposal sites and stockpiled nearby for eventual use as rehabilitation material once the spoil disposal sites are no longer required. Organic topsoil (superficial layers) may be used for reforestation activities to exploit its potential.	Contractors	During site establishment and excavations	Site inspection records
Minimisation, safe handling, storage and disposal of waste	Site establishmen t Drilling Well testing	 General waste management: Contractor to develop and implement a detailed waste management plan (WMP); Waste management planning: identify and characterise the source of all waste streams from the Project with the proposed final disposal option; Recycling and reuse: waste reuse and recycling opportunities to be identified including investigations into suitable facilities that can process such waste streams to be explored; and Treatment and disposal: where re-use or recycling is not feasible or possible, appropriate treatment and/or final disposal options are to be identified for all waste streams, including confirmation that facilities/sites can accept the proposed waste stream(s). 	Site clearance contractor Drilling contractor Well testing contractor	Throughout project life	Waste monitoring/ tracking records Site inspection records Periodic waste audits (at least two audits during the contracted scope)

Objective	Activity	Action	Responsibilit y	Timescale	Monitoring / KPI
		Hazardous waste management:			
		 Waste storage: temporary waste storage to be fully identified and designed according to GIIP; 			
		• Transportation: all waste containers designated for off-site shipment to be secured and appropriately labelled with loading overseen by competent and trained employees from an external contractor properly authorised by GoG to do this transportation;			
		 Treatment and disposal: where re-use of recycling is not feasible or possible, appropriate treatment and/or final disposal options to be identified for all waste streams, including those considered to be hazardous, by a company authorised by GoG for this activity; and 			
		 Liquid wastes/oil/chemicals to be stored in tanks or drums located in bunded areas which can hold 110% of the total storage volume and in accordance with national safety requirements. 			
		Monitoring: procedures for waste tracking to be developed.			
		 All waste material arising to be segregated into non-hazardous and hazardous wastes for consideration for re-use, recycling, or disposal; and 			
		• All skips/waste storage to be suitably covered (to avoid dispersion of light materials by wind or filling of skip with rain) and waterproofing to avoid any soil contamination from leachate.			
Prevention of leaks, spills	Site establishmen	Development of an emergency response plan / pollution incident control plan (contingency plan).	Site clearance contractor	Mitigation ongoing throughout site	Records of emergency
and environmental	t Drilling	Establish procedure for reporting any environmental incidents related to spills / leakages and how to deal with any spills / leakages.	Drilling contractor	establishment and drilling	drills Site inspection
incidents	Well testing	Identify and implement appropriate Personal Protective Equipment (PPE) requirements.	Well testing		records
		Provide specialist training in appropriate procedures to persons with hazardous materials or waste management responsibilities.	contractor		
		Maintain an inventory of hazardous materials and specific procedures/ controls.			
		Maintain available copies on site of Material Safety Data Sheets (MSDS) for all hazardous substances used during the Project.			
		Provide copies of all MSDS for all hazardous substances used during the Project to GoG as part of submission of the detailed environmental management plan(s)			
		Waste and hazardous materials storage areas to be:			
		Located away from existing sensitive receptors.			

Objective	Activity	Action	Responsibilit y	Timescale	Monitoring / KPI
		Not at risk from theft or vandalism. Easily accessible in a safe manner. Well ventilated. Unlikely to be damaged. Waterproofed floor. Fire extinguisher to be available at all times. Located next to any required PPE (as necessary for irritants and hazardous materials). Spill kits to be available at all times			
Appropriate choice of final waste disposal option	Site establishmen t Drilling Well testing	Identify waste handling facilities in close proximity to the Project to accept/ treat waste. Review the locally available re-use/recycling facilities to ensure they can accept the waste streams.	Site clearance contractor Drilling contractor Well testing contractor	Mitigation ongoing throughout site establishment and drilling.	Periodic waste audits (at least two audits during the contracted scope)
To protect land and soil from contamination from drilling mud and cutting and other potential hazardous wastes	Collection, storage and transport of drilling muds and cuttings	Use of water-based drill muds and recycling of drill muds. Storage of muds in lined ponds and of cuttings in dedicated areas. Regular removal of muds from settling ponds for re-injection into total loss wells where available or storage and subsequent treatment of muds as relevant waste category as determined by Grenada regulations.	Site clearance contractor Drilling contractor Well testing contractor	Mitigation ongoing throughout site establishment and drilling.	Periodic waste audits (at least two audits during the contracted scope)

Table 5.9: Social and cultural heritage management

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
Safeguard the well-being and at minimum replace the living standards of those whose who's land is acquired	Land acquisition (temporary and permanent)	Implement the livelihood restoration policy framework (LRF, Volume IV of this ESIA) Prepare and implement a livelihood restoration plan (LRP) based on the LRF	MCRERE	As needed	Monitoring requirements will include: • Regular internal monitoring reports

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
involuntarily or will lose temporary access to means of livelihoods					 based on LRP Audit compliance with LRP Livelihood restoration completion report
Fair labour management and working conditions	Worker employment	 Develop Project commitment to uphold labour rights and to prevent use of child and forced labour (that contractors will be required to adhere to through contract clauses). Labour commitment to include the following requirements: all workers to have a contract detailing working terms and conditions; and implement recruitment based on non-discrimination and equal opportunity principles Develop and implement a worker code of conduct. Develop and implement measures to increase women's participation within the workforce during construction and operations, and to protect women working within the project. Use gender neutral terms in official communications (including reporting of person hour time use). Develop and implement a workers' grievance procedure, which includes specific measures for addressing grievances related to gender-based violence and sexual harassment. Undertake a primary supply chain¹ analysis to identify any risks related to use of child or forced labour and unacceptable OHS conditions. Contractors to align their human resource (HR) plans and procedures with the project labour commitment and other HR documentation. 	Contractors Ministry of Legal Affairs, Labour and Consumer Affairs	Throughout project duration	Periodic labour compliance monitoring of contractors and subcontractors Training records demonstrating workers awareness of their labour rights and use of the grievance mechanism Supply chain analysis report
Local employment and	worker employment	Develop recruitment and local content strategy including:	MCRERE / contractors	Throughout project duration	Periodic monitoring of compliance with the recruitment

¹ As per IFC PS2, "Primary suppliers are those suppliers who, on an ongoing basis, provide goods or materials essential for the core business processes of the project."

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
procurement benefits		 Disclosing (i) required positions and skills/experience and (ii) procurement needs within local communities in advance through appropriate mechanisms (for instance CLO and community representatives); 			and local content strategy
		 recruitment procedure including justification, job description, advertising, selection (shortlisting, interviewing, skills assessment, reference), appointment, feedback; and 			
		 local procurement procedure including ways to facilitate local and national companies to tender for goods and services contracts. 			
		Prohibiting "at-the-gate" hiring.			
Provide minimum standards for off-site worker accommodatio	Temporary worker accommoda tion	Non-local worker accommodation will be provided as rental accommodation in local towns. Minimum applicable international standards to be provided based on benchmarks the requirements set out in the guidance note by IFC and EBRD on workers' accommodation: processes and standards (2009) ² and to be adopted by appointed contractors responsible for providing worker's accommodation. In particular, the provision of accommodation will meet international good practice in relation, but not restricted, to the following:	Contractors	Throughout Project life	Monitoring requirements will comprise pre- inspection and rectification of any issues identified before workers move in.
		Practice for charging for accommodation;			
		Provision of minimum amounts of space for each worker;			
		 Provision of sanitary, laundry and cooking facilities and potable water; Leastion of economical tion in relation to the work place. 			
		Location of accommodation in relation to the workplace;Any health, fire, safety or other hazards or disturbances and local facilities;			
		 Provision of first aid and medical facilities; and 			
		 Ventilation. 			
		Disclosure of the Workers' Code of Conduct.			
		Display of labour grievance mechanism within accommodation.			
Gender mainstreaming	All project activities	Develop a gender strategy to encourage women to access the benefits of the Project. The strategy will be developed in line with IFC PS1, 2 and 5 and should:		Throughout Project life	Labour profile to include gender
		 implement a gender mainstreaming component in project related plans and programs, especially the livelihood restoration plan (LRP); 			disaggregated information
		 Suggest practical and measurable gender actions and targets to be achieved as a result of the Project; 			

² Good Practice Handbook workers' accommodation: processes and standards (2009) available at: <u>https://www.ifc.org/en/insights-reports/2000/publications-gpn-workersaccommodation</u>. Accessed in August 2023.

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI	
		Gender components of the livelihood restoration activities should include:				
		• Offer and promote option for compensation to be paid to women rather than the male head of household only especially where the compensation is regarding female farmed crops.				
Prevention of adverse	In-migration of project	Hire local labour where possible from within the direct Aol.	Contractors	Throughout Project life	Monitoring of recruitment plan	
impacts on local	workers	Prohibit contractors from hiring staff at site. Require main contractors to organise a short campaign on HIV/AIDS, STIs, or other important medical health issue.		Flojectine	recruitment plan	
communities		Workers to sign the code of conduct.				
Provide	Education	Prepare a training plan to address:	GoG CLO	Project life	Monitoring of	
workforce training and	awareness and training	 Awareness to be sensitive to general enviro 	• Awareness to be sensitive to general environmental impacts of the Project as well as the environmental impact of specific tasks	Contractors		training plan
development		Prohibition of hunting				
		Knowledge to guide implementation of environmental management procedures				
Safeguarding personnel, property and the risks from	Security managemen t plan	Contractors to prepare and implement a security management plan in compliance with IFC PS4 and the IFC Good Practice Handbook on the Use of Security Forces ³ for all active sites prior to mobilisation of works. The plan will be based on a risks assessment and the results of the human rights impact assessment (Chapter 7, Volume II):	Contractors	Throughout Project life	Site inspection records	
presence of a		 Identify the types of security issues the Project must defend against; 				
security force		 Indicate how security personnel will be contracted and managed (e.g., contractor employed); 				
		 Identify a procedure compliant with IFC PS4 for vetting and recruiting security personnel; 				
		• Define training requirements for security personnel ⁴ ;				
		• Elaborate use of force and code of conduct policies for security personnel; and				

³ Good Practice Handbook on the Use of Security Forces: Assessing and Managing Risks and Impacts, 2017. Available at: <u>https://www.ifc.org/en/insights-reports/2017/publications-handbook-securityforces</u>. Accessed in July 2023.

⁴ Training should address requirements related to security personnel included in the United Nation's Code of Conduct for Law Enforcement Officials, and the United Nation's Basic Principles on the Use of Force and Firearms by Law Enforcement Officials.

Objective	Activity	Action	Responsibility	Timescale	Monitoring / KPI
		• Describe access and control equipment and procedures (for instance signage, gates and fencing, lighting, any surveillance, patrols, alarms, visitor arrivals, etc.). Describe investigation and reporting procedures.			
Positive stakeholder relationships	Coordinate and stakeholder engagement	Implement the SEP	GoG CLO	Throughout Project duration	Monitoring of SEP
Reduce risk of site clearance activities encountering significant archaeological site	Pre- site establishme nt	Consult with the Grenada National Trust to confirm the potential for archaeological finds.	GoG	Prior to site establishment	Communication from the Grenada National Trust
Manage potential unexpected discovery of archaeological remains/ artefacts	Site establishme nt and drilling	 Develop and implement chance find procedure that includes the following requirements: Immediately stop work; Notify nominated person on site; Contact relevant cultural authorities; Implement recommendations in accordance with requirements; and Resume works under the supervision of the relevant cultural authorities 	GoG	Prior to and during site establishment and drilling	Chance find reports and notifications to relevant cultural authorities
Table 5.10: Ecological management

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
Avoid and minimise terrestrial habitat loss and	Project siting and design	All Project components will be located outside of all legally / nationally protected and internationally recognised area boundaries. Construction will be limited in size as much as possible.	GoG Jacobs	Up to one week before site works commence	Design plans No habitat loss outside the project boundary
degradation		Upgrading existing roads will be prioritised over the construction of new ones. In addition, when construction of new roads is unavoidable, disturbed areas (e.g., old and/or unused agricultural lands) will be prioritised over ecologically intact areas.			
		The layout of the Project site will be designed to reduce working widths within sensitive habitats (including forests and waterbodies) to avoid or minimise loss of habitat that is of significance to species of conservation significance, where possible.			
		Areas will be assigned for stockpiles of materials and excavated waste away from sensitive habitats (including forests and water bodies).			
		Appoint an independent consultant to prepare the following biodiversity plans on behalf of GoG:			
		 Construction and Operation Ecological Management Plans (CEMP and OEMP) 			
		 Habitat Removal and Restoration Plan (HRRP) 			
		 Wildlife Rescue and Relocation Plan (WRRP) 			
		 Invasive Species Management Plan (ISMP) 			
	Construction activities	Work within defined construction working areas, prohibiting off road driving.	Contractor Independent consultant	Throughout construction	Monitoring of HRRP Monitoring of biodiversity plans

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
		Keep clearings associated with construction in as small a footprint as possible to reduce habitat loss and degradation.			No habitat loss outside the project boundary
		Areas to be cleared will be pre-identified to avoid accidental or excessive removal of vegetation and avoid or reduce impacts on other plants.			
		Identify location and abundance of high sensitivity flora and avoid removal where possible. Minimise impacts through translocation or planting (restoration).			
		Undertake translocation of any fauna individuals encountered within the working areas (such as the Grenada frog)			
		Implement biodiversity plans			
	Environmental pollution	Make spill kits available to ensure that any fuel or oil spills are cleaned up and discarded correctly. Chemical spill clean-up kits must be stationed at all sites where spills are probable. Several staff should be trained in the chemical clean-up procedure and at least one member of this unit must be on duty at all times;	Contractor	Throughout construction	Monitoring of emergency response plan/pollution incident control plan (contingency plan) No pollution of terrestrial habitats
		 Establish appropriate stockpiling arrangements; 			
		 Undertake mechanical or manual clearing of vegetation. The use of herbicides to clear vegetation will be avoided where possible, to minimise environmental pollution impacts; and 			
		 Use drip trays and oil absorbents in areas where construction equipment is parked, hydrocarbon collection and separation systems according to industry best practice will be installed at required areas, and accidental hydrocarbon spills will be cleaned rapidly. 			

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
	Secondary habitat loss from encroachment and logging / fuelwood	Provide security in and around the Project site, to prevent the use of access roads for the exploitation of natural resources. Install barriers to control any new access created by the Project.	Contractor Contractor to sponsor and coordinate with local NGOs	Throughout construction	Monitoring of CEMP and OEMP No illegal logging No secondary habitat loss
		land use management plan.			
		Implement awareness raising and education for local communities through educational programmes.			
	Ensure invasive species are not introduced to the area	Appoint local botanist to monitor invasive species. Prevent the introduction of non-native and invasive species by using phytosanitary measures on arrival and departure of vehicles and personnel onto site – including all earth movement equipment, trucks, vehicles and equipment to be imported to be cleaned, disinfected and accompanied by a certificate that this has been done. Implementation of measures to control invasive species that are present within the Project area prior to construction (e.g., bamboo). This could involve cutting / mowing. Implementation of measures to eradicate alien species from Natural Habitats over which the GoG has management control. This could involve regular cutting/ mowing of the invasive plants (especially before flowering) or excavation and disposal (offsite) or burial (on- site). Raise awareness through staff inductions. Biosecurity measures to ensure appropriate removal and or management control of invasive species at the source. Include actions within the invasive species management plan to include monitoring for	Contractor	Construction and operation	Monitoring of biodiversity plans Monitoring of invasive species management plan No introduction or spread of alien and invasive species

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
		 eradication and control measures for invasive species: Control regrowth of bamboo and bois canot around the Project components through means such as: Regular mowing; and Application of herbicides based on an integrated pest management approach 			
	Vegetation restoration	Include habitat rehabilitation and restoration on all well pads that are unsuccessful and will not be used for production, as well as the sites affected temporarily by construction. This will allow species to safely navigate around the Project. The nature and areas of habitats to be restored on these sites will be determined following stakeholder consultation led by GoG. Where restoration of Natural Habitat is not possible on site (e.g. under the footprint of the permanent structures), similar habitat as those identified in the biodiversity impact assessment of this ESIA (Volume II, Chapter 8 ⁵) will be created off-site.	GoG with contractor implementation support	Immediately following completion of works	Monitoring of biodiversity plans Monitoring of HRRP Monitoring of restored sites Successful restoration of 100% of habitats lost during construction Species presence and abundance equivalent to baseline following reinstatement
Avoid and minimise aquatic habitat degradation	Environmental pollution	Correct storing and handling of chemicals to avoid water pollution incidents. Divert surface water flows. Undertake river rehabilitation following spill incident. If extensive spills have occurred, the area must be rehabilitated appropriately. This will require consultation with an ecologist specialised in the rehabilitation of polluted habitats. Conduct machinery and vehicle service off-site away from watercourses / drainage lines Optimize the flow regime and sediment dynamic.	Contractor	Throughout construction	Monitoring of biodiversity plans Monitoring as per emergency response plan/pollution incident control plan (contingency plan) No pollution of aquatic habitats

⁵ Refer to tables "Site C habitat loss" and "Site F habitat loss".

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
		A drainage system is to be incorporated into site design to collect surface runoff. Runoff from construction sites and excavation of tunnels should be treated before entering into the river.			
	Habitat restoration	Replanting of any lost aquatic or riparian vegetation with appropriate native species (or translocation of removed vegetation) to ensure any losses are temporary.	GoG with contractor implementation support	Immediately following completion of works	Monitoring of biodiversity plans Monitoring of restored sites Successful restoration of 100% of habitats lost during construction Species presence and abundance equivalent to baseline following reinstatement
	Flows and water levels	Maintain streamflow around weir. Monitor upstream and downstream of the weir, identifying fish migration, presence and abundance.	Contractor	Throughout construction and operation	Monitoring of biodiversity plans Successful maintenance of flows and water levels equivalent to baseline. No change in baseline of migratory fish upstream or downstream of the weir.
Avoid and minimise terrestrial wildlife disturbance	Project siting and design	Site construction facilities to be situated as far as possible from area boundaries. Natural land features (dips/hills) to be used to maximise screening between the facilities and the areas and to avoid noise impacts.	GoG Designers	Up to one week before site works commence	Site inspection records Design plans
	Workforce presence	Keep the workforce within defined site boundaries and agreed access routes where possible to avoid disturbance to wildlife. Water or dust control agents will be used in working areas and roads will be sprayed for dust suppression on a regular basis in designated susceptible areas during heavy usage. Provide environmental induction for all construction and operation staff members to	Contractor	Throughout construction and operation	Monitoring as per labour code of conduct Species presence and abundance equivalent to baseline following restoration

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
		address specific issues such as the potential of fire e.g., only smoking in designated areas, no open cooking fires etc.			
	Artificial lighting and noise	Select equipment with low noise emissions will be procured and blasting restricted to daylight hours.	Contractor	Throughout construction and operation	Monitoring as per noise management plan Species presence and
		Avoid noise from site facilities (if required) by implementing a noise policy.			abundance equivalent to baseline following restoration
		Minimise extraneous noise sources and use adequate noise attenuation on engines.			
		Reduce exterior lighting to minimum levels necessary for safe operation and implement strategies to reduce spill light. Use non-UV lights where possible, as light emitted at one wavelength has low levels of attraction to insects. This will reduce the likelihood of attracting insects and their predators.			
		Develop a "dark skies" policy to minimise light pollution at night. Lighting to be directed onto site infrastructure only during operation.			
	Hunting due to increased access	Provide security in and around the Project site, to prevent the use of access roads for the exploitetion of pature recourses	Contractor Contractor to sponsor and coordinate with	Throughout construction	Monitoring of CEMP and OEMP
		exploitation of natural resources. Install barriers to control any new access created by the Project.	local NGOs		Monitoring as per labour co of conduct
		Install signage illustrating the hunting ban on any species throughout the Project-controlled areas.			No hunting of species reported
		Feed construction staff adequately to avoid poaching.			
		Include support to prepare and/or implement land use management plan			
		Implement awareness raising and education for local communities through educational programmes.			
		Include hunting and poaching prohibition in the Workers Code of Conduct: Ban hunting, fishing			

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
		and poaching by construction and operation staff to reduce pressure on threatened and protected species in the Project areas and surroundings. Raise awareness through staff training.			
		Company policies and contractor agreements to have meaningful penalties for violations to these policies. Include any breaches in the hunting ban in the			
	Disturbance of wildlife within protected areas	regular reporting. Ensure construction does not encroach into protected areas. Follow GIIP, including sensitive working methods to reduce noise and light disturbance to these areas. Restrict blasting to daylight hours.	Contractor	Throughout construction	Monitoring of biodiversity plans Monitoring as per noise management plan No habitat loss or degradation within protected areas
	Disturbance to breeding birds	Undertake vegetation clearance outside of the main bird breeding period if possible (the main breeding season is March to August in Grenada). Where this is not possible, check areas for breeding birds prior to the clearance and if nesting birds are found, appropriate mitigation measures will be implemented. This may involve avoiding construction within 50m of the active nest until the chicks have fledged.	Contractor	Prior to and during construction (within 48h of clearance of each site)	Monitoring of biodiversity plans Monitoring as per HRRP Breeding bird presence and abundance equivalent to baseline following reinstatement
	Excavation works	Protect excavations and trenches. Monitor for any trapped wildlife.	Contractor	Throughout construction and operation During habitat restoration on site	Monitoring of biodiversity plans Monitoring as per WRRP No wildlife mortalities or injuries recorded due to entrapment
	Increased road usage	Install signs to highlight the risk of collision with animals. Introduce and enforce speed limits on all roads.	Contractor	Throughout construction and operation	Monitoring as per occupational health and safety management plan an traffic management plan

Objective	Activity	Action	Responsibility	Timescale	Monitoring/ KPI
				During habitat restoration on site	No road kill fatalities recorded
Avoid and minimise killing and injury of	Project siting and design	Design options that reduce fish mortality / injury within the intake pipe (such as inclusion of mesh screens between 30 – 75mm). Design a weir to maintain river water level.	GoG Designers	Up to one week before site works commence	Site inspection records Design plans
aquatic species	Fish populations	Undertake well managed native restocking with monitoring and expert oversight to minimise fish population fluctuations. Undertake appropriate management to avoid risk of accidental translocation of invasive fish and other aquatic species.	GoG	Throughout operation	Monitoring as per CEMP and OEMP Fish species presence and abundance equivalent to baseline following restocking

Table 5.11: Occupational health and safety management

Objective	Topic / Activity	Action	Responsibility	Timescales	Monitoring/ KPI
Stringent management of health and safety on site throughout construction, drilling and decommissioni ng to reduce the risks of accidents and illness to personnel	All project activities	 Implement an occupation health and safety plan aimed at preventing accidents, injuries and work-related diseases through the identification of the causes of physical, chemical, biological and radiological hazards and by prioritising hazard elimination, hazard control and hazard minimisation. Establish measures to prevent risk of accidents due to site traffic including developing procedures for safe driving on site, establishing rights of way, speed limits, vehicle inspection requirements, etc. Provide appropriate and legally required signage related to site hazards and risks. Implementation of temperature stress management procedures including shelters to allow shelter from the sun and rain. Ensure good housekeeping on site to prevent pooling of water and nesting of animals. Specific requirements for grounding and lightning rods to be included in technical specifications and in the routine monitoring of contractors' equipment and installations. Undertake control and quality assurance of drinking water. Liaise with emergency service providers regarding adequate provision of anti-snake-bite venom, first aid provision at work sites and how to deal with injured workers including transportation to nearest emergency units. 	Contractors	Prior to commencement of construction and throughout project duration	OHS plan/s to be submitted for review Regular reports No reported incidents and accidents resulting in serious or fatal illness/injury (Target Zero)

Objective	Topic / Activity	Action	Responsibility	Timescales	Monitoring/ KPI
		Use community grievance mechanism (in the SEP) for addressing any concerns related to security personnel.			
	Drilling activities	Drilling activities to be undertaken by qualified personnel and work shifts need to comply with national labour laws.	_		
	Education on health and safety	 Provide all workers with induction health and safety training prior to commencement of work. Include OHS issues in training plan. Hold toolbox talks on hygiene and sanitation. Use appropriate safety and security measures to minimise risk of electrocution or other harm. Address water and air vector health risks such as dengue and chikungunya. Hold awareness workshops with photos of venomous snakes and other poisonous animals that could be encountered in the Project area, directed to workers during site clearance works as well as operation (this activity should also seek prevention of unjustified killing of snakes and other poisonous animals). 	_		Minimal loss of workers' time from accidents and illness related to occupational activities
	Accident and emergency preparedness and response	 Develop accident and emergency preparedness and response plans and protocols and carry out procedure training and drills with workers and local health authorities on a regular basis. Consider provision of first aid facilities and trained personnel during all project phases (to be decided in consultation with emergency service providers). Provide induction and training on emergency evacuation procedures in the event of a natural hazard emergency (lightning/thunderstorms, forest fires) (to be aligned with municipality emergency evacuation and response plans if applicable). Consider need for a venom pump and doses of antivenom near to in health facilities on site and in AOI if applicable. Prior to civil works commencing, check that the telecommunication systems are working at site so emergency personnel can communicate between them and emergency service providers if needed 			Test warning systems annually and test fire alarms monthly Incident reporting Monthly EHS statistics Emergency preparedness and response plan
	Monitor health and safety performance on site	Initiate system for logging accidents/illness and check regularly.	-		Monthly EHS statistics Incident reporting Regular audits

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5.3 Supporting plans

The following supporting plans are relevant to this Project. A framework setting out minimum expectations for each plan is presented below for elaboration by the GoG and implementation by all contractors:

- Emergency response plan/ pollution incident control plan (contingency plan)
- Traffic management plan
- Waste and materials management plan
- Air quality management plan
- Human rights policy and labour commitment statement
- Recruitment and local content plan
- Worker code of conduct
- Labour grievance mechanism
- Occupational health and safety (OHS) plan
- Site security management plan
- Stakeholder engagement plan
- Community grievance mechanism
- Livelihood restoration plan
- Human rights policy
- Data security policy
- Ecological management plan
- Biodiversity action plan
- Chance finds procedure
- It is intended that these framework plans will be elaborated by the GoG and/or their contractors. Where relevant, under respective contracts, contractors will be required to implement corresponding arrangements (as directed within the ESMP).

The following separate social plans are also relevant to this project:

- Stakeholder engagement plan (SEP) including community grievance mechanism (Volume III of this ESIA) – to be implemented by GoG.
- Livelihood restoration policy framework (LRF) (Volume IV of this ESIA) to be implemented by GoG.

5.3.1 Emergency response plan / pollution incident control plan (contingency plan)

Emergency response procedures identify preventive actions and the methods and approaches for handling accidents/incidents, firefighting and safety response, well blowouts and high H2S monitoring concentrations, spill response, natural hazards, and other potentially hazardous, Project-specific activities. These plans will follow a standard format comprising of the following:

- Title
- Details of crisis management team
- List of contacts with external organisations e.g., relevant municipality emergency response team (names, address, telephone numbers) and individual responsibilities for making these contacts.
- List of individual responsibilities under the headings.
- Natural hazard risks applicable to the project area (forest fires, earthquakes, landslides, falling rocks; extreme weather events such as hurricanes, tropical waves, thunderstorms and

lightning strikes), medical emergencies, disease spread, mechanical failures, unplanned gas emissions, labour strikes, community protests and road blocks, and other relevant potential events.

- Preparation in the event of an accident, including evacuation plans, staff training, planned drills.
- Emergency supplies for water, electricity.
- Actions during the emergency (including well blow out, fire, severe weather, other situations).
- Actions in the event that monitored H2S concentrations are elevated for on and off site receptors.
- Actions after the emergency, including restoration, clean-up and remedial measures.
- Sources of necessary information and locations of the pollution control facilities.

Any environmental incidents must be dealt with rapidly and effectively. Spill kits will be readily available at all individual work-site locations where spills may occur e.g. in locations where fuels, oils and chemicals are stored and used, with additional quantities kept in the central laydown areas. Personnel will be trained to identify, report and deal with incidents, including clean-up of spills as part of the work induction programme. An incident reporting form will need to be completed whenever there is an incident that requires action. The National Authorities will also need to be informed.

In response to any major incident that has occurred, the contractor's site/project manager and environmental officer will be guided by their response plans and in conjunction with any Government of Grenada environmental, safety or disaster response guidelines and protocols for addressing the incident. It must also be understood that environmental concerns will in certain circumstances take sub-ordinate priority to the protection of human life and private property.

Effective protection of the environment in the event of an emergency will generally require immediate access to the following:

- Formal channels of communication with relevant external organisations
- Concise sources of technical information
- Well maintained and sufficient standby facilities for containment and treatment of pollution
- Adequate resources and well-trained staff

The contractor should submit a report detailing the preventive measures to be applied to protect and mitigate risk to relevant water resources in the case of a contamination event i.e. hydrocarbon spill.

Spill response / pollution control materials will be stored in a safe location on site in close proximity to the potentially hazardous activities or those where risks of spillages are high, such as equipment refuelling areas. This material is to be used to contain and clean up pollution / spills, and care will be taken to properly dispose of any absorbent materials. Contractors will keep stocks well maintained and replenished. For spill related incidents, spill response materials will include the following:

- Clean sand and oil absorbing material
- Sand bags
- Buckets and shovels
- Storage containers

Sand stocks will be dry and buckets and shovels readily available. Mechanical loading shovels, excavators and dump trucks may also be made available for sand distribution and clean up.

Storage containers for contaminated materials and earth will be bunded, located in the waste storage area, and labelled and treated as hazardous waste.

The Project emergency response plan should also align with any relevant national and local emergency response and risk identification plans.

The GoG should update the plan to address each potential risk referred to above and in the relevant national and municipality plans, and issue to all relevant GoG and contractor site managers.

The emergency response plan is to be submitted to the relevant authorities and community representatives.

5.3.2 Traffic management plan (TMP)

This subsection presents a framework of the TMP to be elaborated and implemented by any contractor. GoG will review and approve the TMP elaborated by contractors of the Project. Predefined access routes will be used by long, wide and/or heavy load vehicles. These routes will be agreed with the relevant authorities in advance and the police will be notified. A number of abnormal loads will be generated through Project activities associated with:

- Moving the drilling rig from one exploratory well to another within the Project area.
- Initial mobilisation / final demobilisation of drilling equipment along public roads outside of the Project area.

The following points will apply to general traffic within the Project site:

- General traffic within the Project site will not require the presence of an escort when travelling to and from work sites.
- Drivers shall be aware of route and contingency measures as pre-defined at induction stage.
- Drivers of heavy goods vehicle (HGV) are to be briefed in good road practice and will be instructed to pull over on narrow sections of road to allow build-up of traffic to pass.
- All general site traffic will run to coincide with site working hours (with the exception of drilling rig working hours, which are 24/7).
- Normal load heavy goods vehicles will use a defined route, which will need to be agreed prior to exploratory phase works for approaching site t main access road.
- Signage will be kept to a minimum, however temporary direction signs indicating work site entrance will be required.
- The detailed signing arrangement will be agreed between the appointed contractor in close liaison with the local municipality and the police service.
- Wherever possible, arrangements will be made for site workers to be transported to site via shared transport to minimise unnecessary traffic movements locally.
- Contractors will be required to implement induction procedures and regular updates for all drivers to establish and promote an overall culture of safety and awareness of other road users.
- Adoption of best transport safety practices across all aspects of Project operations with the goal of preventing traffic accidents and minimising injuries suffered by Project personnel and the public. Measures should include:
 - Emphasizing safety aspects among drivers
 - Improving driving skills and requiring licensing of drivers
 - Adopting limits for trip duration and arranging driver rosters to avoid overtiredness
 - Avoiding dangerous routes and times of day to reduce risk of accidents.

- Regular maintenance of vehicles and use of manufacturer approved parts to minimise potentially serious accidents caused by equipment malfunction or premature failure.
- Minimising pedestrian interaction with construction vehicles
- Coordination with emergency responders to ensure that appropriate first aid and transportation is provided in the event of accidents and emergency evacuations.
- Using locally sourced materials, whenever possible, to minimize transport distances.
- Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions.

5.3.3 Waste and materials management plan

This plan is to be implemented for each phase of the project by the contractor. Each plan is to be prepared in accordance with the national waste regulations and IFC General EHS Guidelines.

The plan must include the following key aspects, as well as mitigation measures and to include:

- Identify who is responsible for each key stage and inform individuals of their responsibilities. They will be required to hold sufficient authority to ensure compliance with the WMMP by other site operatives.
- Identify the types and quantities of waste all waste streams that will be produced during construction, operation and decommissioning require to be identified.
- Identify waste management options Where hazardous wastes are being generated, particular attention to the arrangements for identifying and managing such waste will need to be addressed and procedures put in place.
- Identify suitable waste management sites the location of waste management sites will need to be identified (through co-ordination with government), ideally the most local sites should be used to minimise transportation costs, provided they are appropriate. Use licensed waste disposal contractors that comply with the environmental legislative requirements of the local and national area.
- Training all staff must be trained to ensure they understand the requirements of the WMMP.
- Plan using the steps above, establish indicative percentages of the waste quantities to be produced over the life span of the Project.
- Measure the quantities of wastes produced should be recorded on monthly basis, and where possible measures taken to re-use, reduce or recycle waste as appropriate.
- Monitor throughout the Project life cycle, waste management on site should be monitored, to ensure compliance with the WMMP.
- Hazardous Classes hazardous wastes should be classified and treated according to national requirements.

5.3.4 Air quality management plan

This plan is to be implemented and complied with by all contractors, and to include:

- Implement the requirements of the emergency response plan / pollution incident control plan (contingency plan).
- Implement appropriate mitigations for dust suppression.
- Use of modern (less than five years old) vehicles to minimise emissions.
- Ensuring that the engines of all vehicles and equipment on site are not left running unnecessarily.

- Release of generator combustion emissions from sufficient height to allow proper dispersion.
- Use of low sulphur-content diesel fuel where feasible.
- Locate generators away from common working areas and on-site receptors to reduce exposure to emissions where practicable.
- Ensure equipment is modern and properly maintained through regular site inspections.

5.3.5 Human resources policy and procedures

The Project needs to ensure its policy and procedural consistency with international standards related to workers' rights. To avoid inappropriate and unfair employment conditions, all contractors are required to be familiar and to comply with the labour codes of Grenada, IFC PS2 and the Project Workers' code of conduct (Section 5.3.7) which will be adhered to by all contractors and subcontractors.

The HR Policy and its associated procedures will require as a minimum:

- Project workers with contract of employment
- Job descriptions for all roles.
- Observe statutory requirements relating to minimum age for employment of children and meet international standards of not employing any persons under the age of 16 for general work and no persons under the age of 18 for work involving hazardous activities.
- Ensure acceptable conditions of work including by observing national statutory requirements related to minimum wages and hours of work.
- Meet international standards related to paying all wages, including bonuses and premium pay for overtime work, to all employees in a timely fashion and in a manner consistent with ILO Convention 95. There should be clearly benchmarked payment schedules in the contractors' contracts.
- Commit to not taking any action to prevent employees from exercising their right of association and their right to organise and bargain collectively.
- Ensure no workers are charged fees to gain employment on the Project.
- Ensure rigorous standards for occupational health and safety are in place.
- Base employment decisions on principles of non-discrimination and equal opportunity, in particular fair and equal pay, especially for women carrying out the same work as men.
- Establish a labour grievance mechanism and document its use for labour complaints without reprisal.
- Minimum standards for off-site temporary worker accommodation if applicable.⁶
- HR files and systems with: applications showing non-discrimination and equal opportunity; signed contracts with working conditions and benefits defined; leave requests; timekeeping records; payment records; other relevant information.

In addition to the above commitments, the contractor will be required to:

 Produce job descriptions and provide written contracts and other information that outline the working conditions and terms of employment, including the full range of benefits⁷.

⁶ Aligning with benchmarks in the IFC/EBRD guidance note Workers' Accommodation: Processes and Standards (August 31, 2009)

⁷ Benefits might include life insurance, health care, disability/invalidity coverage, maternity/paternity leave, retirement provision, redundancy payments over and above legal minimum, lay-off pay, extra employment injury benefit, survivors' benefits, extra paid holiday entitlement, compassionate leave, reimbursement for flights home, payment of children's education, employee education needs, and in kind benefits such as sports or child day care facilities, meals, transportation provision and others.

- Raise awareness prior to recruitment, clarifying the local hire policy and procedures, including identification of opportunities for women to participate in employment and training.
- Report regularly on the labour force profile, including gender, and location source of workers.
- Report regularly on labour and working conditions key performance indicators, for instance hours worked (regular and overtime) during period and cumulatively, hours lost, number and type of accidents, near misses, site audits and meetings, trainings, use of labour grievance mechanism, etc.
- Hold toolbox talks on workers' rights and the labour grievance mechanism during each project phase.
- Hold regular briefings and take preventative measures about health issues.
- Organise a training program and keep training registers for workers.
- Provide all local workers with a summary declaration of their employment service and training activities at the end of contract as a means to finding continued employment.
- Establish occupational health and safety procedures in the overall environmental management system which provide workers with a safe and healthy work environment taking into account any inherent risks for this type of project.

The contractor and sub-contractors are required to ensure that execution of their activities on the Project meets international standards related to labour and working conditions. In particular, overtime arrangements and the timely payment of wages will be addressed.

5.3.6 Recruitment and local content strategy

In order to create more employment opportunities for local people, the Ministry of Climate Resilience, the Environment and Renewable Energy will develop and implement a recruitment and local content plan in accordance with national legislation, IFC PS2 (Labour and Working Conditions) and will align with the Project's HR Policy (to be developed by the Contractor). The recruitment and local content plan will include but not be limited to the following:

- Policy statement of all contractors' commitments to meeting Grenada's Laws and good international industry practice with regards to recruitment and labour management including non-discrimination and equal opportunities.
- A clear definition of what is meant by the term "local"⁸.
- Description of the types of employment opportunities to be provided to local people at each project phase including skills levels, indicative timeframes of recruitment and likely duration of contracts.
- Description of the local recruitment processes including timely (at least one month prior to recruitment) disclosure of information about vacancies through community meetings as well as the job application procedures for candidates
- Information about how job opportunities are advertised equitably between the different villages in the assessment area to ensure equal opportunities for all local people subject to appropriate skills availability.

The Ministry of Climate Resilience, the Environment and Renewable Energy ESHS unit in collaboration with the Contractor will also develop a local content strategy that includes procurement measures that help promote small and medium local enterprises based on the needs of the project. Options for the strategy could include unbundling procurement requests into smaller work packages; providing longer deadlines to assist small and medium enterprise response; waiving or lowering performance bond requirements for local companies setting aside

⁸ For this Project, it is recommended that local be defined as the villages and towns in the Parishes of St John (Site F) and St Patrick (Site C)

contracts or specific work packages that are only directed to local companies; and requesting tenders in local currency.

Information will be provided to local community and businesses representatives for local SMEs and interested parties to register their capabilities or get more information on prequalification activities and analysis of which products and services can best be addressed by local and national companies. GoG CLO to disclose the recruitment and local content strategy document in the two parishes (St John (Site F) and St Patrick (Site C)) to promote transparency in the recruitment process.

Monitoring and KPIs of the plan are as follows:

- Percentage of local and national workers.
- Percentage of local and national procurement contracts awarded.

Monitoring requirements of the local content strategy include provision of quarterly reports on construction contracts let with relevant data such as analysis of country of origin of company, size of contract, type of service, one off or routine.

5.3.7 Worker code of conduct

Code of conduct applicable to workers on the project will conform to the requirements established by the Ministry of Legal Affairs, Labour and Consumer Affairs, and the Project's contractors will be responsible to ensure compliance as necessary.

Climate Resilience, the Environment and Renewable Energy ESHS Unit will establish a code of conduct for the labour force. The code will cover the following and all workers will be required to sign onto this code of conduct (Ministry of Climate Resilience, the Environment and Renewable Energy ESHS Unit and all contractors).

- Proper use of personal protective equipment (PPE) and other work equipment that has been provided.
- No hunting, poaching or illicit use of local natural resources.
- Careful use of local natural resources and Project resources, especially water, fuel, fuelwood and electricity.
- Discreet sexual behaviour that takes into consideration messages about HIV/AIDs and sexually transmitted diseases, and local laws and regulations governing this
- No involvement in human trafficking.
- Restrictions related to consumption of alcohol and drugs.
- Prohibition of firearms on site (with the exclusion of site security personnel).
- Safe driving practices.
- Respect for the local community and its cultural norms in which labourers are working.
- Professional behaviour and integrity when dealing with the public.

5.3.8 Labour grievance mechanism

The Main Contractor will develop a labour grievance mechanism for the project in line with IFC PS2 which subcontractors will adopt for their workers or will be required to set up their own grievace mechanisms. The mechanism will include the following:

- A policy statement that grievances can be raised by any worker without fear of reprisals.
- Response times for grievances categorised according to the severity of the grievance or the issue in question.
- A process for logging grievances and when and how they are closed out.

- A process for monitoring grievances to identify repeat or unresolved grievances and reporting these issues to senior management in order to expedite remedial action.
- which includes specific measures for addressing grievances related to gender-based violence and sexual harassment (GBVH).
- Contact details for workers to whom grievances should be raised.

The grievance mechanism will be explained to any contractors and sub-contractors on appointment and a notice summarising the approach and providing contact details for workers to whom grievances should be raised will be posted at rest areas and offices.

KPIs to measure the effectiveness of the labour grievance mechanism include:

- Distribution and employee knowledge of labour grievance mechanism.
- Labour grievance mechanism log.
- Number, type and resolution timeframe of labour grievances.
- No lost time because of labour strikes, disputes or incidents.

It will be a requirement of the grievance mechanism a toolbox talk is undertaken once at the start of each project phase (construction, operations and decommissioning) and will include unskilled local workers.

5.3.9 Occupational health and safety (OHS) plan

The Project's contractors will be required to develop an OHS plan to identify preventive and protective measures to protect the health and safety of workers on site. The Plan will be produced in line with the following national and international requirements:

- Employment Act, 1999 of Grenada
- IFC PS2 Labour and Working Conditions
- World Bank Group EHS Guidelines

The OHS Plan will be in place before construction activities begin and will be applicable to construction, operation and decommissioning phases. The Main contractor will require that their subcontractors adopt the OHS plan or set up their own OHS plan. Both the Project labour commitment and workers' code of conduct refer to provision, training and appropriate use of PPE. Contractors are responsible for providing the necessary PPE and training on it. The workers are required to keep the PPE in good condition and use it as trained.

Monitoring requirements for the OHS plan include the following:

- The contractors and other Project employers will be obligated to hire staff responsible for supervising occupational health and safety and worker accommodation on a daily basis.
- OHS monitoring results will be reported in monthly health and safety reports. At a minimum, this monitoring will need to cover: number of workers and contractors at site, hours worked, total number of lost workdays resulting from accidents, fatalities, lost time accidents, medical treatment and first aid cases, near misses from unsafe acts or conditions, and OHS trainings.

GoG will need to ensure independent monitoring of health and safety issues. KPIs to ensure the successful implementation of the Plan include:

- Monthly monitoring and reporting of accidents, injuries, lost-time incidents, near misses and community interactions on health issues.
- First aid room use statistics.
- OHS target accident rate of zero.

• Monthly summaries of toolbox talk topics and coverage.

5.3.10 Site security management plan

With regards to security and safeguarding of personnel and property, the contractors will need to analyse their mobile and fixed work site areas safeguard site personnel and property through equipment and processes and as relevant be required to:

- Identify deterrents to theft, break-in, sabotage, cyber threats and terrorism
- Establish a registry/identification system for staff and visitors upon entrance to site
- Implement a visitor orientation programme (that includes provision of adequate PPE)
- Ensure appropriate signage around work site perimeters, especially in relation to hazardous areas, materials and to traffic speed and with regards to the boundary of the Project site

A Site Security Management Plan will be developed to safeguard worker and community security, in line with the following requirements:

- IFC PS4 Community Health, Safety and Security
- IFC EHS General Guidelines on Community Health and Safety (CHS)

Provisions in the Plan will be made to ensure:

- Key construction areas and Project elements will be fenced off/enclosed
- Location of signage around site perimeter is identified through risk assessment process.
- Chemicals will be isolated and protected
- Clear site access procedures
- Site induction is undertaken by every member of staff
- Training and vetting of security personnel
- Emergency Preparedness and Response Plan (EPRP) will be implemented
- Involvement of health and emergency service providers in developing and drills for EPRP
- Compliance with the United Nation's Code of Conduct for Law Enforcement Officials, and the United Nation's Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (if any security personnel are licenses to carry firearms)
- KPIs and monitoring requirements include:
- Description / photographs of fencing / signage around site perimeter
- Security company licenses
- Documentation to show vetting and training of security personnel
- Site registry identification system
- Site induction procedure

Monitoring of the plan will be undertaken monthly and quarterly reports will be prepared.

5.3.11 Stakeholder engagement plan

A SEP has been prepared (refer to ESIA Volume III) which is designed to manage stakeholder and community relations, expectation, and grievances through consultation and disclosure mechanisms. The SEP has been developed in line with national legislation⁹, IFC PS1, 2 and 5.

⁹ Physical Planning and Development Control Act, No 25 of 2002.

The GoG has overall responsibility for ensuring meaningful consultation and broad community support throughout the Project lifecycle and will lead on stakeholder engagement activities throughout the Project phases.

Monitoring of the SEP includes:

- The CLO will consult weekly the grievance logs and will develop a monthly report.
- Monitoring will be conducted on a quarterly or semi-annual basis, as confirmed with Lenders, for external reporting purposes.
- Six monthly community liaison and stakeholder engagement reports by contractor during construction.
- The SEP, relevant KPIs and associated reporting activities will be reviewed by the GoG throughout the Project lifecycle as deemed necessary or at least once a year.

5.3.12 Community grievance mechanism

A community grievance mechanism has been prepared and is included in the SEP (ESIA Volume III).

5.3.13 Livelihood restoration plan

A LRF has been prepared in line with IFC PS1 and IFC PS5 guidance notes and is included in Volume IV. The LRF has been developed to establish livelihood restoration objectives and principles, organizational arrangements and funding mechanisms for any livelihood restoration activity that may be necessary for the Project. The LRF takes into account the provisions of national legislation. Given the likelihood of economic displacement affecting a number of local people a livelihood restoration plan (LRP) is required.

5.3.14 Human rights policy

The Project undertakes to operate in accordance with the Universal Declaration of Human Rights and the ten fundamental conventions of the ILO and the IFC PSs, as a basis for embedding the responsibility to respect human rights through all of the Project's functions.

5.3.15 Data security policy

The GoG will uphold people's rights to privacy and data security in line with the Grenada Data Protection Act, No. 1 of 2023 (the GDPA)¹⁰. A data security policy in line with the GDPA will be developed by the Main contractor and adopted by the project This will be relevant for Project workers (including contracted and subcontracted workers), project affected people, all stakeholders, and anyone about whom the project holds personal data.

Capacity building and training of staff on personal data privacy and security relevant to the Project will be carried out by the Main contractor to all applicable staff.

5.3.16 Ecological management plan

The contractor will develop site-specific specific Construction and Operational Ecological Management Plans (CEMP/OEMP) as part of their ESMP. The CEMP will include ecological and environmental management and monitoring measures before vegetation clearance and site establishment and throughout construction. The CEMP will be developed in line with the measures presented in Table 5.10 in this ESMP. The OEMP will also be developed to manage and monitor impacts to biodiversity during the operational phase of the Project.

¹⁰ Published on 10 May 2023 in the Official Gazette: <u>Data-Protection-Bill-2023-8-3-23-with-HOR-amendments-</u> <u>Final.pdf (grenadaparliament.gd)</u> (accessed on 17 July 2023)

To ensure the biodiversity of the Project area is protected, the CEMP and OEMP will include the following as a minimum:

- Details of the environmental staff to be hired by the contractor
- Details of the local NGO or consultancy, and the specialists that will undertake some of the activities that require specialist and local knowledge
- Measures to prevent the introduction and spread of non-native invasive species (details provided below)
- On-site habitat restoration strategy
- All workers engaged in the Project will be made aware of the environmental and ecological sensitivities (critical/natural habitats and threatened and protected species) of the region, the Project site and their own actions. Staff will be provided with relevant information through staff induction, toolbox talks, leaflets and office posters.
- Monitoring and Key Performance Indicators (KPI)
- Adaptive management protocol to be implemented in the event that KPIs are not met

The CEMP will include three subplans described in more detail below:

- Habitat removal and restoration plan (Section 5.3.16.1)
- Wildlife rescue and relocation plan (Section 5.3.16.2)
- Invasive Species Management Plan (Section 5.3.16.3)

5.3.16.1 Habitat removal and restoration plan

Contractors will prepare a detailed Habitat Removal and Restoration Plan (HRRP) that reflects all the key requirements of this CEMP.

In addition, the contractor will be required to produce site-specific method statements outlining how they will adhere to the requirements of the CEMP and any national obligations. The HRRP and method statements will need to be agreed and approved by GoG prior to works commencing and site clearance work (sufficient time must be included to conduct training on this plan).

Key features of the HRRP are outlined in Table 5.12. This plan should include requirements at all locations (and in particular forest locations) where there is temporary or permanent removal of vegetation. This plan must also consider species of high and medium sensitivity to be translocated to a suitable area away from any impacts. These species are: Lansan *Protium attenuatum*, *Rhytidophyllum caribaeum*, mountain cabbage *Euterpe dominicana*, tree fern *Cyathea elliotti, Lobelia cirisfolia*, siguine batard *Asplundia insignis*, and monkey paws vine *Marcgravia umbellata*.

Component	Description
Documentation	Contractor will produce method statements, inspection plans and record portfolios for all removal and restoration works for implementation by contractors.
	Prepare photographic / video record of condition of work area prior to work commencing and after final reinstatement.
	Habitat specific removal methodology A methodology for habitat removal shall be produced and include pre-vegetation removal checks and identification of high/medium sensitivity flora to be translocated.
	The methodology for the translocation of identified high/ medium flora for translocation area. Identification of translocation areas where no impacts will occur and monitoring of translocated flora.

Table 5.12: Contents of HRRP

Component	Description		
	Site specific method statements and schedules for restoration are required at areas identified as environmentally sensitive areas, watercourse crossings and special agricultural areas where there are permanently flooded areas or irrigation schemes.		
	Updated calculations of habitat loss and habitat restoration to ensure no net loss achievement/ identification of offset requirements.		
Site clean up	The contractor will clean up all areas affected by construction activities in preparation for the replacement of stockpiled materials e.g. topsoil. Clean up includes removal of all waste, equipment and materials.		
Interim restoration	This is allowed where the site will be demobilised temporarily – but only if for a period less than three months or if there is a low risk of erosion, not in an environmentally sensitive area or within 25m of a watercourse.		
Land at construction support facilities	These areas will be reinstated to a condition as good as, if not better than that existing prior to the establishment of the facilities.		
Roads and access tracks	Existing roads will be reinstated to their original condition or better. New and upgraded roads or tracks and other Project work sites in environmentally sensitive areas will be removed and the land re-instated to its original condition, unless otherwise agreed following consultation with all interested parties.		

Table 5.13 sets out activities that will take place prior to and during reinstatement of the disturbed areas.

Table	5.13:	Restoration	activities
Table	5.15.	Restoration	activities

Restoration activity	Description		
Preconstruction surveys	Preconstruction surveys should be undertaken in order to identify sensitive plants that may require translocation prior to construction.		
	The site that plants are to be translocated to must also be surveyed, to ensure conditions are suitable for their establishment.		
	During translocation activities, the presence of a qualified person is required to monitor for the presence of fauna species in the area (see Section 5.3.16.2 below).		
Topsoil stripping and storage	Where topsoil stripping is necessary, the depth of the soil will be established and up to 300mm removed and stored. Storage locations will be sited so as they are not compacted by vehicles Topsoil will not be mixed with subsoil		
	Stacks must be free draining not more than 2m high and with side slopes not >45° Weed growth will be prevented		
Subsoil removal and storage	Store subsoil separately from topsoil Incorporate drainage provisions		
	Reuse subsoil where possible in other works or used in landscaping		
Management of surplus spoil and rock	Prioritise as follows:Re-use as construction material		
	 Localised increase in finished surface height in right-of-way/site 		
	Off right-of-way re-use e.g. transfer to third party of use for road construction		
	Off right-of-way disposal at prearranged sites following appropriate assessments		
Reinstatement of subsoil	Compact to similar levels Level land Rin to a dopth of 350, 400mm		
	Rip to a depth of 350-400mm Render to a loose and workable condition and contoured in keeping with adjacent ground		
	Following reinstatement, areas will be inspected by contractor and GoG for slope stability, relief, topographic diversity, acceptable surface water capabilities and compaction		
Reinstatement of	Re-spread over the surface		
topsoil	Do not handle under wet conditions		
	All disturbed areas will be graded and left sufficiently rough to promote new vegetation growth which will protect the stability of the topsoil		

Restoration activity	Description		
Temporary erosion	The following will be used as appropriate:		
control measures	Erosion matting		
	 Sediment control especially where route crosses a watercourse, wetland, waterbody e.g. silt fences, straw bale barriers, filter berms, sediment traps 		
	Soil stack control		
Re-vegetation	The objectives are to:		
	 Restore the characteristics (pattern and distribution of plant species) 		
	 Achieve sufficient vegetation cover to reduce erosion to acceptable target 		
	 In areas of natural and semi-natural habitat, the aim is to achieve long term vegetation cover of natural flora using native seed banks and vegetative material resource that remains in the topsoil when replaced 		
	 For temporary areas outside the right-of-way the original percentage vegetation cover will be estimated from photographs and appropriate targets and timeframes established. Established means initial healthy growth that would be expected for the species. 		
	Scheduling will take into account the growing seasons		
	 Appropriate measures will be taken to prevent unauthorised access to areas that will damage reinstatement. Where necessary this will include blocking access. 		
Monitoring	Sites will be monitored for the following:		
	Subsidence		
	Slope wash		
	Slumping and soil movements		
	Loss of stored topsoil, subsoil or cuttings		
	 Areas of disturbed ground off the right-of-way or site 		
	Status and success of re-vegetation		
	No Net Loss / Net Gain requirements		
Post-construction maintenance	GoG will undertake final inspection of key areas. Main Contractor is responsible for remedial work prior to handover to the GoG.		

5.3.16.2 Wildlife rescue and relocation plan

A Project specific Wildlife Rescue and Relocation Plan (WRRP) will be prepared by either GoG or contractors. This plan will detail the rescue and relocation of individuals of species of conservation concern encountered during construction activities. Relocation of these individuals will be based on identification of a suitable relocation area. An assessment of the availability of suitable habitat, competition from resident animals, and resource constraints will be required.

Species of conservation concern include animals which are: restricted range or endemic, migratory, internationally or nationally threatened, and/or are critical habitat triggers. These species are all listed within the Biodiversity Chapter (Chapter 8) of the ESIA. This plan relates to slow moving species (including the giant woodland frog *Leptodactylus fallax*, cane toad *Rhinella marina*, Lesser Antillean whistling frog *Eleutherodactylus johnstonei* and the Morocoy tortoise *Geochelone carbonaria*) that are unable to move out of the area quickly during vegetation removal activities.

During the removal and translocation of sensitive plant species (described in Section 5.3.16.1 above) a suitably qualified person must be employed to monitor for fauna species present within the area. This is to ensure that species either move away from the area or are physically moved to a suitable translocation site away from harm. The new site must be surveyed prior to any translocation activities occurring to ensure it is suitable for the requirements of any fauna species relocated to it.

In addition to this, awareness will be raised through inductions implemented by the Main contractor. One of the requirements will be for staff operating motor vehicles to undergo an

environmental induction training course. This will include instruction on the need to comply with speed limits, in order to respect all forms of wildlife, though there will be particular focus on reptiles and amphibians. Drivers that do not comply with speed limits will be subject to penalties. A protocol for reporting injured fauna must be produced. It should also include contact details for qualified people that can handle injured fauna. All staff must be trained by the Main contractor in this protocol.

In addition, the contractor will be required to produce site-specific method statements outlining how they will adhere to these requirements and any national obligations.

The WRRP and method statements will need to be agreed and approved by GoG at least one month prior to works commencing.

5.3.16.3 Invasive species management plan

The Main contractor will prepare a Project specific Invasive Species Management Plan (ISMP) in order to avoid the potential introduction of new invasive alien species, or contribute to the spread of invasive species already present within the Project area (such as bamboo (*Bambusa vulgaris*) and Bois Canot (*Cecropia schreberiana*)). These species will be monitored during construction and operation, and any new invasive species will be identified and reported.

The plan will minimally include the following procedures:

- Localise or quarantine invasive species procedure
- Clearing and cleaning invasive species procedure
- Vehicle sterile procedure
- Record and reporting procedure
- Eradication of alien species from Natural Habitats (where the project company has management control)
- Actions such as monitoring for invasive species, weed eradication methods, and control
 measures for invasive species will be included within the plan. The implementation of
 measures to control specific invasive species that were identified to be present within the
 project area prior to construction (such as bamboo and Bois Canot) will also be included.

Invasive plant species will be managed by:

- Controlled regrowth of bamboo and Bois Canot around the Project components through means such as:
 - Regular cutting/ mowing of the invasive plants (especially before flowering) or excavation and disposal (offsite) or burial (on-site) for the invasive bamboo and Bois Canot
 - The application of herbicides based on an integrated pest management approach.
 - Any nuisance growth of invasive algae or aquatic macrophytes will be controlled as part of an overall management strategy that minimises adverse impacts on the environment and aquatic habitat.
- Invasive aquatic species will be managed by:
- Preventing invasive species from entering any reservoirs created by the Project
- Ensuring no invasive fish species are introduced during the restocking activities.
- Managing and controlling of invasive fish species throughout the Project lifecycle
- Any restocking required will be well-managed with native populations and monitoring and expert oversight to minimise fish population fluctuations. Appropriate management will be undertaken to avoid the risk of accidental translocation of invasive fish and other aquatic species.

Movement and disturbance to soil and vegetation will be minimised, and exposed soils / materials will be covered to prevent invasive species establishing there. Soil damage and erosion will be prevented as much as possible, and any imported soil will be sourced from a reputable supplier, with information on the soil's origin provided to ensure it is safe and free from Alien Invasive Species (AIS). Any cleared areas that have naturally been covered with invasive species will be localised to prevent spread to other areas. Any clearing and cleaning of invasive vegetation will have a procedure to consider soil type, slope, surrounding area and future action in order to keep the location safe from future invasive species, and any areas vulnerable to landslides will undergo a quarantine of invasive species for a period of time. Native plants exclusively will be used for revegetation and landscaping works.

Awareness raising is also recommended to be implemented by the Main contractor, through staff inductions and mandatory Alien invasive Awareness training for all employees and workers. This training should include impact, prevention, mitigation and management of invasive species.

The movement of materials (traffic and distance travelled) will also be minimised, through sourcing goods/materials locally where possible, and any invasive species detected in these pathways will be contained and reported. Any vehicles will be washed down across the entire exterior vehicle before entering non-infested areas and after working in infested areas, and vehicle tyres are to be pressure washed. For both vehicles and personnel arriving and departing from site, phytosanitary measures will be used. This includes all earth movement equipment, trucks, vehicles and equipment to be imported into Grenada to be cleaned, disinfected and accompanied by a certificate that this has been done.

Invasive species can also establish along linear Project features such as access roads. The timing of activities will be considered in order to avoid impacts on AIS. Spread width and vehicle-related impacts will be minimised, and any existing AIS will be contained. Entry and exit points will also be minimised.

5.3.17 Biodiversity action plan

- A Biodiversity Action Plan (BAP) is required for projects located in critical habitat and is recommended for high-risk projects in natural habitats. Projects located in critical habitat are required to achieve net gain of those critical habitat features whilst projects located in natural habitat are required to achieve no net loss of natural habitats. Gains can be achieved through offsets and additional conservation actions.
- Given the short-term impacts of the exploratory phase, a BAP would not be required following the restoration (full recovery of habitats and species) of the affected area. The management and monitoring of habitat removal and restoration will be undertaken through the HRRP (Section 5.3.16.1 above) and will aim to achieve no net loss given there are no likely significant residual impacts to natural/ critical habitat. Net gain of critical habitat features (if required at this stage) can be achieved through additional conservation actions.
- In the event that the exploratory drilling phase is successful and the decision has been made to proceed to the subsequent stage of development (i.e. one of the two exploration drilling locations is planned to be used for a production phase), habitat restoration will need to be undertaken for the drilling location not planned for the production phase. For the chosen location, an ESIA and residual impact assessment for subsequent phases will be required. A Biodiversity Action Plan (BAP) detailing additional biodiversity mitigation measures and how the project will achieve no net loss/ net gain will also be required. The need for biodiversity offsets will be assessed as part of the residual impact assessment in the ESIA for the subsequent phases of the Project. Any offsets required will be detailed in the BAP and will include (but not limited to); area (in hectares), habitat type, maintenance and monitoring of these habitats, stakeholder engagement, additional support to be provided (e.g., for local

protected areas such as Mount Saint Catherine National Park), and any awareness raising and education activities to be undertaken and/or sponsored by the Contractor.

5.3.18 Chance finds procedure

The 'chance finds procedure' described below will be implemented by the civil works contractors and in place to stop works and require investigation by a heritage specialist designated by the relevant cultural authorities in case of such findings.

Prior to site works, the GoG will consult with the relevant cultural authorities (namely the Physical Planning and Development Control, and the Grenada National Trust), to ensure that the procedure is acceptable to them. Updates or amendments will be made by GoG where appropriate.

The ownership of any chance finds discovered on the Project will be determined by the relevant cultural authorities who aim to collect, preserve, and research natural and cultural heritage.

Contractor employees such as excavation equipment operators and supervisors are to be briefed in identification of physical cultural resources during excavation.

The procedure upon discovery of chance finds includes the suspension of work and following steps:

- Contractor will stop work (in some cases, all work will need to be suspended, in others just the work in the immediate vicinity of the find will need to stop).
- Contractor will immediately report the discovery to the Climate Resilience, the Environment and Renewable Energy Environment officer (the contractor may not be entitled to claim compensation for work suspension during this period).
- Climate Resilience, the Environment and Renewable Energy Environment officer with the consultation of a heritage specialist selected by the GoG may suspend work and may request from the contractor some excavations at the contractor's expense if the Environment officer thinks that a discovery was made and not reported.
- Contractor will demarcate and limit access to the site.
- Climate Resilience, the Environment and Renewable Energy Environment officer will consult with national authorities to decide whether the item can be removed and work may continue, for example where the item is a single item of archaeological value.
- The contractor will submit a chance find report to the Climate Resilience, the Environment and Renewable Energy Environment officer within one day of the find recording key details.
- Climate Resilience, the Environment and Renewable Energy Environment officer to inform the relevant cultural authorities immediately following the submission of the chance find report and provide a copy of the report.

As required cultural heritage authorities will undertake to send a representative to the discovery site; details will be agreed between the relevant cultural authority and the Climate Resilience, the Environment and Renewable Energy Environment officer. The cultural heritage representative will determine the action to be taken which may include, but will not be limited to:

- Removal of the chance find/PCR(s) deemed to be of significance.
- Execution of further excavation within a specified distance of the discovery point.
- Extension or reduction of the area demarcated by the contractor.

Climate Resilience, the Environment and Renewable Energy Environment officer and the civil works contractor to agree response times and time periods in their chance find procedure for further suspension of the works until an instruction on the required action is received from the relevant cultural authorities.

Following approval from the relevant cultural authority, Climate Resilience, the Environment and Renewable Energy Environment officer will issue the appropriate contractor with the instruction to recommence works.

6 Commitments for implementation and funding

6.1.1 GoG environmental policy and commitment

The Project will be undertaken with adherence to the following environmental commitments:

- To comply with all applicable national environmental legislation, as well as the voluntary adoption of current best practice environmental requirements above the minimum national standards; ensuring that both suppliers and contractors comply with this policy.
- Preservation and sustainable use of natural resources, promoting the protection of flora and fauna in and around the concession area.
- Provide adequate training to staff, encouraging the development and implementation of good environmental practices in processes and activities.
- Implement and continuously improve an environmental and social management system (ESMS) aimed at the prevention of pollution and the protection of the environment.
- To disclose its environmental policy, both internally and externally.

7 Monitoring and reporting

7.1 Overview

An integral part of an ESMP is the reporting of information back to management and to all staff, to assess the adherence of the project to the KPIs set. The following sections set out minimum proposed reporting and auditing provisions. The development of these will be the ultimate responsibility of the GoG project team. All contractors and sub-contractors will be required to provide information to support.

7.2 Performance reporting and auditing

Table 7.1 summarises the key ESMP reports to be produced. Any third parties working on behalf of the GoG will be required to set up E&S reporting systems. All contractors will be required to gather information to input into the project ESMP reporting obligations.

Report Type	Requirements
Accident / incident and non- conformance report (NCR)	Any breaches of the accepted standards specified will be reported to the GoG Site Manager. The GoG will define accidents, incidents and environmental and health and safety near misses in the contracts of all contractors.
Site inspection records	The GoG and all contractors are to compile a site inspection checklist or record format relevant to their ESMP implementation responsibilities.
	Alongside routine daily visual inspections, periodic site inspections are to be undertaken and recorded at least every two weeks to confirm ongoing compliance with ESMP requirements.
Monthly internal	Relevant parties will prepare a monthly report for submitting to the GoGand include:
EHS reports	Progress in implementing the ESMP.
	 Findings of the inspection and monitoring programmes, with emphasis on any breaches of the control standards, action levels or standards of general site management; reported back to staff to improve environmental performance/behaviour.
	Outstanding NCRs.
	 Summary of any complaints by external bodies and actions taken/to be taken.
	 Relevant changes or possible changes in legislation, regulations and international practices.
Internal audits	One-off audit to review the adequacy of implementation of Contractors' ESMP in accordance with the requirements stated in this report.

Table 7.1: Minimum reporting requirements

7.2.1 Document handling

A complete and up-to-date file of all relevant sources of information will be maintained and will include:

- Current environmental permits and consents.
- All relevant regulations, international guidelines, and codes of practice.
- Current calibration certificates for all the equipment that requires calibration by an external organisation.
- Latest version of the ESMP.
- Records for environmental monitoring (inspection forms) and audits.
- Manufacturers' operating manuals for all the environmental monitoring equipment
- Equipment maintenance and repair records.

- Correspondence in relation to environmental matters / permits including internal and external.
- Minutes of relevant meetings.
- Environmental training records (e.g., attendance records for environmental awareness training).

7.2.2 Monitoring and supervision of contractors' management of labour and working conditions

The GoG will be responsible for ensuring that the required labour standards are passed on to all contractors and subcontractors. The GoG will then need to ensure implementation of written commitments and procedures through monitoring and supervision activities, especially but not limited to those presented in Table 7.2.

Timing / Phase	Labour aspect	Evidence of contractor compliance	Methods for the GoG verification
Within two months of contractors commencing works	Labour management recruitment Labour force data	Contractors' human resource (HR) policy plans and procedures in place based on non-discrimination, equal opportunity and fair treatment that is compliant with the project HR policy and national labour law. Ministry of Climate Resilience, the Environment and Renewable Energy ESHS recruitment and local content strategy, worker accommodation guidance and worker code of conduct completed. Staff members conversant on the human resource policy, worker code of conduct and other HR procedures.	Compliance with the GoG labour commitment, worker code of conduct Contractor's HR policy, plans and procedures in project file.
One month prior to start of contractors works	Occupational health and safety	Contractor's occupational health and safety plan in place that has provisions to provide a safe and healthy work environment by preventing accidents, injuries and diseases; ensures workers are trained; and includes emergency prevention measures and response actions.	Contractor's H&S plans in project file.
During work activities	Working conditions and terms of employment	Written employment contract for each worker. Appropriate shelter and shading at site. Break times adhere to national law. Provision of timely payment of salaries. General information regarding terms and conditions, Project activities and occupational health and safety information provided at an established location on site.	Periodic random interviews with up to five workers regarding contract and working conditions. Visual inspection of PPE use. Daily visual inspections of eating, resting, drinking and washing facilities. Review of information.
During work activities	Labour grievance	Workers aware of labour grievance mechanism and worker code of conduct. Use of grievance mechanism.	Monthly random interviews with employees. Periodic discussion with contractors; HR department.
During work activities	Occupational health and safety	Number of training sessions and number of trainees Accident registers up to date on sites with number of accidents Regular reporting of EHS statistics to GoG for central collation Proper use of PPE Safe and hygienic eating, resting, drinking and washing facilities	Accidents reported on in contractors' monthly reports. Regular (minimum weekly) visual inspections of sites and use of PPE

Table 7.2: Contractor labour monitoring

Timing / Phase	Labour aspect	Evidence of contractor compliance	Methods for the GoG verification
		General information regarding terms and conditions, Project activities and occupational health and safety information provided at an established location on site.	

7.2.3 Environmental monitoring

Performance indicators required to be monitored during the exploratory phase are as outlined in Table 7.3.

Measure	Frequency	Method	Responsibility	
Air quality – H ₂ S concentrations	Continuous real time H ₂ S during drilling and well testing.	 Project workers to wear personal exposure monitors Monitoring equipment to be maintained in line with manufacturers requirements. 	Contractor	
Air quality – dust emissions	Regular (twice weekly)	• Visual monitoring of dust episodes, soiling of vegetation, dust resuspension on the roads and dust clouds.	Contractors	
		 Monitoring to include records of mitigation implementation. 		
		 Records to be keep in site logbook. 		
Noise	Once a week	• Spot check monitoring at commencement of activities at each well pad using sound level meter, and at the nearest residential properties/sensitive receptors, for comparison against standards	Contractor	
		 Monitoring equipment to be calibrated in line with manufacturers requirements 		
 Surface water and groundwater quality, flow and level Daily record of water volume abstracted from surface water intakes during the operational phase. Regular (weekly) monitoring of water flow rates at springs and watercourses downstream of the project water intakes, during the operational phase. Regular (daily) monitoring of groundwater levels in a minimum of one observation well situated adjacent to the well pad on the down-gradient side. 		 The surface water and groundwater monitoring plan must be tailored to the selected site, based on the final design and findings of the geotechnical investigation and any further studies. The monitoring plan must be approved by the relevant authority prior to implementation. Each round of flow measurement and sampling should be undertaken at the same location as previously, as far as possible. 	GoG / contractors	
	 Regular (daily) monitoring of groundwater levels at 			

Table 7.3: Environmental monitoring

Measure	Frequency	Method	Responsibility
	 any boreholes installed close to sensitive receptors, during the operational phase. Regular (monthly) water 		
	sampling at key receptors, with samples being analysed in an accredited laboratory for a consistent suite of water quality parameters throughout all phases.		
	 Regular (daily) visual assessment of water quality and in-situ measurements (using a multiparameter meter) of key water quality parameters (e.g., pH, temperature, EC, turbidity), at critical receptors during the operational phase. 		
Waste	Periodic	 All waste should be recorded for off site disposal 	Contractors
		• There should be periodic audits of internal waste management practices to ensure on-going compliance throughout the life of the Project, with any recommendations for improvements in waste management practices forming part of on-going reporting	
AIS	During site establishment works Monthly surveys thereafter (see ESIA)	 Site walkover of all working areas of Project and habitat adjacent (including access roads) 	GoG / contractors
Flora and fauna	Pre-construction for site C only, during the 2024 wet season, in parallel with site F construction During construction and operation for sites C and F: monthly monitoring	 Undertake surveys within the Project Aol (for flora and terrestrial species) Undertake surveys of all waterbodies and water courses impacted by the Project (for aquatic species) 	Contractors
		 Undertake desk based research to determine the number of species of conservation concern (and Critical Habitat Species) that have an increased IUCN or national threat status 	
OHS risks and	Daily site walk overs of all	Record and track the following:	Contractors
incidents	worksites Weekly tracking of OHS logs	 Number of accidents/injuries/diseases/OHS incidents 	
		 Number of first aid cases and serious injuries/fatalities 	
		Number of near misses	
		OHS training	
		 Ratio of OHS staff to workers Fire safety drills and incidents 	

Measure	Frequency	Method	Responsibility
		Number of inspections	
		 First aid equipment 	
Covid-19	Monthly	Record and track the following:	GoG / contractors
management (if		 Number of cases among workers 	5
required)		 Degree of close contact in worke accommodation and site location 	
		 Community cases or country incident rate 	
		 Activities modified because of Covid-19 	
Emergency	Quarterly	Record and track the following:	GoG / contractors
preparedness and response		 Training drills, including lessons learned 	
		 Emergency preparedness and response equipment (fire extinguishers, spill kits, medical emergency equipment, etc) and facilities 	
		 Community preparedness and response engagement activities (numbers and type) 	
		 Emergency service providers preparedness and response times 	

7.2.4 Social, cultural heritage and human rights monitoring

Performance indicators required to be monitored during the exploratory phase are as outlined in Table 7.4.

Table 7.4: Social,	cultural heritag	e and human	rights monitoring

Measure	Frequency	Method	Responsibility
Worker accommodation	Pre-accommodation check: One-off inspection Ongoing monitoring undertaking	Pre-accommodation check based on guidelines to be developed but likely to include:	GoG
	on a monthly basis	 Number of rooms and beds, workers accommodated 	
		 Worker and community grievances 	
		 Disease type / incident, lost time impacts 	
		 Facility, including water and food quality and hygiene inspections 	
		 Ablution facility ratios per user 	
		 Waste segregation and appropriate disposal 	
		 Ongoing monitoring: Adherence to code of conduct for accommodated workers Facility maintenance and upkeep 	
Security	Monthly	Record and track the following:	Contractors
		Number of security guards	
		 Vetting of security guards 	

Measure	Frequency	Method	Responsibility
		Training of security guards	
		 Memorandum of understandings (MoUs) with public security forces if relevant 	
		 Use of force or other security related grievances 	
		 Incidents (onsite – threats, theft and robbery, roadblocks, manifestations, damage; off site – community conflicts, protests, other) 	
		 Security engagement – meetings with public security entities, meetings about security with other stakeholders, 	
Labour monitoring	Daily inspections of working	Record and track the following:	Contractors
	conditions as part of site inspections Quarterly reporting on labour monitoring KPIs	 Adherence to project labour commitment, code of conduct, contract clauses related to labour rights and working conditions 	
		 Worker profile (gender, origin, permanent/temporary) 	
		 Worker contracts, working hours, overtime hours, timely worker payments 	
		Worker grievances	
		 Notifications prior to termination of contracts, dismissals, disciplinary cases 	
		 Provision of training (types, duration, certification, outcomes) and training records 	
		Benefits, leave	
		 Inspections of forced labour and child labour 	
		 Presence and activities of workers' organizations 	
		 Access to H&S provisions and PPE 	
		Local employment and content	
		 Worker health prevention measures and incident rates 	
Labour rights of supply chain workers and affected communities in the supply chain	One-off	Undertake primary supply chains analysis to identify any risks related to use of child or forced labour and unacceptable OHS conditions	GoG / contractors
Gender management	Monthly	Record and track the number of women included in programs/initiatives	GoG / contractors
Chance finds	Monthly	Record and track the following:	GoG / contractors
		Training records	
		 Number and types of chance finds 	
		Remedial activities	
Livelihoods	Monthly	Methods to be developed as part of	GoG

Measure	Frequency	Method	Responsibility
		interviews with recipients of compensation payments and surveys	
Stakeholder engagement and community grievance management	Monthly	As required by the SEP to including tracking the following:	GoG
		 Information disclosed 	
		 Meetings held (participant numbers, gender representation, topics covered, satisfaction with resolutions) 	
		 Numbers of grievances 	
		Types of grievances	
		 Number of grievances related to Gender Based Violence & Harassment (GBVH) 	
		 Appropriate close-out measures and actions to prevent recurrence 	
		Grievances closed out within timeframes	
Stakeholder engagement with vulnerable groups	Quarterly	Record and track the following:	GoG
		 Accessibility of engagement activities for vulnerable groups including women and people with disabilities 	
		 Meaningful two-way consultation opportunities provided in timely manner 	
Access to remedy strategy	Quarterly	Record and track the following:	GoG / contractors
		 Number of times access to remedy strategy has been used 	
		 Number of successful remedies provided for human rights infringements (how many people affected, signed statements to say that they are satisfied with the outcomes) 	
		 Contract clauses for contractors to adhere to access to remedy strategy 	
Community health and safety	Monthly	Record and track the following:	GoG / contractors
		 Health risk awareness campaigns (participant numbers, gender representation, topics covered, outcomes) 	
		GBVH complaints	
		Disease incidence	
		Anti-social behaviour incidence	
Human rights policy	One-off	Record and track the following:	GoG/contractors
		 Senior level commitment to human rights policy 	
		 Contract clauses for contractors to adhere to human rights policy 	
		 Human rights training: Numbers of staff trained on human rights topics, dates of courses and refreshers 	

Measure	Frequency	Method	Responsibility
		 Inclusion of human rights issues in induction training 	
		 Understanding of human rights topics (such as GBVH) among workers 	
GBVH measures	Quarterly	Record and track the following:	GoG / contractors
		 Numbers of signed workers' codes of conducts as a % of project workers 	
		 Review grievance mechanisms for GBVH complaints and satisfactory close-out 	
Data security	Quarterly	Record and track the following:	GoG / contractors
		 Number of personal data breaches 	
		 Contract clauses for contractors to adhere to data security policy 	

7.2.5 General awareness training

To fulfil the requirements of an ISO 14001 EMS, selected project personnel will be required to attend educational training that includes general environmental awareness in relation to exploratory works:

- A general understanding of the environmental risks associated with the civil works and drilling works
- Local, national, and international actions which are required to combat these risks
- Clarification of the GoG Environmental Policy and its practical implementation, stressing that it carries implications for the working methods and responsibilities for all employees
- Any specific receptor sensitivities
- Emergency preparedness and response
- Natural hazard risks
- Stakeholder engagement
- Labour grievance mechanism

7.2.6 Sub-contractor training requirements

All contractors will be required as part of the request for tender for the works to provide an overview of their training provisions and make training records of key staff available for review upon request as part of the internal auditing process for the Project for any specialist disciplines.

7.3 External communication

External communication requirements for the Project are to be set out in the Stakeholder Engagement Plan (SEP) (Volume III of the ESIA). The contractors' plans will be required to take account of the SEP.

8 Capacity development and training programme

In achieving the approach to environmental management described in previous sections, it is implicit that all staff should receive the required training in both general and job-specific terms. This training should not be considered a stand-alone exercise but must form an integral part of on-going training programs.

Environmental and social training will help to ensure that the requirements of the ESIA and ESMP are clearly understood and followed by all project personnel throughout the project period.



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