Environmental and Social Management Plan

PRIORITIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMENTS (PRIME) PROJECT

Federated States of Micronesia - Kosrae

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)
Lelu Causeway Upgrade
Kosrae

Prepared by

Department of TRANSPORTATION, COMMUNICATIONS & INFRASTRUCTURE
Government of the Federated States of Micronesia

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ABBREVIATIONS

CESMP	Construction Environmental and Social Management Plan
CIU	Centralized Implementation Unit
DoFA	Department of Finance and Administration
DRC	Development Review Commission
DTC&I	Department of Transportation, Communications, and Infrastructure
E&SCP	Erosion and Sediment Control Plan
ESMPESS	Environmental and Social Standards
ESF	Environmental and Social Framework
EHSG	Environment, Health, and Safety Guidelines
EHSM	Environmental, Health and Safety Manager
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
FGD	Focus group discussion
FSM	Federated States of Micronesia
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GRM	Grievance Redress Mechanism
HIV/AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
HPO	Heritage Protection Office
HSMP	Health and Safety Management Plan
ICT	Works Supervision Consultant / Design and Supervision Consultant
IUCN	International Union for Conservation of Nature
KIRMA	Kosrae Island Resource Management Authority
KUA	Kosrae Utilities Authority
LADDR	Land Access Due Diligence Report
LHS	Left Hand Side
LMP	Labor Management Procedures
LMPA	Lelu Marine Protected Area
OHS	Occupational Health and Safety
PCRTP	Pacific Climate Resilient Transport Program
PIU	Project Management Unit
PRIME	The Prioritized Road Investment and Management Enhancements
PSC	Project Steering Committee
SDP	Sustainable Development Plan
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
STI	Sexually transmitted infection
TRSMP	Traffic and Road Safety Management Plan
TOR	Terms of Reference
WB	World Bank
WMMP	Waste Minimization and Management Plan
USA	United States of America
USD	United States of America dollar

WEIGHTS AND MEASURES

Unit	Description	Equivalent / Notes
ft	foot / feet	0.3048 meters
m	meter	Base SI unit of length
mi	mile	5,280 ft
sq ft	square feet	Unit of area
sq km	square kilometer	1,000,000 square meters
acre	acre	4,840 square yards
Ton	ton is an Imperial measurement of weight	Equivalent to 2000lbs
dB	Decibel	logarithmic unit used to measure the intensity of a sound
dB(a)		A-weighted decibel (dBA or dB(A)) is an expression of the relative loudness of sounds as perceived by the human ear.

NOTES

In this report, "$" refers to United States dollars.

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EXECUTIVE SUMMARY

Background. The Government of Federated States of Micronesia (FSM) has received funding from the World Bank (WB) for the Federated States of Micronesia-Prioritized Road Investment and Management Enhancement Project (PRIME), which is designed to improve the climate resilience and safety of the country's road network by addressing critical infrastructure upgrades.

The PRIME Project provides funds for technical assistance and institutional strengthening to improve the management of the road network in relation to potential climate change impacts for the FSM. In addition, the Project funds the feasibility, design and construction of physical works on priority road assets to improve resilience to climate-related hazards or events.

Rationale. Kosrae is one of the four states of FSM. The existing causeway linking the mainland to Lelu Island is in poor condition. This PRIME project, the Lelu Causeway Upgrade Project (the Project), is designed to upgrade the existing Lelu Causeway by raising the road by 1 ft and renovating the embankments of the causeway to enhance the longevity of the causeway and to manage future climate change impacts.

Institutional arrangements. The Department of Transportation, Communication, and Infrastructure (DTC&I) is the implementing agency. A Project Management Unit (PIU) within the DTC&I is responsible for overall coordination, implementation, results monitoring, and reporting to the WB. The PIU is responsible for monitoring compliance with the ESMP, WB's and national legislation.

Environmental and social risk management due diligence: The Lelu Causeway Upgrade Project could be classified as a 'moderate' risk project under the WB Environmental and Social Framework (ESF) and requires the development of a site-specific Environmental and Social Management Plan (ESMP). The project is located in areas with valuable ecosystems while the potential impacts on these areas are manageable and impacts will be site-specific, local and / or temporary. However, there is a Substantial Risk due to the presence of the endangered and restricted range Kosrae flying fox within the project's area of influence. This species may be sensitive to disturbance, and construction activities, particularly noise and vibration, with a risk to roost disruption, and altered foraging behaviour. Because the flying fox is listed as endangered, even small-scale impacts may have disproportionate ecological consequences, requiring specialized mitigation, strict timing controls, and enhanced biodiversity monitoring. The need to avoid harm to a threatened species, combined with uncertainty regarding its roosting and movement patterns, elevates the Project to a Substantial Risk classification under the World Bank ESF.

This ESMP is required to identify and assess environmental and social issues associated with the proposed activities and develop mitigation and management measures consistent with WB requirements

The Scope of Work (SoW) includes a full-width reconstruction of the road on the existing Lelu Causeway by raising the road by 1 ft. To prevent erosion of the roadway, renovation of the existing embankments of the causeway will be undertaken. Additional safety upgrades at road junctions and pedestrian safety upgrades have been included in the works.

The majority of potential adverse impacts will occur during the construction phase. The key potential impacts that will require mitigation include:

- Protection of the endangered and restricted range Kosrae Flying Fox (*Pteropus ualanus-EN)*[1] on Yen Yen island.
- Protection of the ongoing business activities of the Dominique's pizza ship, Clam

[1] Pteropus ualanus is restricted to the island of Kosrae, where it has an extent of occurrence (EOO) of 131 km², with 110 km² of this being land area of the Federated States of Micronesia. It occurs throughout the island, including the highest peaks (up to 634 m), coastal mangroves, and small satellite islands. Source https://www.iucnredlist.org/species/136531/21979719#geographic-range retrieved on 6th July 2026.

Aquaculture Research Center, marina and recreational access to the Blue Hole; all key receptors located on the causeway.

- Community safety during road and ancillary infrastructure construction
- Erosion and sediment control during construction activities.
- Noise and dust generation during road works
- Solid waste generation and
- Hazardous materials handling and storage

This ESMP is designed to address these issues through a series of mitigation and management measures. The measures will be implemented through:

- Implementation of this ESMP through the approved Contractor's CESMP
- Regular supervision and monitoring of the implementation of the CESMP and
- Meaningful and ongoing consultations with the local communities, the Mayor of Lelu and KIRMA during the construction phases of this project.

Climate change. This project is prioritizing climate-proofing of the Lelu Causeway recognizing the critical role of the road's connectivity to services for the people of Kosrae. These threats are:

(i) Increase sea water inundation;

(ii) Increase in tropical cyclone intensity, though reduced frequency;

(iii) High intensity of rainfall causing flash flooding, erosion, and landslides; and

(iv) Storm surges and coastal flooding causing coastal erosion and damage to existing road infrastructure.

Marine Assessment: The nearshore marine oceanic areas are dominated by seagrass and corals. On the lagoon side of the causeway, mangroves are dominant among large areas of coral rubble and sediment. The causeway itself has had significant impacts on the natural circulation patterns within Lelu harbor which has resulted in significant long-term sedimentation and water flow pattern changes.

Coastal Vegetation Assessment: There is very limited vegetation associated with the causeway, however on the lagoon side there are small areas of mangroves, many of them trimmed by the power distribution company for safety reasons.

The endangered and endemic Kosrae Flying Fox (*Pteropus ualanus*) roosts, feeds, and breeds on Yen Yen Island, with the island's perimeter located as close as 150 ft from the causeway road. Although the species is habituated to existing noise sources—such as road traffic and general activity within the town of Lelu—the proposed construction works will introduce intermittent, higher-intensity noise events at levels not typically present in the current sound environment. These episodic increases in noise have the potential to disturb roosting individuals, disrupt breeding or feeding behavior, and temporarily alter local patterns of habitat use during the construction period.

Supplementary studies to this ESMP will be undertaken by a noise and vibration modelling specialist and a flying fox specialist engaged by the PIU. These studies will establish a robust baseline of Kosrae flying fox population dynamics and behaviour, together with ambient noise and vibration conditions. The studies will also model predicted construction-related noise and vibration levels to assess potential impacts on the Kosrae flying fox and identify measures to avoid, minimise and mitigate adverse effects on the species' behaviour, habitat use and population viability.

The mitigation measures from the supplementary studies shall be considered an integral part of this ESMP. The construction contractor is responsible for including these mitigation measures in their CESMP. Both the experts will review any revised CESMP.

The TOR for both experts are prepared and annexed with this ESMP. Monitoring is proposed in the ESMP for the pre-construction period and this monitoring will continue throughout the construction phase on quarterly basis to assess potential impacts and if required, inform an adaptive management strategy aimed at reducing these impacts during construction period. The specialists' monitoring report's findings and recommended corrective actions will be shared with the construction contractor, and the contractor will be responsible for ensuring compliance with the monitoring studies.

In addition, the noise and vibration modelling will be undertaken keeping in view the noise and vibration associated with the proposed sheet piling, heavy construction machinery movement, batching plant operation, and other critical activities of the project to confirm pre-construction noise and vibration levels and to measure noise and vibration levels on Yen Yen Island during the construction phase. The modelling results will be reviewed by the flying fox specialist to establish a robust baseline and confirm the nature and scale of impacts and used to inform any adaptive management measures required to minimize construction-related impacts on the roosting population.

If the additional assessment concludes that net gain is required to meet ESS6 requirements for the Flying Fox, the ESMP proposes a non-offset action - publishing the scientific data collected to build the body of scientific knowledge on the species, longitudinal studies (24 month period) and publication to increase the body of knowledge, support for NGO or KIRMA advocacy, and community awareness raising.

Lelu Marine Protected Area (LMPA): The project road and existing embankments are located adjacent to the Lelu Marine Protected Area (LMPA). The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe into the LMPA and by up to 10 ft into the adjacent oceanic waters. A limited area of excavation will be required to establish the new embankment toe. Renovation works will be undertaken along approximately 1,907 ft of the ocean side (82% of the causeway length) and 1,357 ft of the lagoon side (58% of the causeway length).

An area less than 0.5% seagrass coverage on the oceanic side of Lelu harbour will be affected by the embankment renovation whilst on the lagoon side, the embankment renovation footprint will be less than 0.3% of the area of the existing sediment and rubble substrate which dominates this side of Lelu Harbour.

Any egress water generated as a result of sheet piling will be pumped and treated through geotextile filter bags (geo-bags) or similar such methodology to remove sediment prior to controlled discharge back into the lagoon or oceanic environment.

KIRMA has approved the engineering design and KIRMA will review the ESMP as part of the approval process for a development permit for construction of the road, embankments and associated infrastructure works to take place adjacent to and in the LMPA. This process ensures that all works undertaken will be authorized.

Work plan and outcomes have been presented and discussed with the KIRMA and Lelu community through an initial community awareness meeting. These consultations will be ongoing throughout the length of the project.

Environmental and Social Risk Management. The PIU within the DTC&I and with the support of the CIU E&S team, will be responsible for the review of the environmental and social management of the project by inspection, monitoring, reporting, and initiating any required corrective actions or measures.

To ensure that contractors comply with ESMP provisions, the PIU will prepare and provide the following specification clauses for incorporation into the bidding procedures: (i) a list of

environmental management requirements to be budgeted by the bidders in their proposals; (ii) environmental clauses for contractual terms and conditions, and (iii) the full ESMP report for compliance. The contractor will be required to prepare and implement a Construction environmental and social management plan (CESMP). The contractor will nominate a qualified environmental, health and safety (EHS) manager and community liaison officer to ensure compliance.

Information, disclosure, consultation, and participation. Environmental and social information on the project was discussed with the general community and other key stakeholders. The ESMP will be made available for review by interested stakeholders and KIRMA according to ESS10. The stakeholder consultation process disseminated information to the public, project-affected communities, and key environmental stakeholders.

Information was provided on the scale and scope of the project, and the expected impacts and proposed mitigation measures, through consultation with government departments, local authorities, and the public in meetings. The process also gathered information on relevant concerns of the local community for the project, to address these concerns in the project design and implementation stages. The local community anticipates the substantial benefits in road upgrades from the project.

Grievance redress mechanism. A grievance redress mechanism (GRM) was established early in implementation, aligned with the PRIME GRM, to receive, evaluate, and facilitate the resolution of affected people's concerns, complaints, and grievances about any aspect of the Project including environmental and social performance. The GRM is based on accepted and standard practices in FSM, specifically in Kosrae State, and will provide an accessible, time-bound, and transparent mechanism for affected persons to voice and resolve social and environmental concerns linked to the Project. The PIU and contractors will each maintain a complaint registry which will be closely monitored.

Monitoring and Reporting: A monthly environmental, social, health and safety (ESHS) report is required within the Construction Progress Report. Contractor's monthly, quarterly and completion reports will be submitted to PIU, CIU and if needed to the WB.

Estimated Cost for ESMP: A total budget of USD $492,000 has been allocated to implement the ESMP over a 30-month period. The allocation covers core personnel, routine monitoring, and compliance-driven management activities. Flying fox population and behavior and noise and vibration studies both during the preconstruction phase and the construction phase have also been costed and will be funded by the PIU.

Conclusions and recommendations. The project is expected to bring positive impacts to the community of Lelu Island and Kosrae with improvements in causeway longevity and safety.

The environmental and social impacts associated with the design, construction, operation, and maintenance of the project are expected to be moderate, localized, and acceptable, provided that the corrective actions and mitigation measures outlined in the ESMP are fully implemented. However, there is a Substantial Risk due to the presence of the endangered and restricted range for the Kosrae flying fox within the project's area of influence. This species may be sensitive to disturbance, and construction activities, particularly noise and vibration, with a risk to roost disruption, and altered foraging behaviour. Because the flying fox is listed as endangered, even small-scale impacts may have disproportionate ecological consequences, requiring specialized mitigation, strict timing controls, and enhanced biodiversity monitoring. The need to avoid harm to a threatened species, combined with uncertainty regarding its roosting and movement patterns, elevates the Project to a Substantial Risk classification under the World Bank ESF.

This ESMP is considered appropriate to meet the environmental and social risks management requirements of the WB ESF and the Kosrae state, in respect to the management of the replacement of the Lelu Causeway at Kosrae.

1) INTRODUCTION

a) Report Structure

1. The Environmental and Social Management Plan (ESMP) consists of the following sections: Executive Summary; (1) Introduction; (2) Legal and Institutional Framework; (3) Project Description; (4) Description of the Environment; (5) Anticipated Impacts and Mitigation Measures; (6) Stakeholder Engagement and Information Disclosure; (7) Grievance Redress Mechanism; (8) ESMP Monitoring Plan and (9) Conclusions plus Appendices.

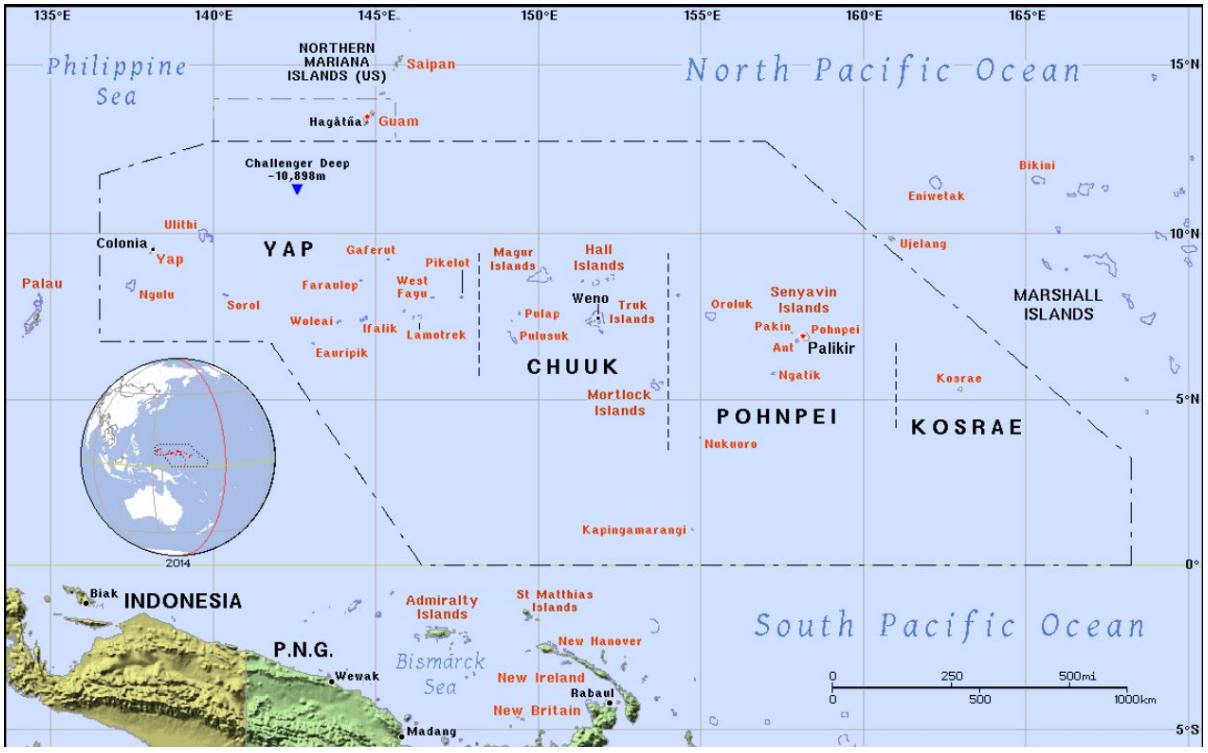
b) Project Background and Rationale

2. **Location**. The Federated States of Micronesia (FSM) is in the northwestern Pacific and is approximately 2700 km from east to west. It includes 607 islands, 74 of which are inhabited, which are scattered over an area of 2.6 million square kilometers (sq km) located between Palau and the Philippines in the west, and the Marshall Islands to the east. It comprises four states, Pohnpei, Chuuk, Kosrae and Yap, with each state having a main island where most of the population is based. Each state is also diverse in terms of language, culture, environmental and land tenure laws.

3. Kosrae is the easternmost state with a population of 5092 (2023 census). It is located approximately 600 km (370 mi) north of the equator, between Pohnpei and the Marshall Islands. It consists of one main island with a land area of approximately 110 km^2 (42 sq mi).

4. The Lelu Causeway Upgrade Project is situated on the eastern side of the island and spans 0.43 miles (2,307 ft), serving as the vital link between Lelu Island and the capital, Tofol, 3 miles away.

Figure 1: Map of Federated States of Micronesia



5. **The project**. The proposed project in Kosrae is the upgrade of the Lelu Causeway. The causeway was constructed more than fifty (50) years ago and the road has been subject to flooding and scouring and subsequent erosion from tidal action. The project is one of a series of projects funded by the World Bank (WB) under the FSM Prioritized Road Investment and Management Enhancement Project (PRIME).

6. The main aim of the improvements is to:

a) resurface the causeway road (length – 2,307 ft) and increase the height of the road by 1 foot above the existing level to provide protection against sea level rise as a result of climate change;

b) Upgrade the existing revetments to provide coastal protection;

c) Enhanced road safety measures to ensure safety of pedestrian movements;

d) Enhance road vehicular safety by improved signage and roadway markings and provision of a galvanized steel metal crash barrier on both sides along the Lelu roadway; and

e) Other minor ancillary improvements.

7. Additional armor rock layer (~131,000 cu ft of rock) for embankment protection will be installed to mitigate existing and future coastal erosion. The source of this rock has not yet been confirmed.

8. **Institutional arrangements.** The Department of Transport, Communications and Infrastructure (DTC&I) is the implementing agency through its Project Implementation Unit (PIU). The design and supervision consultant, ICT, will support the DTC&I PIU, including local and external environmental and social specialist(s). The construction will be carried out through contractors and is open to local and international bidders. Local contracting firms are encouraged to apply for works packages that match their capacity. The Kosrae Island Resource Management Authority (KIRMA) is responsible for implementing the state environmental laws and regulations.

c) **Scope of the ESMP**

9. Objectives of the ESMP are to:

(i) assess the existing environmental and social conditions in the project area, including the identification of environmentally sensitive areas and sensitive social receptors.

(ii) assess the proposed infrastructure design and construction activities to identify potential impacts, evaluate the impacts, and determine their significance.

(iii) propose appropriate mitigation measures that can be incorporated into the proposed activities to minimize any adverse impacts, ensure that residual impacts are acceptable and propose monitoring actions;

(iv) review legislative and approval requirements under which construction activities can occur; and

(v) prepare a matrix of mitigation and monitoring measures that will guide environmental and social risk management during project construction and operation.

10. The preparation of the ESMP involved desktop research, field trips, observational surveys, social surveys and stakeholder engagement. The area of influence was defined iteratively through the study as engineering design was refined, site data collected and impact analysis undertaken.

2) LEGAL AND INSTITUTIONAL FRAMEWORK

a) The Legal Framework

11. The GoFSM is modeled after the federal system similar to that of the United States of America (USA) with a national president and four state governors with respective legislatures and judiciaries. The States of Pohnpei, Chuuk and Yap have four levels of governance – National, State, municipal, and traditional. Kosrae does not have the fourth level of government, as it no longer has traditional leadership.

12. The four States have considerable degrees of autonomy. Each State also has its own set of environmental and social laws and regulations geared to protect the States from a wide range of environmental impacts including the effects of climate change. Under the Compact II, Article VI and section 161 of Title II, FSM is committed to applying the National Environmental Policy Act 1969 (since repealed) and "to develop and implement standards and procedures to protect its environment".

13. The following laws and policies that exist in Kosrae for managing and conserving the environment may apply to the Lelu Causeway Upgrade Project:

- Constitution of the State of Kosrae 1984 (Primary rule of law in the State of Kosrae).
- Kosrae State Code, Title 17, Chapter 4 (Establishes KIRMA).
- Kosrae State Code Title 9 (Establishes the Kosrae Protected Areas System).
- Kosrae Island Resource Management Act.
- Kosrae State Development Regulation 2014.
- Kosrae State Code, Section 11.103 (State Acquisition of Land).
- Kosrae Code, Section 11.1401 and 11.1402 (Protection of antiquities and traditional culture).
- Kosrae Code, Section 11.1601 (Endangered species).
- Kosrae Code Section 11.201 (Land use and subsidiary regulations)
- Kosrae Code, Section 13.1201 (Toilets and the disposal of domestic (human) waste).
- Kosrae Code, Section 13.506 (Littering).
- Kosrae Code, Section 13.514 (Water quality).
- Kosrae Code, Section 13.524 (Endangering a species).

14. The Development Review Commission (DRC) is a five-member body that reviews development proposals and is mandated to "protect the environment … balancing development with those of environmental quality ensuring that economic and social development is environmentally sustainable". The DRC has the authority to enter, enforce, and issue injunctions, or other remedies requiring compliance through the Attorney General. Further, the DRC has the authority to protect the environment and antiquities.

15. The State can acquire an interest in private land for public purpose. The Constitution and Article XI, Land and Environment, provide for fair compensation should there be a need for land acquisition for the purpose of resettlement. The process must be done in good faith with reasonable effort to avoid substantial hardship to the interested parties.

16. **Kosrae Constitution (1984):** Article XI of the Kosrae Constitution addresses land and environment matters. It grants the people the right to " a healthful, clean and stable environment". The State government is required to "by law to protect the State's environment, ecology, and natural resources from impairment in the public interest." The Constitution prohibits nuclear, chemical, gas or biological weapons and hazardous radioactive material being in the State. The Constitution provides "[t]he waters, land, and other natural resources within the marine space of the State are public property, the use of which the State Government shall regulate by law in the public interest…" Rivers and streams may be designated by law public property for use in the public interest. The State Government may acquire land for public purposes without the interested parties' consent, subject to the payment of fair compensation and good faith attempt at negotiation. Title to State land may be acquired by Micronesian citizens who are Kosraean by descent.

17. Kosrae Article VIII of the Kosrae Constitution provides that the two levels of government for Kosrae are State and municipality. Municipalities are granted powers and functions in relation to local affairs, property and government so far as they are not limited by law. The Kosrae Constitution requires the State Government to "protect the State's traditions as may be required by the public interest" (Art II).

18. **Kosrae State Development Regulation 2014:** The purpose of the Kosrae State Development Regulation 2014 is to implement Chapter 4 of the Kosrae Code by establishing the Environmental Impact Assessment (EIA) process which is intended to help the general public and government officials make decisions " with the understanding of environmental consequences of their decisions, and take actions consistent with the goal of protecting, restoring, and enhancing the environment. In addition, the regulations are intended to: Integrate the EIA process into the early planning of projects to insure timely consideration of environmental factors in order to avoid delays; and Identify at an early stage the significant environmental issues requiring further study and de-emphasize insignificant issues, thereby defining the scope of the Environmental Impact Statement ("EIS")."

19. The Regulation defines a "development project" to mean the construction, alteration, movement, fill, removal, disposal or any other modification to the land or coastal areas. A development project can include, but is not limited to the installation, placing, or building of surface structures, land reclamation, navigation channels, harbors, utility lines, piers, shopping centers, clearing land, causeways, golf courses, apartment complexes, hotels, schools, roads, parking areas, or any other similar activity. It also defines "earthmoving" to mean any construction or other activity which disturbs or alters the surface of the land, a coral reef or bottom of a lagoon, including, but not limited to excavations, dredging, embankments, land reclamation in a lagoon, land development, subdivision development, mineral extraction, ocean disposal, and the moving, depositing or storing of soil, rock, coral or earth.

20. Part III sets out the Development Review Permit process which among other things, requires the developer to conduct initial consultation with KIRMA to explain the planned development and to determine if a Development Review Permit application is necessary. KIRMA operates as a semi-autonomous agency within the Kosrae State Government and consists of five units (historic, marine, terrestrial, education, and permitting) which monitors, promulgates safety and security, and informs policy in the protection of the island's resources.

21. If necessary, the proponent then submits an application for a Development Review Permit including an EIA Checklist. The review of the application will involve a determination if an EIS is necessary, depending on the Technical Advisory Committee's assessment of the nature and severity of the potential impacts. A Development Review Permit will be reviewed and granted by KIRMA.

22. The DRC also determines if (under Section 3.7) the proposal requires a public

information meeting "whenever it is reasonably foreseeable that a project will result in a significant impact to the environment, DRC will ensure that all affected persons will have the opportunity to provide input, written or oral, for the project."

23. The Development Review Permit process will be required for the Lelu Causeway Upgrade Project because of the scale of physical works, with the decision being made on whether an EIS is required following a review by the Technical Advisory Committee.

24. The Lelu Marine Protected Area (LMPA) objectives are aligned to support state and national prioritized activities in the Kosrae Biodiversity and Strategic Action Plan, Kosrae Strategic Development Plan (SDP), FSM SDP, and National Biodiversity Strategic Action Plan. The Lelu Municipal Government administers the LMPA, thereby placing it under local jurisdiction. However, relevant state laws do apply and are expected to be enacted. In this respect, collaboration occurs between the municipal and state governments to carry out management of the site. Notwithstanding this, given the nature and scale of the works proposed under the Lelu Causeway Upgrade Project, an ESMP will be required.

b) World Bank Environmental and Social Framework

25. **The World Bank Environmental and Social Framework (ESF)** is a comprehensive system designed to protect people and the environment in projects financed by the World Bank.

i) Core Components

26. **The framework consists** of three primary elements:

- **A Vision for Sustainable Development:** Outlines the World Bank's commitment to environmental and social sustainability.
- **The World Bank Environmental and Social Policy for IPF:** Defines the mandatory requirements the World Bank must follow during project due diligence and oversight.
- **Ten Environmental and Social Standards (ESS):** Specific requirements that **borrowers** must meet throughout the project lifecycle.

ii) The ESF Environmental and Social Standards (ESS) and PRIME E&S Risk Management Instruments

27. **The ten ESS standards** address various project risks, including labour conditions, community health and safety, cultural heritage, and stakeholder engagement. The full list of standards, which cover areas such as environmental and social risk management, resource efficiency, land acquisition, biodiversity, and indigenous peoples, can be found on the World Bank website.

28. Table 1 presents these standards and their applicability to the Project.

29. Several environmental and social instruments were prepared at the time of funding appraisal for the PRIME Project in order to manage risk across all components and project investments in accordance with FSM country systems and the World Bank ESF. Many documents relate to both the PRIME Project and Strategic Climate-Oriented Road Enhancement Project (SCORE):[2]

(i) PRIME Environmental and Social Commitment Plan (ESCP) - outlines the specific environmental and social measures FSM must implement, detailing actions, timelines, and responsibilities to manage risks like pollution, labor issues, and social impacts, ensuring compliance with the ES and the relevant ESS. The ESCP forms

[2] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/453251648600227981

part of the legal agreement between FSM and the World Bank and must be complied with for the duration of the PRIME Project.

(ii) PRIME/SCORE ESMF: is a framework for identifying and managing all environmental and social risks under PRIME and SCORE. The purpose of ESMF is to examine the risks and impacts of a project when the project consists of a program and/or series of works, and the risks cannot be determined until the program or works details have been identified. The ESMF has a screening process for all projects, which guides the scope of the investigations and type of instrument(s) to be prepared (such as ESMP). The ESMF provides general guidance on mitigation and monitoring measures for all projects.

(iii) PRIME/SCORE Resettlement Framework (RF): clarifies resettlement principles, organizational arrangements and design criteria to be applied to PRIME and SCORE works or project to be prepared during project implementation. The RF prescribes the processes for identifying land requirements, consultation with land owners and occupiers, preparing plans or due diligence assessments, valuations, entitlements, land acquisition and monitoring.

(iv) PRIME/SCORE Stakeholder Engagement Plan (SEP): provides stakeholder mapping for the projects and provides a plan for identifying and engaging with stakeholders for each component and project, documenting and addressing feedback, disclosure of documents and a grievance redress mechanism for the projects which must be applied to each project.

(v) PRIME/SCORE Labor Management Procedures (LMP) documents the labor and working conditions requirements, including occupational health and safety (OHS) for all workers under PRIME and SCORE, including contractor's workers, in accordance with ESS2. The LMP also contains a worker's grievance mechanism.

(vi) PRIME Generic ESMP: is a model or template ESMP for moderate risk projects which do not have unique or site-specific risks. It includes a CESMP template. Many of the mitigation measures can be utilised or adapted for use in site specific ESMP.

30. All subproject investments such as the Lelu Causeway Upgrade Project, must follow the processes, procedures and standards of the aforementioned instruments. The Lelu Causeway was screened under the ESMF and RF (Appendix L) and the screening concluded the following:

31. The Project could have been assigned a Moderate Risk classification under the World Bank Environmental and Social Framework (ESF). This rating reflects the limited, site-specific nature of anticipated environmental and social impacts, which are expected to be few in number, readily identifiable, and not technically complex.

32. However, the Project is upgraded to Substantial Risk due to the presence of the endangered and restricted range Kosrae flying fox within the project's area of influence. This species may be sensitive to disturbance, and construction activities, particularly noise and vibration, pose a risk of roost disruption, and altered foraging behaviour. Because the flying fox is listed as endangered, even small-scale impacts may have disproportionate ecological consequences, requiring specialised mitigation, strict timing controls, and enhanced biodiversity monitoring. The need to avoid harm to a threatened species, combined with uncertainty regarding its roosting and movement patterns, elevates the Project to a Substantial Risk classification under the World Bank ESF. Successful mitigation measures will reduce the residual impact to low.

33. Given this risk profile, the ESMP focuses on practical, implementable controls, biodiversity monitoring during preconstruction and construction periods, and clear assignment of responsibilities to ensure compliance with the World Bank's Environmental and Social Standards (ESSs). No specialised engineering solutions or advanced technical interventions are required.

34. This PRIME Sub-Project will be referred to as a Project, throughout the document for simplicity, required a site specific ESMP, proportionate to the environmental and social risks. The Generic ESMP mitigation measures could be applied where relevant.

35. The Project required a Land Access Due Diligence Report (LADDR) to validate the land ownership and approvals for the works to go ahead.

36. The Project must implement and comply with the LMP and SEP, proportionate to the risks and issues.

Table 1: World Bank: Environmental and Social Standards and Applicability to the Project

Standard	Application to the Project
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	PRIME project instruments were prepared in accordance with ESS1. Under the ESMF the Project could be screened as "Moderate Risk" which indicates that the project is located in areas with valuable ecosystems while the potential impacts on these areas are manageable and impacts will be site-specific, local and / or temporary. However, the Project is upgraded to Substantial Risk due to the presence of the endangered flying fox within the project's area of influence. This species may be sensitive to disturbance, and construction activities, particularly noise and vibration, pose a risk of roost disruption, and altered foraging behavior. Because the flying fox is listed as endangered, even small-scale impacts may have disproportionate ecological consequences, requiring specialized mitigation, strict timing controls, and enhanced biodiversity monitoring. The need to avoid harm to a threatened species, combined with uncertainty regarding its roosting and movement patterns, elevates the Project to a Substantial Risk classification under the World Bank ESF. The ESMP will apply federal and state laws and regulations, the PRIME instruments and World Bank Group Environmental, Health and Safety Guidelines (EHSGs). Consultations with stakeholders and affected communities are used to inform the decision-making process.
ESS2: Labor and Working Conditions	The LMP includes all requirements for PRIME subprojects to comply with ESS2. Workers involved in the Project will include contracted workers. The LMP includes terms and conditions of employment, nondiscrimination and equal opportunity (which includes a safe work environment free from violence and sexual harassment), workers' organizations, restrictions on child and forced labor, and OHS in design, construction, and operational phases. The LMP refers to the OHS Management Plan guidelines in the Generic ESMP as a requirement for all projects to follow. The LMP is applicable to the Lelu Causeway Upgrade Project.
ESS3: Resource Efficiency and Pollution Prevention	ESMF risk screening and mitigation procedures include resource efficiency and pollution prevention. Efficiency of resource use, e.g. local quarry material sourcing and material reuse, has been considered in ESMP and road design. The aim is to minimize both haulage distances and overburden removal and byproduct wastage to maximize resource efficiency. No use of beach materials or coral rock is to be used, in accordance with the requirements of the ESMF. An Erosion and Sediment Control Plan (E&SCP) will be adopted by the Contractor in the CESMP to minimize sediment loss to receiving waters, and Waste Minimization and Management Plan (WMMP) will prevent any hazardous materials loss from the project construction site. Noise emissions and vibration and emissions to air will be managed through good international industry practice in the CESMP.
ESS4: Community Health and Safety	ESMF risk screening and mitigation procedures include community health and safety.

	The use of out-of-State labor for the Project has been considered, and the risks identified and described in this ESMP. Contractor-managed training and appropriate measures will be in place to prevent the transmission of HIV/AIDS, and elimination of sexual exploitation and abuse and sexual harassment (SEA/SH) will be undertaken during the project works. Signed 'Codes of Conduct' by the construction workforce will be completed, with their responsibilities clearly articulated during training. Road safety features during both construction and operation have been considered in design, in accordance with World Bank guidance. These features have been assessed for residual risk. A Traffic and Road Safety Management Plan (TRSMP) in the CESMP will control risks around the work site.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	The RF principles, processes, risk screening, planning and compensation entitlements address ESS5 requirements. A LADDR has been prepared for the Lelu Causeway Upgrade Project. The Kosrae Government holds title to Lelu Causeway and the land on which Dominique's Pizza and the residential structure supporting the Clam Aquaculture Research Center (CARC) are situated.All marine areas, reefs, and mangrove areas including the LMPA are managed by the State Government as public trusts. The LADDR confirms that no land acquisition or involuntary resettlement is required for this Project.
ESS6: Biodiversity Conservation and Sustainable Management of Natural Resources	ESMF risk screening and mitigation procedures include ESS6 requirements. Some embankment works, 8 ft extension into the LMPA, will be undertaken within the LMPA and roadworks will be undertaken close to the habitat of the endangered Kosrae Flying Fox (*Pteropus ualanus)* on Yen Yen Island. The LMPA is for the protection of the marine and terrestrial locations around Lelu for its rich and unique variety of plant and animal life. The ESMP established that the project is not located in areas where there will be significant changes (loss) natural habitats, be it directly (through the construction) or indirectly (with the human activities caused by the project). During construction of roadworks adjacent to roosting area of the Kosrae Flying Fox, there is likely to be a requirement to minimize significant noise and vibration in the vicinity of this area. Sediment discharge from road and embankment works will be minimized by construction-related controls e.g. E&SCP and WMMP. These mitigation strategies lead to enhanced biodiversity outcomes.
ESS7: Indigenous Peoples	ESS7 is applicable to PRIME. Consistent with the FSM ESMF, no standalone Indigenous Peoples Plan or Indigenous Peoples Planning Framework has been prepared. Instead, the requirements of ESS7 have been integrated into project design and embedded across the ESMF, the Resettlement Framework (RF), the Stakeholder Engagement Plan (SEP), and this ESMP.
ESS8: Cultural Heritage	ESMF risk screening and mitigation procedures includes cultural heritage identification and protection. The project involves construction works within an existing road corridor / causeway. No cultural heritage sites or artefacts have been identified within the corridor however a set of graves are to be protected near the Lelu township on Lelu Island. Mitigation measures in the CESMP will ensure these sites, and access to these sites, is not disturbed. A Chance Find procedure in

	conjunction with and Cultural Heritage Procedure is required in the CESMP to ensure appropriate measures are taken in the event that cultural heritage artefacts, including human remains, are encountered.
ESS10: Stakeholder Engagement and Information Disclosure	The SEP addresses all ESS10 requirements for PRIME. The SEP has been followed in the preparation of the Lelu Causeway Upgrade Project. The SEP outlines the approach for community outreach and two-way engagement with stakeholders, in appropriate languages, and the inclusion of vulnerable and disadvantaged groups (poor, disabled, elderly). The SEP provides a summary of stakeholder engagement actions required for the pre-construction, construction and post construction phase. The ESMP will be disclosed on the relevant Kosrae State and FSM websites and the WB's website and discussed at stakeholder engagement meetings.

37. **The World Bank Group Environmental, Health and Safety Guidelines (EHSG):** The World Bank Group's *General Environmental, Health, and Safety Guidelines 2007 (EHS Guidelines*)[3] are technical reference documents with general and industry-specific examples of good international industry practice. When one or more members of the World Bank Group are involved in a project, these EHSG are applied as required by their respective policies and standards. The General EHSG are designed to be used together with the relevant industry sector EHSG which provide guidance on issues in specific industry sectors.

38. The EHSG contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. The applicability of the EHSG should be tailored to the hazards and risks established for each-project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. When host country regulations differ from the levels and measures presented in the EHSG, projects, where possible, are expected to achieve whichever is more stringent.

39. The General and Industry Sector EHSG and the International Standards and OHS Labor Guidelines are available at the following link – https://www.ifc.org/en/insights-reports/general-environmental-health-and-safety-guidelines.

[3] https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf

3) PROJECT DESCRIPTION

a) Location

40. The Lelu Causeway is located on the eastern side of the island of Kosrae and is 0.43 miles (2,307 ft) long. It is a coral and basalt rock-sealed causeway constructed directly onto the intertidal reef platform that dissects the intertidal reef between Lelu Island and the main island of Kosrae (Figure 2).

41. The causeway is bordered on both sides (east and west) by an extensive coastal intertidal reef flat, small volcanic islands, and an extensive sheltered tidal bay that possesses mangroves along its western, eastern, and southern sides. The intertidal reef flat, which includes two natural reef “blue holes”, terminates to open ocean approximately 1.6 miles offshore. It lies on the east coast of the island linking the promontory with the main island. The embayment formed by the promontory is called Lelu Harbor.

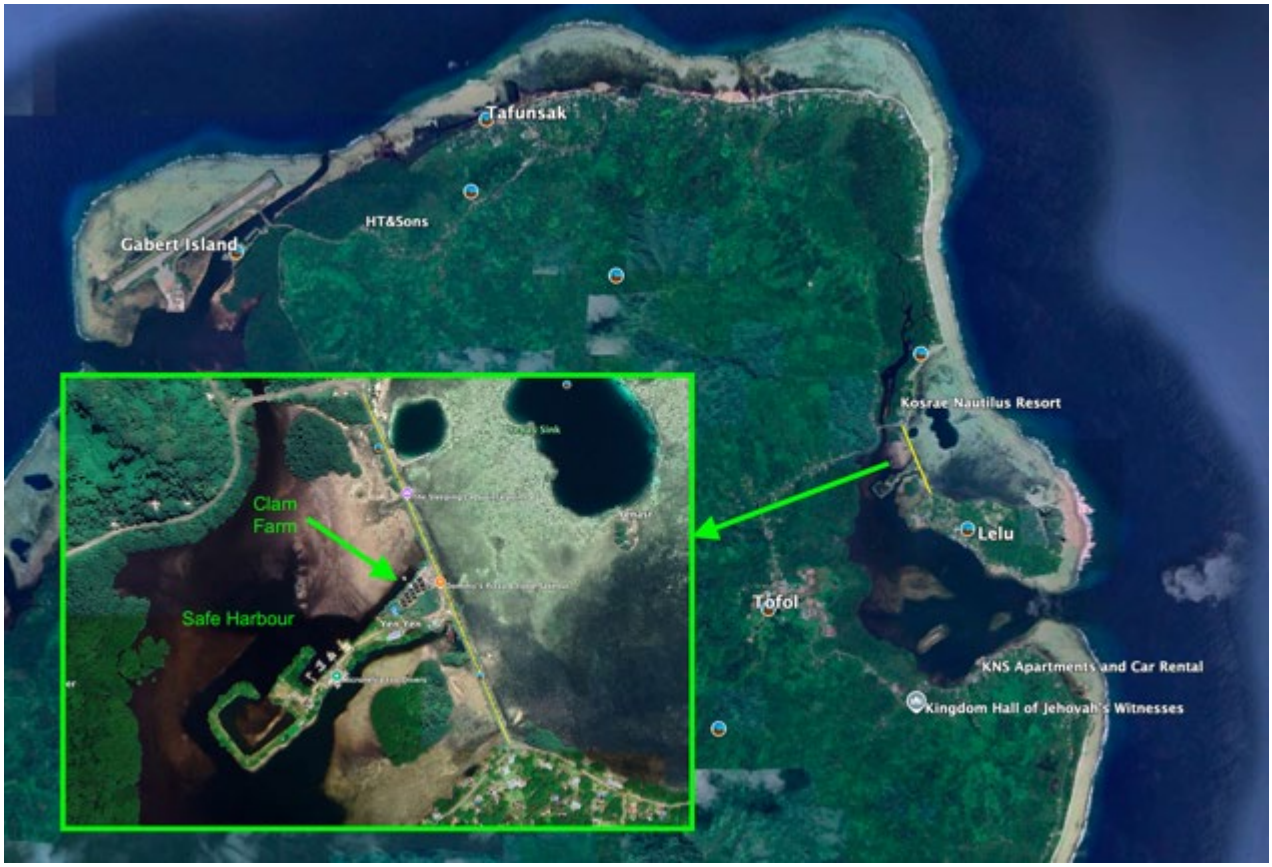
42. The Lelu causeway connects Lelu town to the main road of Kosrae and provides the only connection for residents to important services and facilities such as the airport, port, hospital, state capital (Tofol) and other important population centres in Tafunsak, Malem and Utwe.

43. On Lelu Island (population 1500 people), there is one primary school and high school students attend Kosrae High School in Tofol, ~ 3 miles from the island via the causeway from Lelu Island.

44. The location of the sensitive key receptors are shown in (Figure 3) and are listed in Table 2. These key sensitive receptors are Dominique’s Pizza restaurant/take away shop located halfway along the causeway, the Clam Aquaculture Research Centre (CARC) adjacent to Dominique’s Pizza, community swimming area at the Blue Hole pier towards the northern end of the causeway, the FSM Bank at the northern end of the causeway, and the marina which lies in the lagoon side of the causeway and the Alokoa grave site. The Sleeping lady vista viewing site is an accessible scenic location that offers an unparalleled panorama of the island’s mountainous contours against the horizon. It is accessible via the villages surrounding Lelu Harbor, which offer some of the most prominent vantage points across the water.

45. Residential areas at the southern end of the causeway may occasionally be affected by noise and dust when machinery is working in the area. The northern areas are unlikely to be affected by roadworks and are shown for completion.

Figure 2: Road and causeway location map



46. The Lelu causeway was constructed more than fifty (50) years ago. In the present condition, the causeway is found to be narrow, low, and has insufficient drainage facility and has been subject to erosion and scouring from tidal action. Without remedial works, the road will experience ongoing maintenance issues and traffic delays. The current vehicle speeds are maximum of 15 miles per hour.

Figure 3: Location of the Lelu Causeway and key sensitive receptors



Table 2: Register of key sensitive receptors near Lelu causeway

Social and Culture receptors	Description	Verification date
The Alokoa grave	Local grave sites outside of prosed roadworks at southern end of roadworks.	Friday 12th September and 14th September – Consultation with PMU Roads Kosrae– Bruce Howell and Mr. Steve Palik, Executive Director of KIRMA Consultation re: sensitive receptors and Heritage e.g. graves Mr. Steve Palik indicated that when the contractor applies for his KIRMA development review permit, that an official historic preservation review will be made by the KIRMA HPO office for the project.
Senior Citizen Center and community meeting area	Senior Citizen building on reclaimed land with clam farm and marina. Can relocate to the city hall and other facilities if required for short term disruption.	
Dominique's Pizza and residence	Local eatery located on the main causeway in Lelu, Kosrae	
Clam Farm	Land-based eco-tourism and marine conservation facility located on the main causeway in Kosrae	
Marina	Mooring for small boats.	
Blue hole	Natural marine sinkhole located adjacent to the causeway	
Kosrae Nautilus Resort	Local resort located north of the causeway. May be minor impacts from increased local traffic during construction.	
Natural beach setting	Family access to small beach setting. May be minor impacts from increased local traffic during construction.	
FSM Bank Building	At the northern road junction. Increased passing traffic during construction will require road safety separation so business activities remain uninterrupted.	

47. A one lane access route will always be available on the causeway during the construction period, for vehicular traffic, safe pedestrian access and emergency access. A Traffic and Road Safety Management Plan (TRSMP) will be prepared by the contractor.

Scope of Works

48. The scope of works (SOW) focuses on improvements to mitigate climate change impacts with the possible occurrence of more severe typhoons combined with sea- level rise resulting in increased flooding and potentially coastal change resulting in damage and loss of lives, coastal homes, land, and infrastructure.

49. The improvements to the Lelu Causeway are detailed in the design report 'Lelu Causeway Improvement in Kosrae Vol 1 – Main Report (September 2024)'. The following SOW is to be undertaken:

- Resurfacing of the roadway along the causeway by adding an overlay to the existing alignment, increasing the height by one foot above the existing level to provide protection against sea level rise as a result of climate change;
- An asphaltic concrete flexible pavement will be constructed with a design period of 20 years;
- The existing culverts and crossing structures will remain;
- Additional revetments/embankment added to the sides to offer upgraded coastal protection;

- There will be enhanced road safety measures to ensure safety of pedestrian movements e.g. foot paths, crosswalks, lighting, solar studs and other safety measures;
- Provision of a staircase adjacent to the pier, on both sides of the causeway to access the waterfront;
- Road vehicular safety measures include junction design to ensure smooth safety and traffic circulation, improved signage and roadway markings to ensure safety especially at junction locations for crosswalk movement and provision of a galvanized steel metal crash barrier on both sides along the Lelu Causeway; and
- Provision for underground utilities along the roadway, such as water pipeline, electrical and fibre optic cables in the left-hand side (LHS) below the paved shoulder.

i) Climate Change

50. An assessment of climate change was undertaken in the Design Report for the Project[4]. The design report for roadway improvements is based upon a series of hydrological analyses, including climate change predictions (Table 3)[5].

4 Revised Final Design Report (Draft) - [Lelu Causeway Improvement In Kosrae] Volume I - Main Report - Intercontinental Consultants and Technocrats Pvt. Ltd. in joint venture with CHEIL Engineering Co., Ltd. Seocho-gu, Seoul, September, 2024

5 Revised Final Design Report (Draft) - [Lelu Causeway Improvement In Kosrae] Volume I - Main Report - Intercontinental Consultants and Technocrats Pvt. Ltd. in joint venture with CHEIL Engineering Co., Ltd. Seocho-gu, Seoul, September, 2024

Table 3: Climate changes over the next few generations for Kosrae

Design Parameters	Lelu Causeway (Kosrae)
1. Basic Information	
Design life for Causeway (years)	The design life of causeway embankment is 25 years. The structures and road level of causeway are designed for 100 years.
Difference of Causeway surface between present and completed Causeway (m)	Existing road level followed for design. No raising.
2. Sea Level Rise	
Rate of historical sea level rise for the State (mm / yr.)	Not Known
Reference (source and / or web link)	-
Predicted sea level rise for the State	7.4 mm/yr. for adopted Representative Concentration Pathway (RCP) 6.0
Reference (source and / or web link)	Climate Risk Country Profile: MICRONESIA by World Bank
Design sea level rise for subject Causeway (ft)	As per the coastal hydrodynamic modeling
Design tidal / storm surge for subject Causeway during design life of Causeway	8.66 ft
Detailed justifications	As per the coastal hydrodynamic modeling
3. Tidal Wave / Storm Surge	
Highest king tide in history	7.27 ft
Year when highest king tide occurred	2005
Reference (source and / or web link)	http://kosraecoast.com/coastal-inundation/high-king-tides/
Predicted king tide for the State	8.66 ft
Return period (once in xx years)	100 years
Reference (source and / or web link)	coastal hydrodynamic modeling
4. Rainfall for Drainage	
Historical 24-hr rainfall	302.6 mm
Design 24-hr rain intensity for drainage	237 mm (10-year average recurrent interval (ARI))
5. Overtopping	
Frequency (return period expressed in years)	No overtopping
Frequency (expected no. of times each year)	-
Expected hours for each overtop	-
Expected water depth for overtopping (mm)	-

ii) Road Upgrade – Additional Height Increase to the Road Formation Level and New Pavement

51. The terrain of the causeway is very flat. The causeway will be raised by one foot above the existing level to enhance drainage and longevity. This relates to the RCP 6.0 climate change scenarios e.g. a raising of sea levels of 7.4 mm / yr (see Table 3).

52. Pavement Design: A flexible pavement will be utilized because of the following advantages:

- Flexible pavements typically require lower initial construction costs compared to rigid pavements like concrete;
- The roadway network preceding and succeeding the project is flexible pavement as such improvement with flexible pavement would help maintain uniformity;
- Flexible pavements are generally easier to maintain, and repair compared to rigid pavements; and
- When cracks or potholes develop, they can often be patched or repaired relatively quickly and with minimal disruption to traffic flow.

53. The Kosrae State Department of Transportation and Infrastructure, responsible for maintenance, has necessary workforce, equipment and required materials for annual and periodic maintenance of the flexible pavement.

54. The pavement layers will consist of a soil subgrade layer of thickness around 1 ft., granular subbase layer of thickness 10“ and granular base layer of 8” and asphalt concrete of 3”.

55. The volumes of key materials required for these works are shown in Table 4 with the likely sources of material listed. The source of the aggregate materials (sub-base, base course, concrete aggregate) will have to be imported from international sources to meet quality requirements.

Table 4: Road Material Construction Quantities

Road Pavement	**Unit**	**Quantity**	**Source**
Granular Base and Sub-base	cuft	15,979	To be imported to Lelu
Asphaltic concrete			Mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacted with 8-10 tons vibratory roller, finishing and curing.
Bitumen	tn	84	To be imported to Kosrae
Aggregate	cuft	20,805	Aggregate for asphaltic concrete to be imported
Road Embankment		**Quantity**	**Source**
Fill			Construction of embankment with approved materials deposited at site from roadway cuttings, excavation from the drains, or borrow pits on Kosrae
Borrow Area	cuft	1,124	
Roadway cutting	cuft	34,221	
Subgrade	cuft	94,144	
Concrete		**Quantity**	**Source**
Concrete poured on site.	cuft	1,579	Mixed in a batching and mixing plant as per approved mix design, transported to site and poured into forms. Concrete aggregate to be imported
Armouring Rock	cuft	82,947	Source yet to be confirmed
Stone pitching	cuft	38,722	Source yet to be confirmed

iii) Embankment Slope Protection for Coastal Erosion

56. The existing embankment sections of the roadway are not in good condition due to the continuous influence of water bodies as well as extreme conditions, during high tides and water level rise. There are a number of cavities in the embankment layers and pavement layers/fill material have been washed away and will continue to do so, undermining the structural integrity of the road.

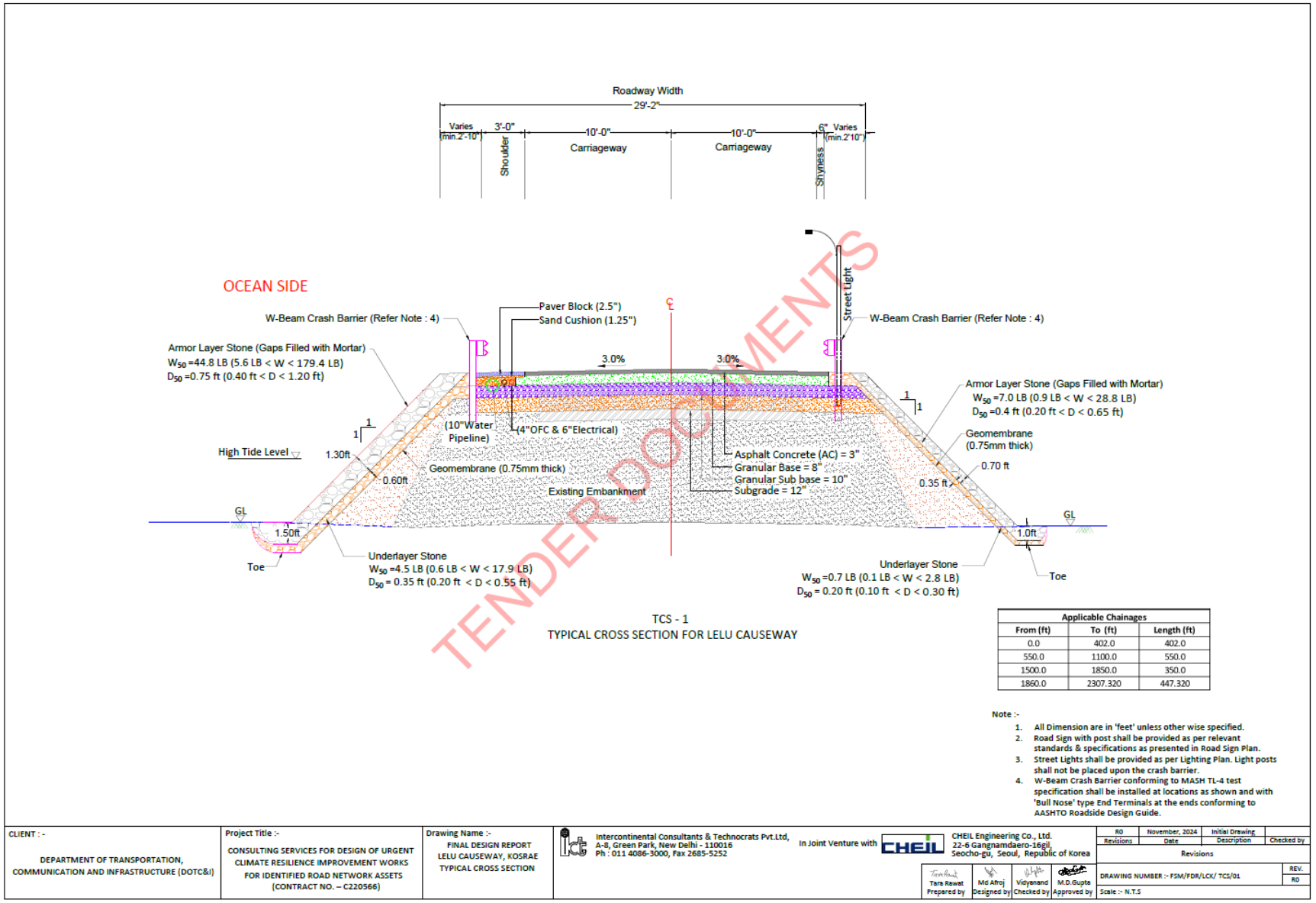
57. The amour protection design for the embarkments to be renovated and stabilized is shown in Figure 4. A geomembrane (0.75mm thick) is placed at the base of the embankment, then a section of underlayer stone (0.5ft thick) before a two stone width amour layer (1ft thick) filled with mortar is placed on top. The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe, and by 10 ft into the adjacent oceanic waters leading to works within the LMPA.

58. The marine and lagoon (estuarine) foreshore and seabed either side of the causeway are owned and managed by the state.

59. Embankment renovations are to be undertaken for 1,907 ft on the ocean side (82 % of causeway length) and 1,357 ft (58 % of causeway length) for the lagoon side (Figure 5).

60. A cross section of the stairway to the water's edge is shown in Figure 6.

Figure 4: Embankment Armoring Design and Shoulder Area for Pedestrians on Ocean Side



TCS - 1
TYPICAL CROSS SECTION FOR LELU CAUSEWAY

Applicable Chainages		
From (ft)	To (ft)	Length (ft)
0.0	402.0	402.0
550.0	1100.0	550.0
1500.0	1850.0	350.0
1860.0	2307.320	447.320

Note :-
1. All Dimension are in 'feet' unless other wise specified.
2. Road Sign with post shall be provided as per relevant standards & specifications as presented in Road Sign Plan.
3. Street Lights shall be provided as per Lighting Plan. Light posts shall not be placed upon the crash barrier.
4. W-Beam Crash Barrier conforming to MASH TL-4 test specification shall be installed at locations as shown and with 'Bull Nose' type End Terminals at the ends conforming to AASHTO Roadside Design Guide.

CLIENT : - DEPARTMENT OF TRANSPORTATION, COMMUNICATION AND INFRASTRUCTURE (DOTC&I)	Project Title :- CONSULTING SERVICES FOR DESIGN OF URGENT CLIMATE RESILIENCE IMPROVEMENT WORKS FOR IDENTIFIED ROAD NETWORK ASSETS (CONTRACT NO. – C220566)	Drawing Name :- FINAL DESIGN REPORT LELU CAUSEWAY, KOSRAE TYPICAL CROSS SECTION	Intercontinental Consultants & Technocrats Pvt.Ltd, A-8, Green Park, New Delhi - 110016 Ph : 011 4086-3000, Fax 2685-5252 In Joint Venture with CHEIL Engineering Co., Ltd. 22-6 Gangnamdaero-16gil, Seocho-gu, Seoul, Republic of Korea	Tara Rawat Prepared by	Md Afroj Designed by	Vidyanand Checked by	M.D.Gupta Approved by

Revisions	Date	Description	Checked by
R0	November, 2024	Initial Drawing	

Revisions

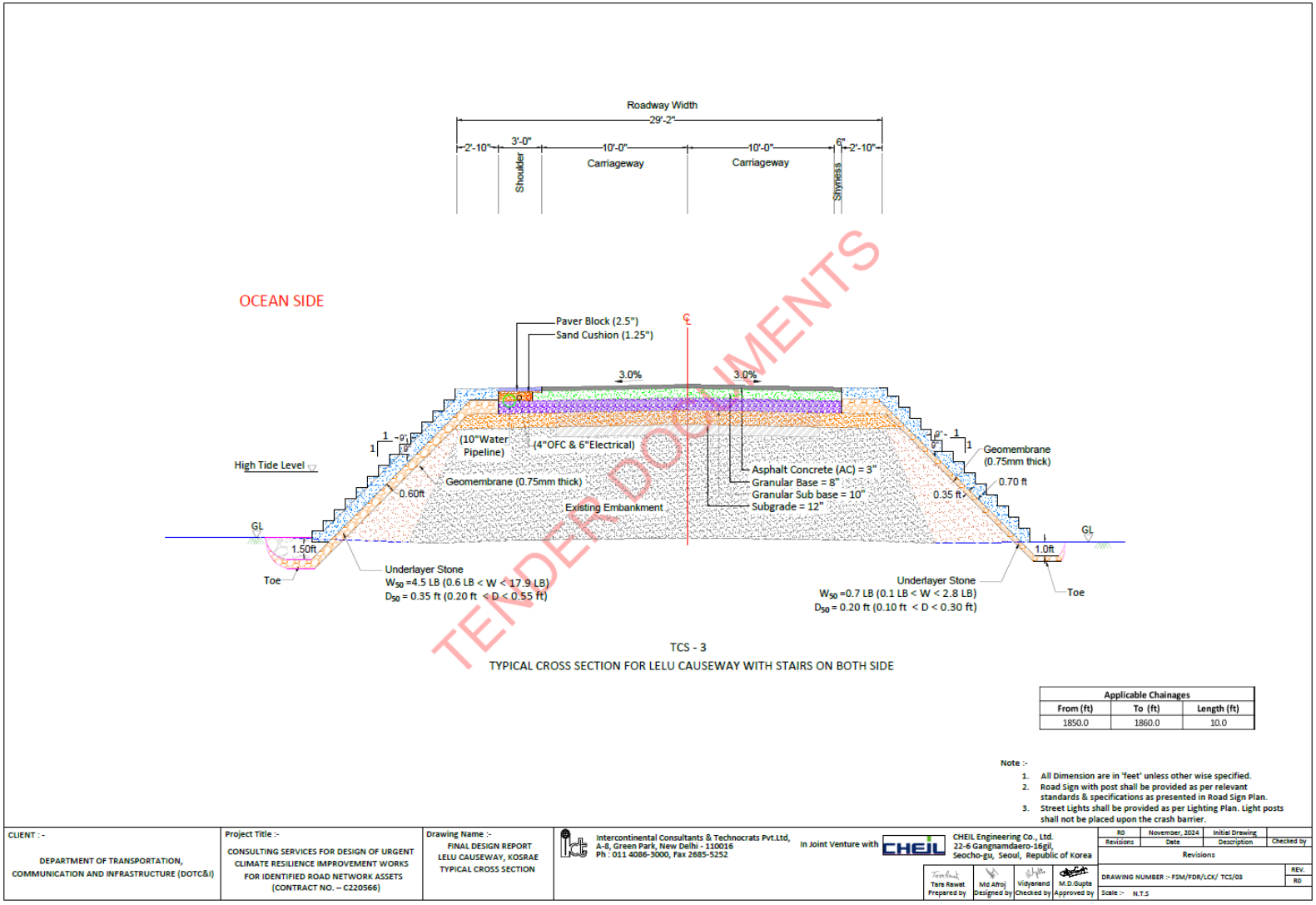
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Scale :- N.T.S

Figure 5: Embankment protection along the project area (yellow dotted line)



Figure 6: Detail of stairway to water's edge



iv) Pedestrian Safety

61. Five flat-topped road humps along the causeway will be installed along a length of 230 ft' (700 m), which ensures pedestrian safety and reduces the operating speed of the causeway.

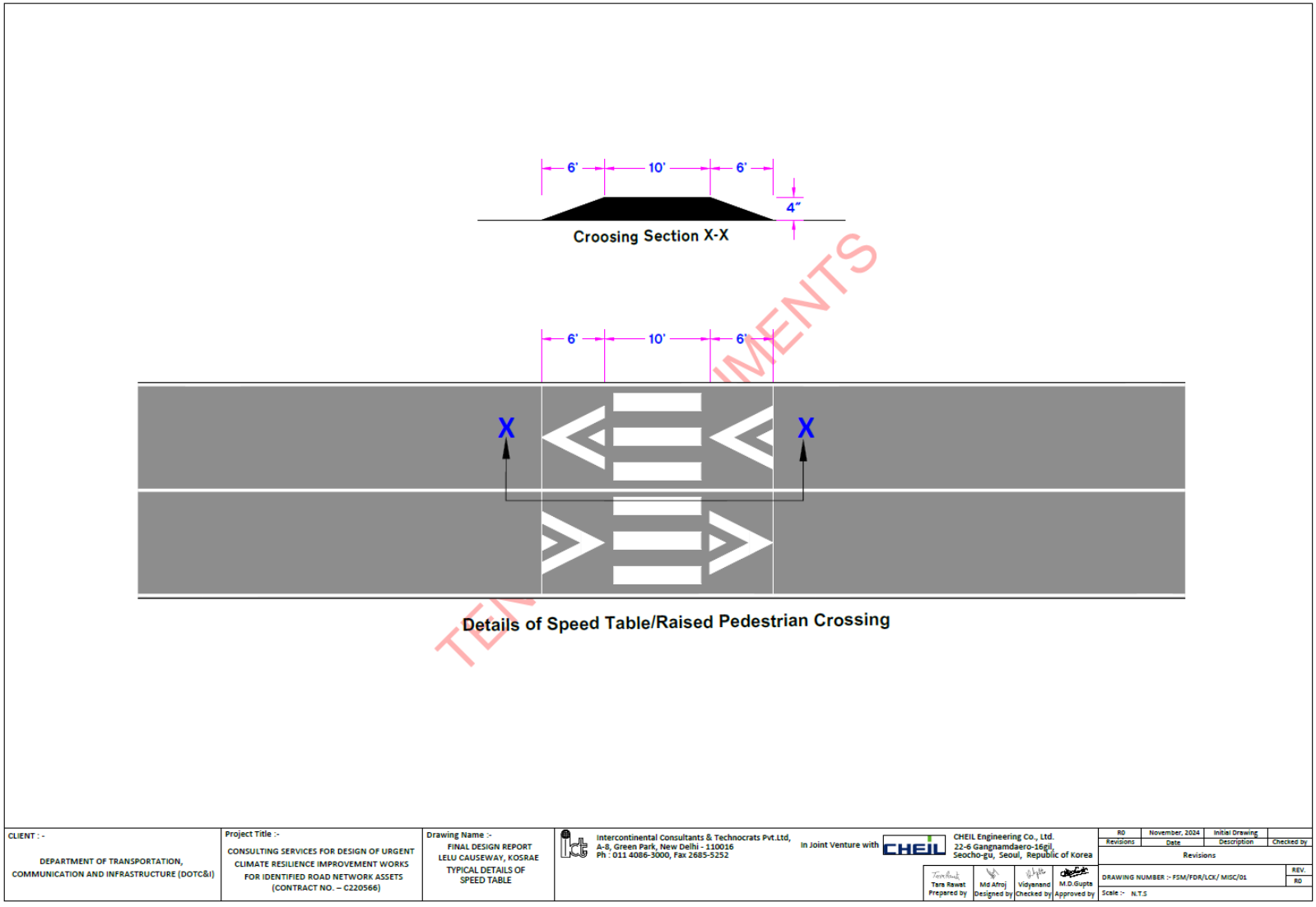
62. Provision of a 3 ft paved shoulder along the ocean side of the causeway to facilitate pedestrian movement.

63. Further to enhance the safety of pedestrians along the project roadway, provision of a crosswalk and raised speed table at the junction of the causeway and the main island road with signage and marking will be installed (Figure 7).

64. Three streetlights along each leg of both intersections (mainland and Lelu Island) have been provided, with an additional eight new streetlights along the length of the causeway.

65. Provision of staircases on both sides at the pier location to access waterfront.

Figure 7: Detail of speed table



v) Road Safety

67. Safety features include:

- Improved junction design.
- Provision of W beam (G4) galvanized steel metal crash barrier on both sides along the Lelu roadway.
- During construction one-way movement will be maintained at all times. The maximum length of one-way movement has been minimised to 500' (150 m) regulated by signage and flag people / portable traffic lights on both sides.

vi) Land Access

68. The Lelu causeway and associated entry/exit roads are located within a gazetted Kosrae state road easement, whilst all reclaimed land associated with the causeway and the intertidal reef flat and marine estuarine foreshore and seabed either side of the causeway are owned by the state and as such falls under the management of the state. Land parcels located directly landwards of the causeway on Lelu Island and the mainland outside of the road easement are privately owned and are not part of the project footprint. The updated LADDR can be found in Appendix A.

vii) Construction Timeline, Workforce numbers and Temporary Works

69. The proposed timeline for the roadworks to be completed is 24 months with an additional six months of preconstruction activities. Typical roadwork crews will consist of several expatriate engineers, key personnel from neighboring FSM States as part of the contractor's team and a local workforce. There is choice of local accommodation, e.g. hotels, apartment blocks and housing at the capital of Tofol, ~ 3 miles away from the works.

70. The Contractor will require a lay-down area to store materials, batch concrete and have offices and ablutions. The Contractor will be required to identify suitable areas noting the ecological significance of the endangered flying fox and the need to negotiate access with landowners for the duration of the Project.

4) DESCRIPTION OF THE ENVIRONMENT

71. This section characterizes the existing social and environmental context in which development will take place. The description of the environment is characterized in terms of the physical, biological, and socioeconomic environment. Baseline conditions are described where possible in quantitative terms and, where not possible, in qualitative terms.

72. The description makes use of relevant information provided from government resources supplemented by additional information collected via rapid marine localized surveys, flora and fauna survey and community consultation. The project area of influence has been evaluated as follows:

73. The description makes use of relevant information provided from government resources supplemented by additional information collected via rapid marine localized surveys, flora and fauna survey and community consultation. The project area of influence has been evaluated as follows:

a. Landowners and occupiers, including businesses, adjacent the road, including at the junctions on Lelu Island and Kosrae Island (construction nuisances, road works disruptions, changes to road layout, worker-related safety risks).

b. Road users from Lelu Island and elsewhere in Kosrae, including those visiting the businesses (road works disruptions and safety risks).

c. Lelu Island residents, particularly vulnerable women and children (worker safety risks).

d. Coastal margins and waterways within 30 ft of the shoreline (occupation of the foreshore due to the extension of the causeway footprint, construction and operational stormwater discharges).

e. The endangered Kosrae Flying Fox habitat on Yen Yen Island (noise and vibration from construction works and potential light pollution).

f. Landowners and occupiers, including businesses, adjacent the road, including at the junctions on Lelu Island and Kosrae Island(construction nuisances, road works disruptions, changes to road layout, worker-related safety risks).

g. Road users from Lelu Island and elsewhere in Kosrae, including those visiting the businesses (road works disruptions and safety risks).

h. Lelu Island residents, particularly vulnerable women and children (worker safety risks).

i. Coastal margins and waterways within 100 ft of the shoreline (occupation of the foreshore due to the extension of the causeway footprint, construction and operational stormwater discharges).

j. The endangered Kosrae Flying Fox habitat on Yen Yen Island (noise and vibration from construction works and potential light pollution).

74. Areas not able to be determined in the baseline are borrow pits, quarries and laydown areas, all of which will be located during the pre-construction or construction phases. Based upon the experience of other road projects in FSM, aggregate materials to strengthen and seal the road (sub-base, base course, concrete aggregate) will have to be imported from international sources but nonstructural materials (e.g. fill for the embankment extensions) may come from local sources.

- A series of photos along the roadway taken by the design team in August 2022 and April 2023 and other photos in December 2025 highlight some of the major features of the area (Figure 8).

- Highlights include: A long shot of the two-way causeway with ocean side vegetation, safety bollards and powerline distribution on the lagoon side (Figure 9 - Photo A). A low tide photo of the culvert under the causeway linking the lagoon and the ocean side (Figure 9 - Photo B). The embankment along the causeway and ongoing erosion issue (Figure 9 - Photo C). sedimentation in the lagoon (Figure 9 – Photo D).

- Long sections of vegetation growing on the lagoon side embankments are regularly cleared for safe access and operation of the power distribution system (Figure 10 - Photo A). A noticeboard publishing the restriction on fishing and harvesting of marine life as part of the LMPA is shown on (Figure 10 - Photo B.

- Road condition and need for road repairs are shown in Figure 11 – Photos A, B, and C.

- Figure 12 – Photo A and B shows clearing undertaken on the lagoon side to maintain safe access to the power distribution system which links Lelu Island with the mainland.

- On the ocean side of the causeway is a pier near Blue Hole. The pier is used for swimming and sightseeing for the residents and visitors (Figure 13 - Photos A and B). Ocean side vegetation and Dominique's Pizza on reclaimed land halfway along the causeway on the lagoon side (Figure 13 – Photo C).

75. The causeway's adjacent land reclamation land parcels e.g. Clam Aquaculture Research Center (CARC) and marina were not suitably elevated above high spring tides resulting in water levels less than 0.5 m below land level affecting natural rainwater drainage and dispersal resulting in direct impacts on all infrastructure and drainage systems. During periods of high rainfall (frequent) and high tidal heights, pooling of water occurs in several locations within the site. This creates mosquito breeding areas.

76. Approximately halfway along the causeway, there is a well-established Clam Aquaculture Research Center facility. This has been operating for over 20 years. The land and building are government owned and are leased to the current owners on a 20-year lease with an option for another 20-year extension.

77. Social baseline verification before mobilization. The PIU, supported by the CIU and the Supervision Consultant, will verify the social baseline through short surveys and targeted meetings with affected businesses and households, road and Blue Hole users, women, older persons, persons with disabilities, youth, land users, and cultural custodians. The update will record the number and profile of participants; access and livelihood conditions; use of public and community facilities; barriers faced by vulnerable groups; labor and worker-influx risks; knowledge of the community and worker GRMs; safe SEA/SH reporting options; and cultural heritage concerns. Data will be separated by sex, age and disability where appropriate. The results and source documents will be attached to the social baseline update and used to update the CESMP, stakeholder engagement schedule, GRM access measures, labor measures, and livelihood and access controls before works start.

Figure 8: Location of Clam Aquaculture Research Facility and water pipeline location



Figure 9: Lelu Causeway (A)/ Culvert at Ch. 210 (B)/ Damaged embankment towards Ocean side (C)/ Sedimentation at Lagoon Side (D)



Figure 10: Vegetation clearing undertaken on the lagoon side of the causeway to maintain access and safety for the power distribution system (A)/ Sign Board for Declaration of Protected Area on Lagoon Side (B)



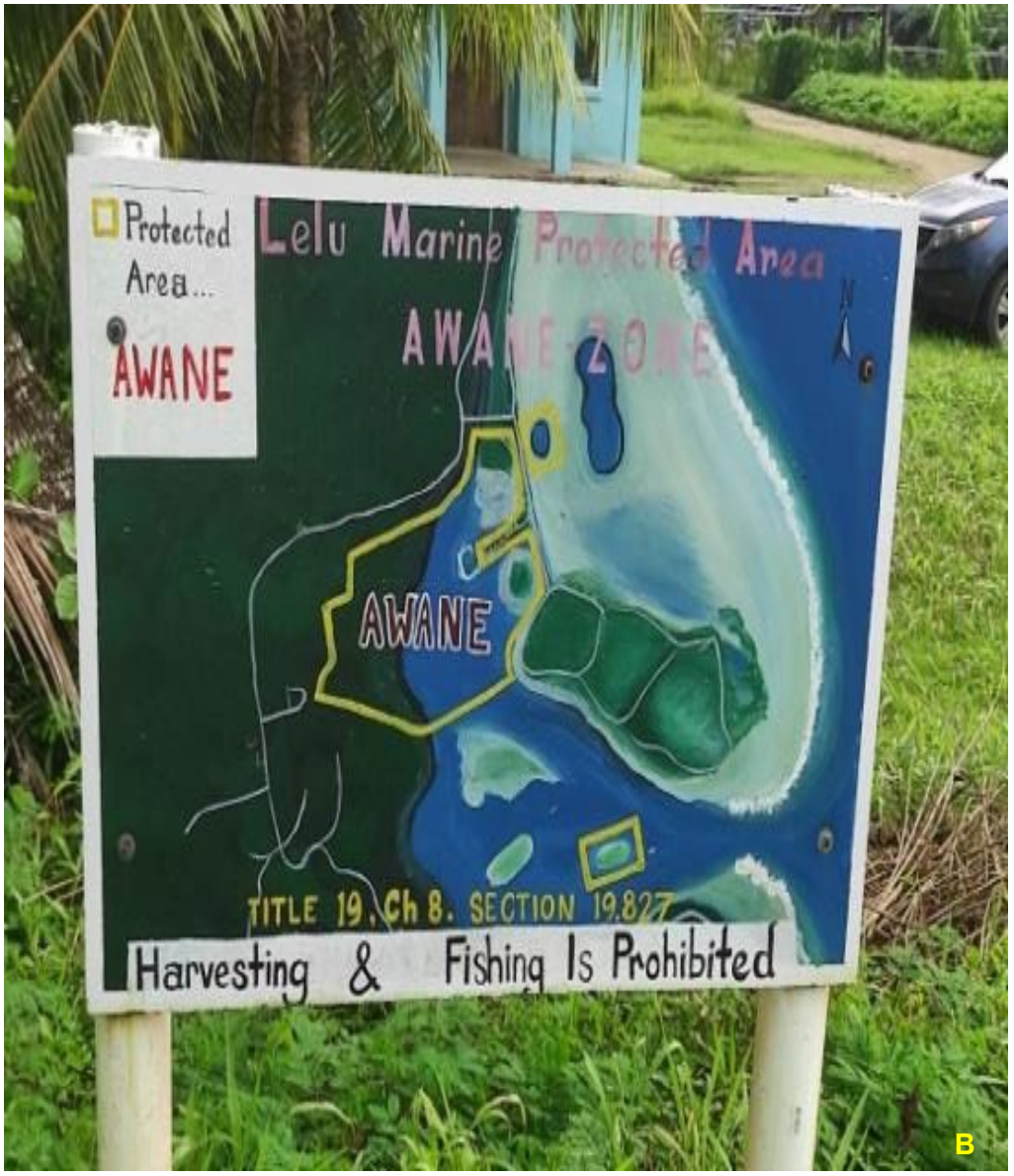


Figure 11: Potholes due to insufficient drainage (A)/ Alligator Crack in LHS Carriageway (B)/ Potholes due to insufficient drainage (C)



Figure 12: Lagoon side vegetative clearing for safe access to power distribution system (A,B)



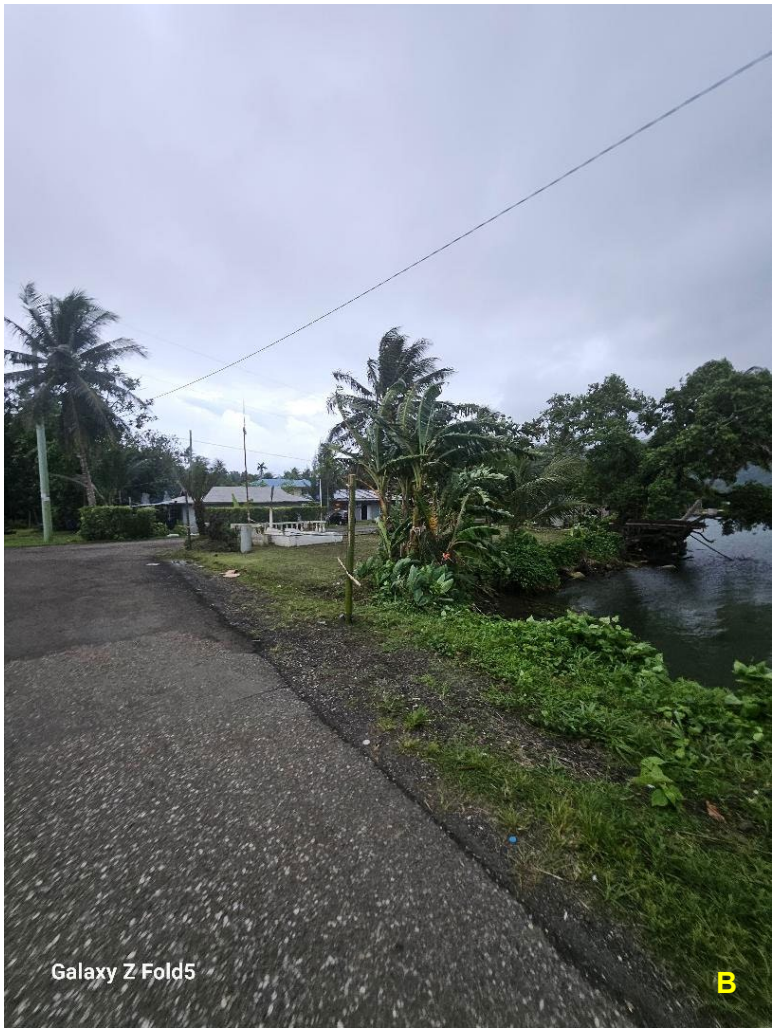


Figure 13: Ocean side pier near the Blue Hole (A)/ Ocean side vegetation, across from Dominique's Pizza, on the lagoon side (B)/ Vegetation and safety bollards on the ocean side of the causeway (C)







a) Physical Environment

i) Topography

78. The Lelu causeways is located on eastern side of the island of Kosrae (northern end - 5020'24.80"N and 163001'10.26"E and southern end - 5020'05.49"N and 163001'18.37"E) is approximately 650-meter-long coral and basalt rock sealed causeway constructed directly onto the intertidal reef platform that dissects the intertidal reef between Lelu Island and the main island of Kosrae. The material used to construct the causeway, and reclaimed areas have been derived from dredged material associated with the intertidal reef flat and land parcels in close proximity to the site.

ii) Climate

79. Kosrae has a stable year-round daily high of 31°C (87.8°F), and a night-time low fluctuating between 24°C (75.2°F) to 25°C (77°F).

80. The monthly pattern of rainfall in Kosrae varies. The highest rainfall is in April, with an average 20'.56", while the lowest falls are recoded in October, approximately 12'.34". Kosrae receives annually 200 inches of rainfall or 16 ft of rain (*Western Regional Climate Center, wrcc@dri.edu*)[6].

81. Sea temperatures are consistently around 29°C (84.2°F) each month, while average daylight hours marginally change from 11.8 hours in December to 12.4 hours between May to July.

82. Kosrae is located to the south and east of the typhoon track and very rarely experiences a direct strike from a typhoon. However, Pacific typhoons often go through the development stage in the area, causing severe local winds. During the rainy season of November through April frequent severe rainstorms are sometimes accompanied by damaging winds, which can damage transmission and distribution facilities[7].

83. Table 5 presents key climate data for Kosrae.

[6] https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?pikosr

[7] https://www.pacificrisa.org/places/federated-states-of-micronesia/#:~:text=and%20climate%20events.-Kosrae,variable%20winds%20of%20the%20doldrums.

Table 5. Monthly Climate Data for Kosrae[8]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	30.0 (86.0)	29.0 (84.2)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)	30.0 (86.0)
Average high °C (°F)	28.63 (83.53)	28.44 (83.19)	28.57 (83.43)	28.7 (83.66)	28.88 (83.98)	28.83 (83.89)	28.81 (83.86)	28.9 (84.02)	28.99 (84.18)	28.97 (84.15)	28.95 (84.11)	28.76 (83.77)	28.79 (83.82)
Daily mean °C (°F)	28.41 (83.14)	28.23 (82.81)	28.31 (82.96)	28.4 (83.12)	28.66 (83.59)	28.52 (83.34)	28.52 (83.34)	28.57 (83.43)	28.71 (83.68)	28.72 (83.7)	28.72 (83.7)	28.58 (83.44)	28.53 (83.35)
Average low °C (°F)	27.65 (81.77)	27.48 (81.46)	27.48 (81.46)	27.34 (81.21)	27.67 (81.81)	27.62 (81.72)	27.57 (81.63)	27.5 (81.5)	27.8 (82.04)	27.84 (82.11)	27.72 (81.9)	27.57 (81.63)	27.6 (81.68)
Record low °C (°F)	20.0 (68.0)	20.0 (68.0)	20.0 (68.0)	19.0 (66.2)	20.0 (68.0)	21.0 (69.8)	21.0 (69.8)	21.0 (69.8)	20.0 (68.0)	19.0 (66.2)	19.0 (66.2)	18.0 (64.4)	18.0 (64.4)
Average precipitation mm (inches)	164.05 (6.46)	149.11 (5.87)	230.29 (9.07)	215.81 (8.5)	200.34 (7.89)	171.59 (6.76)	166.47 (6.55)	161.49 (6.36)	125.65 (4.95)	119.11 (4.69)	182.74 (7.19)	204.91 (8.07)	174.3 (6.86)
Average precipitation days (≥ 1.0 mm)	16.82	16.55	21.0	21.0	21.82	20.45	20.55	19.27	17.27	17.0	19.27	20.36	19.28
Average relative humidity (%)	77.75	77.7	77.99	78.18	78.04	76.63	74.61	73.48	73.09	73.11	75.04	77.29	76.08
Mean monthly sunshine hours	10.04	10.2	10.13	10.69	11.71	11.89	10.58	10.47	11.63	10.55	10.15	8.7	10.56

iii) Natural Hazards

84. **Typhoons**. The frequency of typhoons across the region decreases from the west to the east except during El Niño years when typhoons shift further to the east. During El Niño Southern Oscillation (ENSO) periods, global atmospheric disturbances including elevated seawater temperatures and lowered sea-level in the center of the ENSO affected area, rise in atmospheric temperature and the sea- surface temperature, may cause conditions for more frequent and severe storms. Numerous typhoons (tropical typhoons) originate in the east each year, and as they are north of the equator, they usually progress to the northwest and seldom strike any other of the islands. However, Kosrae does have a long history of being impacted by typhoons. The most recent is the Tropical Storm 31W (Faxia) in December 2001 that tracked west of Kosrae causing over-washing on the east coast.

85. **Drought.** Kosrae is considered one of the wet states but still suffers from drought. In 1997 to 1998, a drought associated with the El Nino event affected all of the FSM including Kosrae. In Kosrae, drought may occur in the year after a moderate / strong El Niño. Droughts are projected to decline in frequency in the future. There will still be wet and dry years and decades due to ENSO-related variability, but most models show that the long-term average is expected to be wetter.

86. **Sea Level Rise**. FSM generally experiences rapid sea-level rise during periods of protracted La Niña conditions related to persistent trade winds in the north Pacific. This is usually followed by El Niño conditions which can decrease trade winds. Whether this will reduce the regional rate of sea-level rise in coming years is unknown. Sea water levels can be exacerbated by trade winds blowing across the surface and causing build-up of surface heights against obstructions such as pacific islands. These effects may reverse over time and then repeat. This is in addition to global warming effects on sea level rise.

[8] https://weatherandclimate.com/federated-states-of-micronesia/kosrae

iv) **Protected Areas**

87. The LMPA is shown in Figure 14. It is an area that includes ecosystems such as mangrove forest, reef flats, seagrass beds, brackish mangrove channels, Lelu Bay, and Yen Yen Island, where colonies of the endangered and endemic Kosrae Flying Fox (*Ptropus ualanus*) are found.

88. The LMPA is managed by the Lelu Resource Management Committee under the Lelu Town Government, with support from the FSM Ridge to Reef Project and KIRMA.

89. Kosrae State Law 12-165 (2020) officially legalized the LMPA as part of the FSM Protected Areas Network (PAN).

90. Locally, the Kosrae State Code Title 19 (Protected Areas Act of 2010) provides the legal framework for the "improved management, conservation and development of marine and aquatic resources" and terrestrial areas in Kosrae. It specifically recognizes a 'Protected Area System' and sets the standards for protecting the island's natural and historic resources.

91. KIRMA is the semi-autonomous agency mandated to administer and enforce the regulations under this Act. KIRMA is responsible for identifying boundaries (such as "Core Zones") and monitoring the safety and security of protected resources. In 2021, 18 new enforcement officers were deputized to manage the LMPA and enforce Title 19 of the Kosrae State Code.

92. The boundary of the protected area is the lagoon side of the causeway road. On the ocean side an area has been excised for the blue hole swimming area. The protected area extends to the south of the causeway to an estuarine environment and a connected section of forest. The total area is 135 ha [9].

93. Local threats to the LMPA include climate change, unsustainable fishing, the decrease in mangrove resources, and a lack of enforcement.

94. LMPA is considered Natural Habitat as defined in ESS6 because its ecological functions are still predominantly intact despite human settlement and use. LMPA is also considered Critical Habitat as defined in ESS6 because it is a habitat of significant importance to Kosrae Flying Fox (see Table 6).

[9] Lelu Marine Protected Area Management Plan January 2019- Lelu Municipal Government

Figure 14: Lelu Marine Protected Area



v) **Historic Archaeological and Cultural Sites**

95. A grave site belonging to the Alokoa family (Figure 15 -A) is found at the southern end of the causeway.

96. Other culturally significant assets are located within the surrounding housing area - The Lelu Ruins, locally known as Insahruh (Figure 15 -B) are recognized internationally as a major prehistoric and historic archaeological site and was listed on the United States National Register of Historic Places in 1983, drawing international tourists. These ruins are in the township and outside the area of influence of the project.

b) **Socio-economic**

97. **Causeway Road:** The road services the community of Lelu Island (population 1500 people) to the mainland and the capital, Tofol, for services (e.g. school, health, banking), for employment in government and local commercial enterprises and for recreation etc.

98. On the causeway are Dominique's Pizza and nearby is the Clam Aquaculture Research Center; a marina and dive shop situated on the eastern (lagoon) side of the causeway.

99. **Health facilities:** The Department of Health Services in each state provides medical and public health services through a state hospital, community health centers and dispensaries. Each state system is autonomous. Kosrae has one hospital at Tofol and three community health centers (one each is Walung, Tafunsak and Utwe) managed by the state. People from Lelu usually travel to the Tafunsak health center via the causeway.

100. **Utilities:** The Kosrae Utilities Authority (KUA) provides electricity and water/sewerage to Lelu Island with services located adjacent to the causeway road. The Clam Aquaculture Research Center has a private sea water supply from the ocean side for operations (Figure 8).

101. **Economic Context, Livelihoods and Employment:** The major economic sectors of Kosrae are marine resources, tourism, and agriculture. Subsistence farming and fishing remains very important to most families. The public sector greatly depends upon the economic assistance of the United States through the Compact of Free Association. . Kosrae's GDP in 2015 was estimated at USD$14.6 million (or USD$1,963 per person) (Table 5). The State Government owns and operates all infrastructure facilities, health facilities, and most education services, small enterprises, and an extensive commercial activity in the fishery.[10]

102. The Household Income and Expenditure Survey in the FSM is a critical statistical exercise conducted roughly every 5 to 7 years to measure income, expenditure patterns, and poverty levels. The last comprehensive survey was conducted in 2013-2014, with data used to inform policy, update consumer price indices, and assess living conditions. The 2013-2014 survey highlighted significant reliance on both cash and subsistence income, with high expenditures on food items.

103. Kosrae state had the second lowest total annual household income for the FSM states ~ 30 % of that in Pohnpei, a reflection of the small population (6000 people) and the emphasis on the local subsistence economy. The subsistence economy is based on small-scale horticulture and fishing. Some families have livestock for food production. This traditional subsistence economy is still vital for the Kosraean's. Remittances from families

[10] https://www.aiffp.gov.au/investments/country-profiles/federated-states-micronesia

overseas also supplement the household income especially those with subsistence production and / or no employment.

Table 6: Household income by state 2013/2014[11]

	Total annual household income (USD 000)	Average annual income (excluding imputed rent) (USD)			Income source				
		Total	Male	Female	Cash	Home production	Gifts	Imputed rents	Income in-kind
FSM	282,683	16,950	13,311	12,208	63.1	10.3	3.4	22.8	0.4
Yap State	41,807	17,768	16,103	15,085	67.1	16.7	5.3	10.8	0.1
Chuuk State	77,726	11,398	8,858	6,197	58.6	13.2	1.8	26.2	0.2
Pohnpei State	143,042	22,293	17,033	15,517	62.6	7.9	3.8	25.1	0.6
Kosrae State	20,109	18,461	15,190	14,896	75.6	3.0	3.0	18.0	0.4

- *Cash*: wage and salary income, business income, and sales of home production (agriculture, handicraft, livestock and/or fisheries).
- *Home production*: value of home production that the household produces themselves and then consumes.
- *Gifts*: all goods given receive are treated as income.
- *Imputed rents*: represent the value of a house for the owner if they were to receive rent.
- *Income in-kind*: any income received by the household which was not in the form of cash.

104. **Waste Management:** Kosrae has a public solid waste collection and disposal system managed by the local municipality.

105. **Recreation and tourism:** Local recreation includes swimming in the area near the Blue Hole and fishing and crabbing in the surrounding areas. The Lelu Ruins draw international tourists.

[11] Government of FSM (2014) *Household Income and Expenditure Survey 2013/14 Main Analysis Report*

Figure 15: The Alokoa family grave sites on Lelu (A) near the Causeway Upgrade Project footprint and archaeological sites – Insahruh (B) (red line) located in the Lelu Township



c) Biological Environment

i) Marine Ecosystem

106. Marine and coastal reef biodiversity is high across FSM, however Kosrae has lower recorded biodiversity than the western states[12]. Kosrae has two protected marine areas – the Utwe-Walung Conservation Area (outside of the project area of influence) and LMPA on the north-west coast (as discussed above). Kosrae is surrounded by a fringing coral reef that is dissected by four natural breaks (harbors) that occur at the mouths of the four main catchment systems (Okat, Yela, Finkol and Innem Rivers). In addition to the fringing coral reef, there is an intertidal reef flat which is generally 100 m to 150 m wide in the Malema area.

107. The beach and backshore areas of Kosrae provide key coastal protection functions whereby they provide a natural adaptable buffer that protects the land behind from waves and coastal flooding. The key threatening activities to the beach and backshore coastal resources include: sand mining and removal of reef flat coral rubble, vegetation removal from behind the beach, and land reclamation or seawalls that impact on the natural beach processes. The key activities that impact the coral reef, reef flat and seagrass include detrimental fishing practices, pollution or excessive sedimentation, and removal of reef flat sand and coral rubble.

108. Observations of marine species were undertaken in November 2024 and 9-10 June 2025 to provide a snapshot of coral, seagrass, mangroves and fish around the project site. The methodology included direct observation within the marine areas adjacent to the proposed road upgrades with photographic documentation.

109. A summary of the key findings from the observational survey are:

- The near-shore marine ocean environment adjacent to the causeway features a mix of coral patches, seagrass beds, and sandy substrates. The coral communities in this area are not as structurally complex as those found further offshore, but they still support an important assemblage of marine life. Coral species such as *Porites and Acropora* are present, though many of the colonies show signs of past bleaching and physical damage, likely exacerbated by sedimentation from adjacent land development. The area of seagrass beds, coral and mangroves on both sides of the causeway are shown on Figure 16.

- Live coral cover remains moderate in areas near the Blue Hole, which sits adjacent to the causeway (Figure 17). The Blue Hole itself is a unique ecological feature that contributes to local biodiversity. Its deep basin and steep limestone walls create a microhabitat that supports specialized organisms, including certain sponges, tunicates, and small schooling fish that are rarely found elsewhere in the immediate area. There are several raised coral islets on both sides of the Causeway (Figure 19).

- Seagrass beds are another habitat component of the Lelu Causeway ocean marine environment. These beds are dominated by species such as *Thalassia hemprichii* and *Halodule uninervis*. In the waters near the causeway, seagrass density and health appear to vary considerably, with healthier patches found further from the road embankments. Closer to the causeway, seagrass meadows are fragmented, likely due to changes in hydrology caused by the causeway itself, which interrupts the natural tidal exchange between the inner and outer lagoon (Figure 18).

[12] BSRP 2016. Federated States of Micronesia – Kosrae Joint State Action Plan for Disaster Risk Management and Climate Change. http://bsrp.gsd.spc.int/wp- content/uploads/Publications/Kosrae_JSAP.pdf

- Fish species commonly observed include those from the families *Labridae, Pomacentridae,* and *Serranidae*, which utilize the mangrove roots and coral rubble for feeding and shelter. The presence of juvenile fish species indicates that the area functions as a nursery. Invertebrates such as sea cucumbers, hermit crabs, and gastropods are also present in considerable numbers, particularly in seagrass beds and sandy-bottom zones.

- Mangroves are found predominantly on the lagoon side adjacent to the causeway road and in larger numbers near the junction of main island and the causeway. Mangroves are less present along the lagoon causeway traveling toward Lelu. The mangroves found within the lagoon comprise of *Rhizophora mangle, Sonneratia alba, Rhizophora apiculata* and *Bruguiera gymnorrhiza*. The mangroves that exist along the causeway are smaller, secondary trees that have settled and grown in place since the causeway was built and are regularly cut back by the community for beautification and by the power distribution company for maintenance of the electricity supply to Lelu Island.

- **ESS6 Habitat Assessment**

110. The lagoon and oceanside marine ecosystems meet the ESS6 definition of Natural Habitat and Yen Yen Island meets the ESS6 definition of Critical Habitat. This section describes how the project will comply with the ESS6 conditions related to Natural and Critical Habitats.

111. **Natural Habitat**: Although both coastal habitats—the lagoon and the oceanic environment—have been disturbed by historical dredging, land reclamation, and changes in hydrology (including from the construction of the causeway), they have retained many of their natural values. For example, under ESS 6, habitats affected by potentially harmful human activities may still be classified as natural habitats where these activities are ongoing and supported. Table 7 describes the habitats against the criteria in the ESS6 Guidance Note.

112. Though there has been extensive modification of the natural environment as a result of the building the causeway, it is classified as natural habitat according to ESS 6, because:

- The causeway and previous land reclamation and associated dredging activities have not profoundly affected the habitat's ability to recover its former ecological characteristics as noted by mangroves dominating the lagoon flora and seagrass beds and corals dominating the near shore marine environment.

- Fish species and lagoon and marine flora e.g. mangroves and seagrass beds have all adapted to the disturbed habitat which over time is returning to its natural habitat.

- Dredging and land reclamation activities are no longer being undertaken, however the impacts on hydrology and coastal processes are permanently changed. Native species e.g. mangroves dominate the lagoon flora with seagrass beds and corals dominating the near shore marine environment.

113. During Embankment renovation works (see Section 5) d) ii - Impacts on the Biological Environment) there will be works within the lagoon and marine oceanic side of the causeway. The permanent removal of seagrass during these works is a very small percentage (<0.5% of seagrass area of Lelu harbor) and within natural fluctuations. Subsequently there will be "no net loss" within the area of influence during these works.

114. Yen Yen Island is considered Critical Habitat under ESS6 because it is a habitat of significant importance to the endangered and endemic Kosrae Flying Fox (*Pteropus ualanus*). This rationale is discussed more fully in Section 5 (ii) - Critical Habitat

Determination (ESS6) – Kosrae Flying Fox

Table 7: Analysis to Support the classification of Natural Habitat Values ESS 6 for the Lagoon and Coastal Marine Habitats

Definition in ESS6 Guidance Note	Natural Habitat Values
Is this habitat officially declared as habitat by the local or FSM government?	Yes, the work area (embankments) is in the LMPA, which is part of the PAN of the FSM Government.
There has been limited impact on the species composition or ecological function of the habitat.	The mangrove habitat is vigorous and well established in the lagoon. Large numbers of seagrass beds are present in the marine environment near the causeway. Corals are healthy and well established.
Form part of a long-term pattern of traditional use, to which native species assemblages have adapted.	Fish species and lagoon and marine flora e.g. mangroves and seagrass beds have all adapted to the disturbed habitat which over time is returning to its natural habitat.
Previous threats are no longer prevalent, and the habitat supports a mature and diverse community of predominantly native species;	Dredging and land reclamation activities are no longer being undertaken however the impacts on hydrology and coastal processes are permanently changed. Native species e.g. mangroves dominate the lagoon flora with seagrass beds and corals dominating the near shore marine environment.
Have not profoundly affected the habitat's ability to recover its former ecological characteristics.	The causeway and previous land reclamation and associated dredging activities have not profoundly affected the habitat's ability to recover its former ecological characteristics as noted by the mangroves dominating the lagoon flora and seagrass beds and corals dominating the near shore marine environment.

Figure 16: Location of seagrasses, corals and mangroves around the causeway

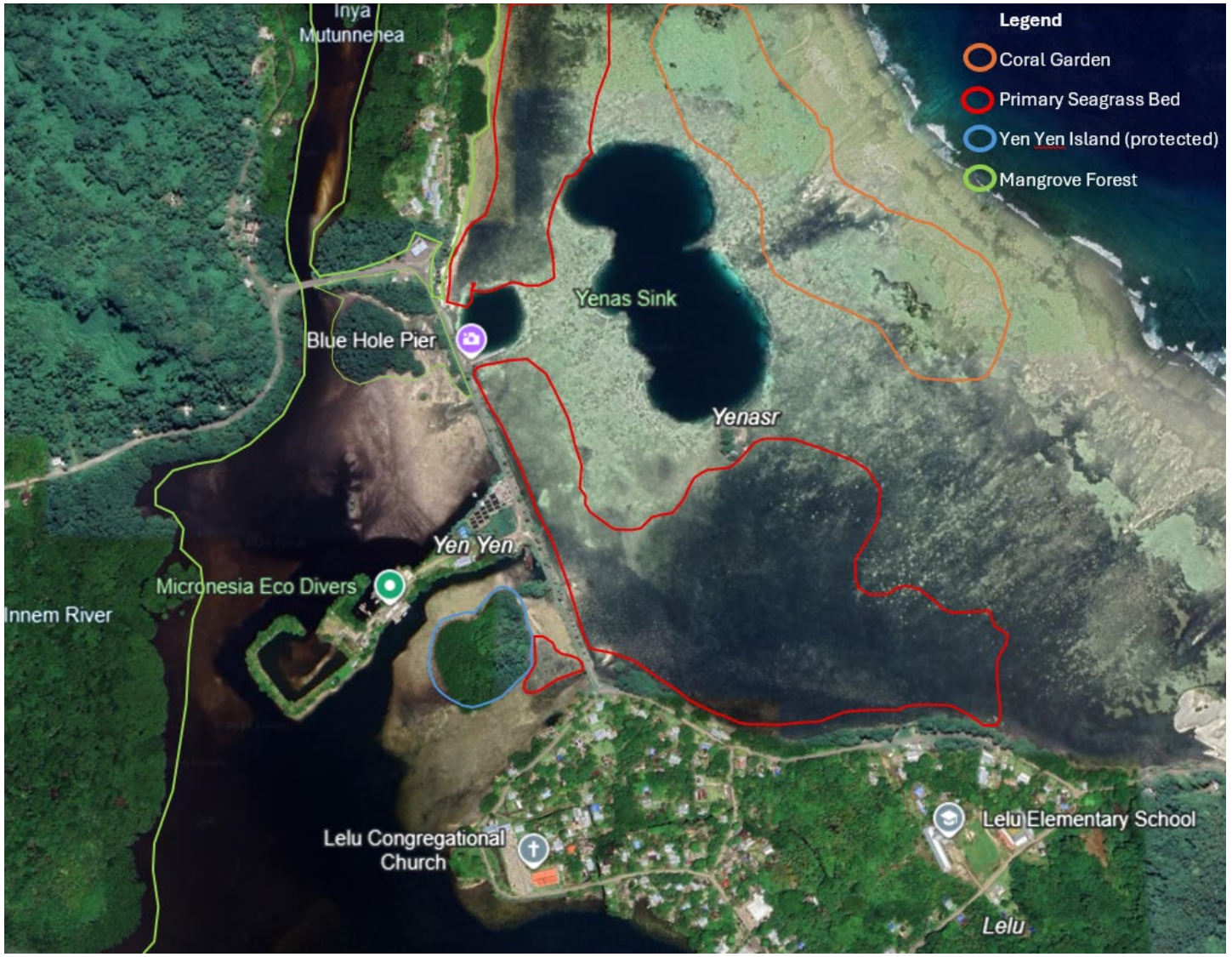


Figure 17: Shallow corals fringe the edges of the Blue Holes on the ocean side of the Causeway.



115. Yen-Yen Island is where the Kosrae Flying Fox roosts/feeds and breeds. The area is dominated by a mature mangrove forest which helps to regulate water flows between Lelu Bay and the mangrove forests and rivers.

Figure 18: Yen Yen Island at low tide looking west from the Causeway



Figure 19: Seagrass exposed during low tide on ocean side



Mature seagrass meadows dominate the near shore ecology



Reef Heron finding food at low tide in the seagrass meadows



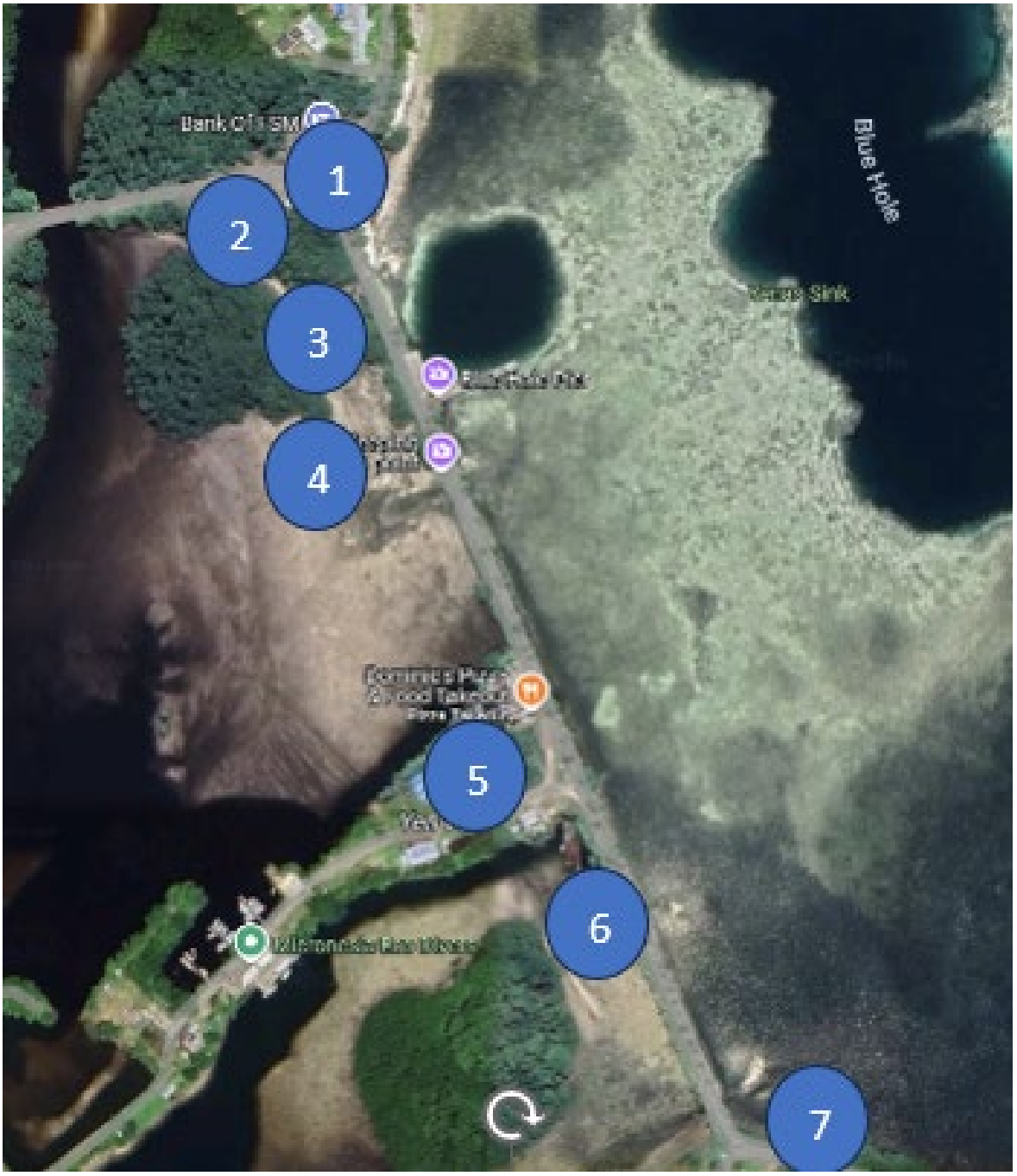
i) Coastal Vegetation

116. The floral baseline refers to the existing vegetation distribution along the causeway on government land outside of the road. The coastal flora and fauna have either been planted by the state/community or naturally established since causeway construction. No native or endangered species were found. Figure 20 shows locations where the major vegetation was found along the causeway with scientific identification is provided in Table 8.

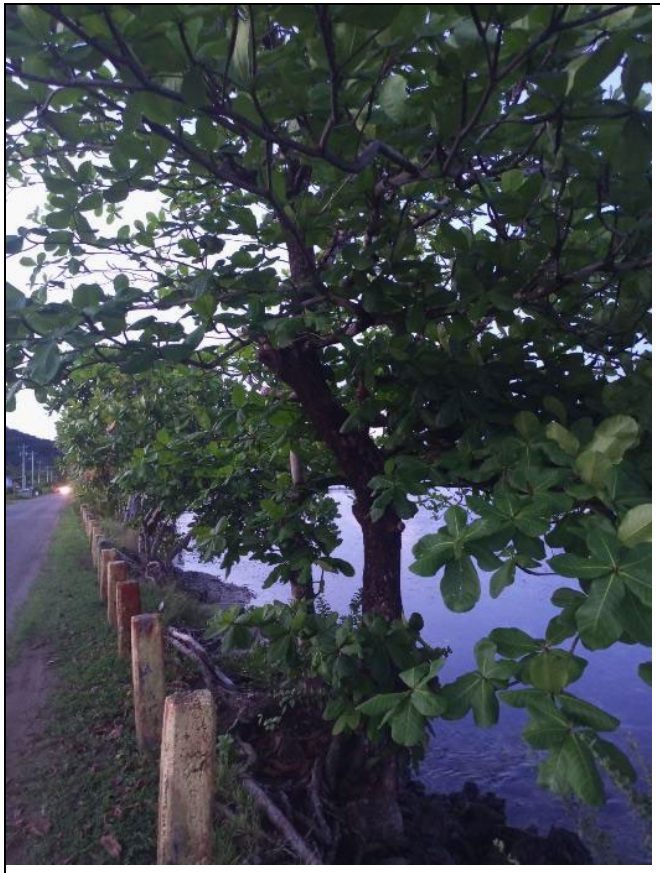
Table 8: List of coastal flora identified during site walkover.

Common Name	Scientific Name	Notes
Frangipani	*Plumeria rubra (LC)*	Ornamental tree; fragrant flowers; drought-tolerant
Tangan-tangan	*Leucaena leucocephala*	Fast-growing legume; erosion control; nitrogen fixer
Red Mangrove	*Rhizophora mangle (LC)*	Coastal stabilizer; prop roots; critical for shoreline protection
Sea Almond	*Terminalia catappa (LC)*	Broad-leaved tree; edible fruit; shade provider
Screw Pine	*Pandanus tectorius (LC)*	Coastal species; edible fruit; used in weaving and traditional crafts
Coconut Palm	*Cocos nucifera*	Economically vital; source of food, fiber, and construction materials

Figure 20: Site of terrestrial flora



		
(2) Frangipani and Tangan-Tangan	(2) Red Mangrove and Tangan-Tangan	(3) Coconut Palm, Sea Almond, Screw Pine
		
(4) Sea Almonds	(5) Red Mangrove	(6) Seaward: Sea Almond, Landward: Red Mangrove



(7) Sea Almond

ii) **Faunal Assessment (Terrestrial and Aquatic)**: Field observations for coastal fauna were undertaken in June 2025. The identified species are listed in Table 9.

Table 9: List of Fauna observed during field observations and IUCN Classification[13].

Common Name	*Scientific Name*	Type	Notes
White Tern	*Gygis alba (LC)*	Bird	Common in coastal nesting habitats including large agroforest trees (e.g. breadfruit) and mangroves.
Kosrae White eye	*Zosterops cinereus (LC)*	Bird	Endemic; excellent pollinator and seed disperser; very active and usually seen in pairs (Least Concern).
Caroline Swiftlet	*Aerodramus inquietus (LC)*	Bird	Agile, twisting, and fast — adapted for catching insects mid-air; insect control and their presence often signals, intact forest systems (Least Concern).
Pacific Reef Heron	*Egretta sacra (LC)*	Bird	Found on reef flats, mangroves and shorelines (Least Concern).
Kosrae Fruit Dove	*Ptilinopus hernsheimi (LC)*	Bird	Endemic; habitat is subtropical/tropical moist lowland forests and mangrove forests; symbol of peace and prosperity in Micronesian folklore (Least Concern).
Micronesia Land Crab	*Cardisoma carnifex (not evaluated)*	Crustacean	Habitat is in coastal forests, mangroves, and inland areas with moist soil; feeds on leaf litter, fruits, seedlings, and carrion.
Rabbit Fish	*Siganus canaliculatus (LC)*	Fish	Herbivorous; seagrass-associated; venomous spines; preferred food (Least Concern).
Green Tree Skink	*Lamprolepis smaragdina (LC)*	Reptile	Fast-moving, alert, often perches vertically on tree trunks; locally abundant in undisturbed habitats (Least Concern).
Kosrae Flying Fox	*Pteropus ualanus (EN)*	Mammal	Endemic; Keystone species; forest regenerator; frugivorous (Endangered)

[13]The IUCN Redlist of Threatened Species classifies species into nine categories based on extinction risk: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), and Not Evaluated (NE).

117. **Conservation Status and Threats**: Yen-Yen Island, which is in the LMPA, is one of three known endemic endangered Kosrae Flying Fox roosting sites on Kosrae. Yen Yen Island (5_20'06.90"N, 163_01'12.82"E) comprises 5 acres and protrudes only a few meters above sea level. Although uninhabited by humans, it is located only 200 ft northwest of Lelu village on Lelu Island[14].

118. Yen Yen Island is considered Critical Habitat under ESS6 because it is a habitat of significant importance to the endangered and endemic Kosrae Flying Fox (*Pteropus ualanus*).

119. The island is densely vegetated. **Dominant vegetation** of the interior of the island includes coconut palms (*Cocos nucifera*), screw pine (*Pandanus tectorius-LC*), mangoes (*Mangifera indica-DD*) and breadfruit (*Artocarpus altilis-DD*). The island is surrounded by mangroves dominated by *Sonneratia alba, Rhizophora apiculata* and *Bruguiera gymnorrhiza*.[14].

120. Hayes and Engbring (2020)[14] concluded that the proximity of the large Yen Yen Island colony to densely populated Lelu village on Lelu Island may deter illegal hunting due to the large number of potential witnesses of a crime. Furthermore, the Yen Yen Island colony demonstrates that, if left undisturbed, Kosrae Flying Foxes can become accustomed to nearby human activities (vehicles, boats, and pedestrians frequently passing within a few hundred meters) and establish colonies near villages. Bats may be attracted to villages because of the proximity of agricultural trees such as breadfruit and mango, which are favorite food resources.

121. **Sea turtle - habitat determination during embankment renovation**

122. The LMPA Management Plan January 2019, notes that the presence of Critically Endangered (CR) sea turtle, the hawksbill turtle (*Eretmochelys imbricate-CR)* and the green turtle (*Chelonia mydas-LC)* within the LMPA.

123. The Green turtle (*Chelonia mydas-LC*) is widespread across Micronesia, including Kosrae. Genetic and foraging-ground studies show strong regional connectivity among Micronesian islands, with Kosrae included in surveyed foraging sites.

124. The Hawksbill turtle (*Eretmochelys imbricate-CR*) — Listed in the definitive regional reference Reptiles of the Federated States of Micronesia, which covers Yap, Chuuk, Pohnpei, and Kosrae, confirming the species' distribution in the state.[15]

125. **Critical Habitat Determination - Sea Turtles.**

126. Screening of the project area against the Critical Habitat criteria defined in ESS6 indicates that Lelu Harbour (lagoon and ocean side) does not qualify as Critical Habitat for sea turtles.

127. Although the hawksbill turtle (*Eretmochelys imbricata*) is listed as Critically Endangered (CR) on the IUCN Red List, available evidence shows that the harbor does not support nesting, breeding, or any other ecological function essential to the survival of

[14] Historic and recent status of the Kosrae flying fox (*Pteropus ualanus*), on Kosrae, Micronesia, Floyd E. Hayes a,*, John Engbring b, Journal of Asia-Pacific Biodiversity (2020)

Buden, D.W.; Taborosi, D. (2016) Reptiles of the Federated States of Micronesia.
Island Research and Education Initiative, Palkir. 359 pp

[15] Buden, D.W.; Taborosi, D. (2016) Reptiles of the Federated States of Micronesia.
Island Research and Education Initiative, Palkir. 359 pp

regional turtle populations.

128. A 2019 submarine cable survey conducted through Lelu Harbour reported no evidence of nesting or breeding activity for either species within the harbour for at least the past 40 years. This indicates that sea turtles are not locally resident breeders and that the harbour is used, at most, for transient or opportunistic foraging rather than reproduction or long-term residency.[16]

129. There is no evidence that the project area supports globally significant concentrations, irreplaceable ecological functions, or key evolutionary processes that would trigger Critical Habitat designation.

130. Based on this assessment, the project area is classified as Natural Habitat under ESS6 for sea turtles. While sea turtles may occasionally utilise the harbour for foraging, the ecological role of the habitat effected is supplementary rather than critical, and its partial, temporary disturbance does not pose a measurable risk to the viability of regional turtle populations.

131. **Road Noise:** Traffic counts undertaken in 2020 by DTC&I recorded ~ 4,619 vehicle movements across the causeway on a daily basis[17]. Assuming most traffic is between 6 am to 6 pm, on an average hourly basis ~ 400 vehicles would cross the causeway. The background noise level generated by a steady flow of approximately 400 vehicles per hour is typically in the range of 45–55 dB(A) at a distance of 150 ft to the boundary of the island and potential Kosrae Flying Fox habitat. This traffic volume produces a continuous, moderate, suburban-level noise environment[18].

132. Dense vegetation can reduce noise levels by up to 10 dB over a distance of approximately 200 ft[19]. Accordingly, baseline noise levels within the interior of Yen Yen Island (350 ft) —where the flying foxes are likely to roost, are calculated to be 35–45 dB(A), equivalent to the ambient noise in a quiet residential area during the day.

133. Hayes and Engbring (2020)[14] observed that arrivals of bats on Yen Yen Island occur throughout the day but were most frequent during the first hour of daylight and least frequent at midday. Departures of bats also occur throughout the day but are most frequent during the last hour of daylight and least frequent at midday. During their observations, bats could be heard in the colony well after dark, indicating that not all bats departed from the colony. During the period of 16:00 to 18:45 on 19 June 2014, Hayes tallied 80 arrivals and 778 departures, representing a minimum of 698 bats. On three occasions, a returning bat carried a large fruit to the island.

134. The population may not have reached carrying capacity and may still be increasing. The total suitable habitat available for fruit bats on Kosrae is unknown. Many of the steep interior slopes of the island are covered by thickets of sea hibiscus (*Hibiscus tiliaceus*) (Maxwell 1982)[20] which is not known to be a source of food for flying foxes (Wiles and Fujita 1992)[21] and may provide marginal habitat. Flying foxes appear to prefer

[16] East Micronesian Cable Project - Marine Benthic Assessment – Lelu Harbor – Kosrae State – 2 December 2019

[17] Data from DTC&I

[18] Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Bats July 2016 California Department of Transportation Division of Environmental Analysis © 2016 California Department of Transportation

[19] Washington State Département of Transportation https://wsdot.wa.gov/sites/default/files/2021-10/Env-FW-BA_ManualCH07.pdf

[20] Maxwell, B (1982): Floristic description of native upland forests on Kosrae, eastern Caroline Islands Micronesia, 18 (1982), pp. 109-120

[21] Food plants and economic importance of flying foxes on Pacific islands, Food plants and economic importance of flying foxes on Pacific islands, GJ Wiles, MS Fujita, Biological Report, 1992•apps.dtic.mil

foraging in more diverse tropical forests, agricultural forests, and mangroves.

135. **Critical Habitat Determination (ESS6) – Kosrae Flying Fox**

136. **(a) Habitat of significant importance to Critically Endangered or Endangered species:** Yen Yen Island provides habitat that supports the viability of the restricted range and endangered Kosrae Flying Fox recognized as a conservation priority as per IUCN classification. .

137. **(b) Habitat of significant importance to endemic or restricted-range species:** The Kosrae flying fox is confined to a single small island, and remaining tracts of native and semi-natural forest on the main island constitute a foraging landscape, making these habitats of significant importance to an endemic, and restricted-range species.

138. Accordingly, Yen Yen Island is Critical Habitat under ESS6 for the roosting, feeding and breeding activities of the Kosrae flying fox, with project design, mitigation, and monitoring measures developed to avoid measurable adverse impacts on the population and behaviour of the Flying Fox.

139. Table 8 describes the conditions that will be met to manage any potential adverse impacts on the critical habitat of the Kosrae Flying Fox. Under ESS6, projects that are expected to cause adverse impacts on Critical Habitat cannot proceed unless the following conditions as set out in ESS6 and listed in Table 10 are satisfied.

140. **Conclusions - Habitat Assessment (Lagoon area including the LMPA and the ocean side marine habitat, Kosrae Flying Fox and Sea Turtles)**

141. According to ESS 6, the Lagoon area including the LMPA and the ocean side marine habitat is considered Natural Habitat because the ecological functions are still predominantly intact despite human settlement and use. The LMPA is also considered Critical Habitat under ESS6 because it is a habitat of significant importance to endangered Kosrae Flying Fox.

142. The Lagoon area including the LMPA and the ocean side marine habitat is classified as Natural Habitat under ESS6 for sea turtles. While sea turtles may occasionally utilise the harbour for foraging, the ecological role of the affected habitat is supplementary rather than critical, and its partial, temporary disturbance does not pose a measurable risk to the viability of regional turtle populations.[22]

[22] Pers com (2026) – Stave Lindsay _ marine ecologist consultant to World Bank

Table 10: Responses to ESS6 Conditions for Critical Habitat for the Endangered Kosrae Flying Fox

ESS6 Condition	Project Response
No other viable alternatives within the region exist for development of the project in habitats of lesser biodiversity value.	In this case, there are no other viable alternatives as the roadwork must be completed on the causeway and embankments to upgrade the road which connects the communities of Lelu Island with the mainland.
All due process required under international obligations or national law that is a prerequisite to a country granting approval for project activities in or adjacent to a critical habitat has been complied with.	Approval for causeway upgrades within and adjacent to the LMPA will be coordinated with the Mayor of Lelu and KIRMA. The development permit will be issued by KIRMA with conditions. KIRMA has approved the design of the engineering works and the ESMP will be forwarded on to KIRMA to support the development application already submitted to KIRMA by DTC&I. Works will not commence until the permits are granted.
The potential adverse impacts, or likelihood of such, on the habitat will not lead to measurable net reduction or negative change in those biodiversity values for which the critical habitat was designated.	The biodiversity values for which the critical habitat is described in Section 5 (ii) Terrestrial Fauna Biodiversity & Habitat – Endangered Kosrae Flying Fox. Mitigation measures described in the document are based on good international industry practice and the sensitivity of flying foxes to disruptions. The scale of impact from vibration, noise, human behaviour and lighting are undefined and the Project has taken a precautionary approach to mitigation.

The project is not expected to lead to a net reduction in the population of any Critically Endangered, Endangered, or restricted-range species, over a reasonable time period.	The project may lead to a net reduction in the population of the Kosrae Flying Fox without adaptive management during this short-term and localized road and embankment works. Pre-construction and construction-phase ecological surveys will establish baseline population estimates and behavioral patterns of the Kosrae Flying Fox on Yen Yen Island, and will define the adaptive management measures required to avoid, minimize, and mitigate project-related impacts on the species.
The project will not involve significant conversion or significant degradation of critical habitats.	The proposed works are confined to the existing road right-of-way and will not result directly in significant conversion or significant degradation of critical habitats, including Yen Yen Island and the surrounding forest, agroforest, and mangrove systems that support the Kosrae Flying Fox. Indirect impacts by noise and vibration during roadworks may impact the Flying Fox bbehaviour and population, requiring adaptive management measures to avoid, minimize, and mitigate project-related impacts on the species.
The project's mitigation strategy will be designed to achieve net gains of those biodiversity values for which the critical habitat was designated.	The assessment concludes that avoidance behavior may be a consequence of the project, with potential changes in the population of flying fox population without adaptive management. This assessment will be updated with the additional scientific surveys and assessments prior to works starting and confirm / conclude whether there will be adverse impacts and whether net gain is required. If net gain is required, the scientific data can be published to add valuable knowledge about the Kosrae Flying Fox's population number, location and behavior, in a country where conservation resources are very limited. The publication of this data will inform future conservation efforts and is considered a non-offset "net

	gain" in biodiversity outcomes for this endangered species. This is considered a proportionate response to the risks.
A robust and appropriately designed, long-term biodiversity monitoring and evaluation program aimed at assessing the status of the critical habitat is integrated into the Borrower's management program.	The scale of impact cannot be fully assessed because the original survey was a visual observation indicating the location of a roost. A targeted pre-construction study of the presence of the Kosrae Flying Fox and preconstruction noise levels are therefore recommended prior to works being undertaken. Monitoring noise, Flying Fox counts and their behaviour during the construction phase is required. The monitoring program is described in Table 15.

ii) Conclusions

- Sensitive social receptors include road users and pedestrians, community access to the Blue Hole for swimming, parking and access to Dominique's Pizza, Clam Aquaculture Research Centre and marina activities during construction.
- Other sensitive receptors include the Clam Aquaculture Research Centre water supply pipeline which must continue to deliver good quality water to the aquaculture facility during the roadworks program.
- Lagoon side and the ocean side marine environment is considered Natural Habitat according to ESS6 because its ecological functions are still predominantly intact despite human settlement, causeway construction and changes in hydrology of the bay.
- The LMPA is also considered Critical Habitat under ESS6 because it supports a habitat of significant importance to the endangered and endemic Kosrae Flying Fox (*Pteropus ualanus*).
- Baseline noise levels within the interior of Yen Yen Island (350 ft) —where the Kosrae Flying Foxes roost, are calculated to be 35–45 dB(A), equivalent to the ambient noise in a quiet residential area during the day.
- Screening of the project area against the Critical Habitat criteria defined in ESS6 indicates that Lelu Harbour (ocean and lagoon side) does not qualify as Critical Habitat for sea turtles.

5) ANTICIPATED IMPACTS AND MITIGATION MEASURES

a) Overview

143. This section provides an assessment of the likely impacts of the road upgrades on Lelu Causeway in Kosrae on the physical, biological, and socio-economic receptors and identifies measures to ensure potential environmental and social impacts will be avoided or managed/reduced to acceptable levels. The impact assessment process follows a methodology whereby sensitive receptors are identified, magnitude of impacts established, mitigation is presented, and eventual residual impacts are presented. The risk management measures will be incorporated into the project phases as follows:

144. Supplementary Studies:

145. **ESMP Required Supplementary Studies:** Before the tendering process, supplementary studies to the ESMP will be conducted and completed by a noise and vibration modelling expert and a flying fox specialist to be hired by the PIU to establish a robust baseline for the Kosrae flying fox and noise/vibration modeling (see TOR in Annex 1- Appendix A: Determination of “Net Gain” Program for the Endangered Kosrae Flying Fox**).**

146. The mitigation measures from the supplementary studies shall be considered an integral part of this ESMP. The construction contractor is responsible for including the measures in the CESMP and implementing all measures of the supplementary studies as an integral part of this ESMP. Both the experts will also review this ESMP and produce required ESMP supplementary reports. The TOR for both experts is prepared and annexed with this ESMP. Monitoring is proposed in the ESMP for the pre-construction period and this monitoring will continue throughout the construction phase on quarterly basis to assess potential impacts on Kosrae flying fox and local population. If required, inform an adaptive management strategy aimed at reducing these impacts during construction period. The specialists’ external monitoring report's findings and recommended corrective actions will be shared with the construction contractor, and the contractor will be responsible for ensuring compliance with the monitoring studies.

147. In addition, the noise and vibration modelling will be undertaken keeping in view the noise and vibration associated with the proposed sheet piling, heavy construction machinery movement, batching plant operation, and other critical activities of the project to confirm pre-construction noise and vibration levels and to measure noise and vibration levels on Yen Yen Island during the construction phase. The modelling results will be reviewed by the flying fox specialist to establish a robust baseline and confirm the nature and scale of impacts and used to inform any adaptive management measures required to minimize construction-related impacts on the roosting population.

148. If the additional assessment concludes that net gain is required to meet ESS6 requirements for the Flying Fox, the ESMP proposes a non-offset action - publishing the scientific data collected to build the body of scientific knowledge on the species, longitudinal studies (24-month period) and publication to increase the body of knowledge, support for NGO or KIRMA advocacy, and community awareness raising.

149. **Pre-construction phase** – the period from the preparation of this ESMP including supplementary studies to the time that the ‘notice to proceed’ is issued.

150. **Construction phase** – the period from the time that the ‘notice to proceed’ is issued to the contractor to when the ‘certificate of completion’ is issued. The contractor will complete the project as per the design and technical specifications and implement the measures included in the approved CESMP, and any conditions on licenses issued by KIRMA. This process will be monitored and documented by the PIU with the assistance

of ICT and specialists.

151. **Operation and maintenance phase** – the period starting when the 'certificate of completion' has been issued until the end of the agreed lifetime of the improvements. DTC&I will be responsible for implementing the measures identified in the operation phase of the ESMP.

b) Key Design Elements

152. The detailed design has addressed the following risks to meet WB ESS and stakeholder feedback.

- The adoption of foot paths, crosswalks and lighting minimizes community exposure to traffic risks and enhances pedestrian safety in line with ESS 4 – Community Health and Safety, while also reflecting stakeholder feedback and inclusive engagement as required by ESS10 Stakeholder Engagement. Raising the road by one foot addresses ESS1 - Assessment and Management of Environmental and Social Risks by anticipating and avoiding the risks of flooding and climate change impacts. This design measure applies to the mitigation hierarchy, prioritizing avoidance and reduction of risks to acceptable levels in line with the World Bank's ESS.
- The installation of rock armor for slope protection anticipates and manages environmental and social risks (ESS 1 - Assessment and Management of Environmental and Social Risks), promotes the sustainable use of materials and minimizes pollution from erosion (ESS 3 - Impacts, Resource Efficiency and Pollution Prevention and Management), and enhances community health and safety by reducing the risk of coastal erosion and protecting road users (ESS 4 – Community Health and Safety)

153. The LADDR confirms that there will be no land acquisition nor physical or economic displacement under the project (refer Section 5)b)a) (ESS 5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement).

154. All temporary facilities identified e.g. laydowns, borrow pits, concrete or bitumen batching plant areas will be screened by ICT and reviewed by PIU and CIU. Should screening indicate unanticipated involuntary resettlement impacts then a RP or corrective action plan will be prepared by PIU for CIU and WB review and clearance.

a) Pre-Construction Phase

155. **Development Permit from KIRMA:** Prior to works commencing at the project site, the contractor and the PIU will liaise with KIRMA to obtain a Development Permit for the project to commence.

156. **Preparation and approval of CESMP:** Prior to works commencing at the project site, the contractor will prepare and submit a CESMP to the PIU for approval before, the works can commence. The CESMP will detail the construction methodology and program to be undertaken, identify the risks associated with that construction methodology and detail site specific mitigation measures to avoid or reduce the risks to meet the requirements of the ESMP as a minimum. The CESMP will include environmental, social, occupational health and safety, community health and safety and labor and working conditions risk management.

157. The PRIME grievance redress mechanism (GRM) will be adapted to the project site in CESMP to address concerns and resolve complaints and issues raised on any aspect of the Project.

158. **Sourcing of construction materials:** The location of fill and base course

materials has not yet been identified; however, based upon the experience of other road projects in FSM, aggregate materials use in road building (sub-base, base course, concrete aggregate) will have to be imported from international sources to obtain the appropriate qualities. Non-structural fill material may be sourced locally. The contractor will organise local and imported materials during mobilisation. Therefore, the site-specific risks and mitigation measures cannot be determined in this ESMP. Significant impact on coastal processes, habitats and / or cultural values can occur from the operation of coastal or reef rock quarries. Therefore, the following mitigation measures are required:

- Only material from licensed local, inter-State or international land-based sources of sand, soil, gravel and rock (i.e., quarries) to be used (i.e. no coastal – lagoon sand and coral reef / rock to be used).
- Should materials be sourced from the existing commercial supplier, the PIU and Contractor will screen the source of materials from the vendor and the contractor must perform due diligence to ensure the vendor's quarry is registered and operates legally.
- The Contractor shall confirm the commercial supplier is permitted and approved /licensed compliance with the Part 3 of the FSM EPA Earthmoving Regulations of 1988 and applicable Kosrae regulations.
- Supply agreements must comply with the LMP relevant for the risks to significant OHS risks to quarry workers, avoidance of child labor and avoidance of forced labor.
- The Contractor shall provide a record of the asphalt/bitumen batching plant permit for all asphalt/bitumen used on the site.

159. **Alien and invasive species.** During mobilization there is a risk that equipment and materials bring in new and / or invasive species to Kosrae. Islands in the Pacific have developed higher rates of endemism compared to similar sized areas on continents due to geographical isolation. Many endemic species are vulnerable to competition, predation and over-browsing. Furthermore, invasive species can affect crops and livestock on which the Kosrae population rely on for livelihoods and food security. Bio-security controls for imported gravel, rock and machinery are required to meet the acceptable biosecurity cleanliness standards of the relevant authorities or be refused entry into FSM / Kosrae. Where materials, equipment and machinery are sourced outside Kosrae, it is the importer's responsibility to ensure these arrive in Kosrae free from biosecurity risk material, such as soil, seeds, plant, and animal material. This mitigation will significantly reduce the potential for this project to introduce new or invasive species.

160. **Disruption to utilities and services**. There is a requirement for earthworks and other construction activities along the road projects not to cause disruption or damage to utilizes. The contractor will:

- coordinate with KUA to confirm the locations of utilities
- coordinate with KUA regarding potential disruptions to electricity and other services, including telecommunications.
- make provisions to preserve the operation of current facilities, and
- notify affected households and establishments well in advance of disruptions.

161. The Clam Aquaculture Research Center pipeline, which supplies water from the oceanic side of the Lelu Harbour to the Aquaculture center, must be protected during the roadway construction works. Consultation with the Research Center Manager and the contractor prior to commencing roadworks is required and a management strategy agreed

and monitored to eliminate any risk of damage to the pipeline or interference with water supplies. The mitigation measures will be documented in the CESMP.

162. **Land access arrangements.** All reclaimed land associated with the causeway and the intertidal reef flat and marine estuarine ecosystems either side of the causeway are owned and managed by the State. As part of the approval to work in the LMPA by KIRMA, a land access agreement should be confirmed by the Department of Resources and Economic Affairs (DREA).

- At any time, the Contractor identifies the need for new land areas for road works (due to necessary layout changes), they will alert the PIU and further land access consultations and agreements will be completed.
- Temporary access to lay down areas will be agreed between the Contractor, KIRMA, PIU and ICT and landowners, including any compensation, in accordance with PRIME Resettlement Framework (RF) and Land Acquisition and Due Diligence Report (LADDR), mitigation measures of this ESMP and measures to be recommended in the supplementary studies. Borrow pit and quarry operations, as well as bitumen and concrete batching plant locations, will align with the mitigation measures of the ESMP and supplementary studies. In addition, the sites will also be agreed upon between the Contractor, landowners, KIRMA, PIU, and ICT, including any compensation—in accordance with PRIME RF and LADDR.
- Suitably remote from sensitive receptors (noise and dust) and access to a suitable road network for hauling material in and product out. Water and power connectivity are required and sufficient area for agitator truck wash down bays to facilitate washing water recycling. Wash water will be captured, treated, and recycled for the next batch or for cleaning purposes including dust suppression, preventing uncontrolled release of alkaline wastewater to the environment.
- A detailed Protocol for management of temporary Land Access and Restoration for the Contractor to follow is shown below.

163. **Temporary Land Access and Restoration Protocol - Applicable to: Contractor Laydown Areas, Storage Yards, Worker Facilities, and All Temporary Use Sites**

Purpose and Scope

This protocol governs the identification, approval, use, and restoration of all temporary land access areas required for construction. All such areas are treated as potential ESS5 land access until due diligence confirms land status, access terms, user rights, compensation/rental arrangements, and restoration obligations.

The protocol applies to all land outside the Road ROW that the Contractor intends to occupy temporarily.

Pre-Use Requirements (Due Diligence File)

Before any occupation, the Contractor shall prepare a Temporary Land Access Due Diligence File containing:

- Land status confirmation (public, private, customary, mixed).
- Identification of landowners, customary right-holders, and current users.
- Consultation records with all relevant parties.

- Documented access terms, including:
    - Duration and boundaries of the area
    - Permitted activities and hours of operation
    - Access arrangements for landowners/customary users
- Compensation or rental basis, if applicable.
- Restoration obligations, including reinstatement standards and waste removal.
- Sign-off requirements (landowner/user + PIU/Supervision Consultant).

No mobilization or occupation may occur until the PIU approves the due-diligence file.

Management During Use

The Contractor shall:

- Occupy only the approved boundaries.
- Maintain cleanliness, security, and safe access for landowners/customary users.
- Prevent nuisance impacts (noise, dust, runoff, traffic).
- Manage stockpiles, fuel, chemicals, and waste in accordance with the CESMP.
- Record and respond to any complaints through the GRM, with immediate notification to the PIU.
- Maintain a site logbook documenting inspections, incidents, and GRM cases.

Restoration and Demobilization

At the end of the temporary use period, the Contractor shall:

- Remove all temporary structures, stockpiles, waste, and contaminated materials.
- Regrade, stabilize, and reinstate surfaces as per the agreed restoration plan.
- Restore drainage, access paths, and vegetation where required.
- Conduct a joint inspection with landowners/users and the PIU.
- Obtain written completion sign-off from landowners/users and the PIU.
- Close out any related GRM cases.

No demobilization payment or final certificate shall be issued until restoration and sign-off are complete.

Monitoring Indicators

- Due-diligence file approved before occupation
- Boundary compliance (weekly supervision checks)
- Number and resolution of GRM cases related to temporary use areas

- Restoration completed and signed off within agreed timeframe
- No outstanding land access disputes at project close

164. **Mobilization of workers.** The mobilization of the contractor and initial establishment of work sites will require the presence of construction workers and subsequent interactions with the local residential (urban and rural) and business communities. While the workforce will be relatively small, they will be in Kosrae for approximately 24 months. Risks to the community range can include offenses due to cultural insensitivity, transmitting diseases (such as HIV/AIDS), violence, SEA/SH.

165. Measures to minimize disturbance by construction workers and presence of the works site/area include:

- A Code of Conduct is to be signed by all employees to ensure that workers' actions at the work site are appropriate and meet community standards including acceptable behavior for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for Kosrae customs, land tenure, and community protocols and behavior around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behavior in community-facing areas and undergo training in these areas. There will be no hunting or fishing in the LMPA.
- The contractor will identify a member of their staff to act as liaison officer between the communities and contractor and manage the GRM;

  A small number of construction sites and storage/laydown areas will be required by the contractor during construction. Where these temporary facilities will be used, the following activities will be followed:

166. **Kosrae Flying Fox Survey.** The roosting area for Kosrae flying foxes is reported in the subproject area of influence. The Kosrae flying foxes are strictly nocturnal species and the proposed construction works are also expected at the day time. The Flying fox spend their days resting and roosting in large colonies (called "camps or roosts") and become active at dusk, flying out under the cover of darkness to forage for fruit, nectar, and pollen before returning to their roosts near dawn. The nocturnal nature of flying-foxes means actions are most likely to impact a camp during the day while they are resting. However, actions that are scheduled to occur at night during the crèching period could also affect young flying-foxes at the camp. Literature reveals that Flying foxes appear most agitated by impulsive sounds. In context of the subproject, impulsive sounds impacts are potentially due to ground-borne vibration anticipated due to installation of the sheet piles and rollers. Disturbance at or adjacent to flying-fox camps may result in diurnal lifting, diurnal fly out or reduced occupancy.

167. This ESMP identifies the requirement for supplementary studies and incorporates their resulting mitigation, monitoring and management measures as integral components of the ESMP. The tendering process for construction, will begin well before these studies are procured and commence.

168. The Project Implementation Unit (PIU) will engage suitably qualified noise and vibration modelling and flying fox specialists to undertake the studies and establish robust baseline data for noise, vibration and the population dynamics of Kosrae flying fox. The specialists will also review this ESMP and, where required, prepare supplementary ESMP addenda to address any additional mitigation, monitoring or management measures identified through the studies.

169. The construction contractor shall be responsible for incorporating all relevant requirements and recommendations arising from the supplementary studies into the

Contractor's Environmental and Social Management Plan (CESMP) and implement them throughout the construction period.

170. The TOR for both experts are prepared and annexed with this ESMP. A specialists external monitoring is proposed in the ESMP for the construction period and this monitoring will continue throughout the construction phase on quarterly basis to assess potential impacts and if required, inform an adaptive management strategy aimed at reducing these impacts during construction period. The specialists' external monitoring report's findings and recommended corrective actions will be shared with the construction contractor, and the contractor will be responsible for ensuring compliance with the monitoring studies. The following actions are devised to undertake supplementary studies:

- The PIU will support noise monitoring in and around the Yen Yen island to establish noise levels during pre-construction and construction as guided by the Flying Fox Specialist. The PIU will support population and behavior studies of the Kosrae Flying Fox during preconstruction and construction to establish whether disturbance of populations are affected by construction noise. The pre-construction robust baseline of both ecologically sensitive sites to tailor with the proposed subproject construction activities (i.e. critical & non-critical) and accurately assess the impacts and devise pre-tender stage mitigation measures. Under the World Bank's ESF, specifically ESS6, projects proposed in or near environmentally protected areas must strictly apply the mitigation hierarchy: **avoid, minimize, mitigate, and as a last resort, offset** negative impacts. If there is no viable alternative, significant conversion or degradation of "critical habitats" must be avoided and mitigated.

- The specialists will devise actionable mitigation in line with the WB ESS6 hierarchy, as part of the supplementary studies to limit the anticipated impacts, achieve the goal of No Net Loss [NNL] and preferably a Net Gain (NG) of the reported species.

- Suggest monitoring and evaluation as integral part of the ESMP through continued surveys of impacts and offset activities to measure the losses and gains that have actually transpired.

- The specialists will devise actionable mitigation in line with the WB ESS6 hierarchy, as part of the supplementary studies to limit the anticipated impacts, achieve the goal of No Net Loss [NNL] and preferably a Net Gain (NG) of the reported species.

- The biodiversity monitoring and evaluation is an integral part of the ESMP through continued surveys of impacts and offset activities to measure the losses and gains that have transpired.

- The supplementary studies are integral part of the ESMP. The ESMP shall be integral part of the tender, bidding and construction contractor contract documents. The Construction Contractor will be responsible to consider the mitigation measures of the supplementary studies and integral part of his responsibilities.

171. **Prior to commencement,** the Contractor is responsible for allocating sufficient human resources, equipment and budget to implement the CESMP. The Contractor's Environmental, Health, and Safety Manager (EHSM) will prepare the CESMP and monitor compliance of the mitigation measure given in the CESMP, conduct awareness raising, training, implementation support and monitoring of compliance of activities with the approved CESMP. They will be supported by a local hire Environmental, Health and Safety Inspector and Community Liaison Officer. ICT will undertake inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP. PIU and CIU will devise the checklist to be used for the inspections and audits and will

consolidate the inspection/audit findings along with summaries of the contractor's monthly reporting. World Bank will undertake review missions which will report on, inter alia, overall implementation of E&S requirements. A monthly social checklist is attached in Appendix K.

172. PIU and CIU will use a project-specific social monitoring checklist. At a minimum, it will cover consultations and participation of vulnerable groups; issues, commitments and evidence of closure; community and worker grievances and response times; only non-identifying SEA/SH indicators; worker induction, Codes of Conduct, local recruitment, wages and the worker GRM; temporary land access agreements and restoration; access to businesses, the Blue Hole, the Senior Citizen Center and emergency services; livelihood disruption and corrective action; and protection of the Alokoa grave and other cultural heritage. The Contractor and Supervision Consultant will report these items each month.

173. All workers and subcontractors will be inducted to the site, and this will include awareness and training on the provisions and requirements of the CESMP and how it is to be implemented.

174. Construction impacts may be caused by the following activities:

- Working with cement, working in noisy and dusty environments, working with heavy machinery, generating community health and safety (CHS) and occupational health and safety (OHS) hazards and risks;
- Earth movements, leading to likely erosion and sedimentation and water quality impacts;
- Working in water ways during the renovation of embankments leading to water quality impacts;
- Construction waste disposal, pollution from hazardous materials and wastewater management;
- Stockpiling of construction materials such as sand and gravel, leading to loss of materials and water quality and ecosystem impacts;
- Road formation, reshaping, filling, and sealing leading to loss of materials and water quality impacts;
- Heavy vehicles working in an existing road environment with pedestrians and road users, leading to interactions between pedestrians and vehicles;
- Noise and vibration and possible impacts on the endangered Kosrae Flying Fox roosting/feeding/breeding on Yen Yen Island;
- Local quarrying of soil, sand or gravel generating noise, dust and stormwater contaminants and occupational health and safety hazards;
- Transportation of construction materials, causing road safety issues, dust and noise among the community along the haul routes;
- Contractor employing local and overseas workers creating labor and working conditions risks and SEA/SH risks to the community; and
- Embankment renovation in the lagoon and ocean side of the causeway, including works in the LMPA.

175. During construction, a small number of construction sites and storage/laydown

areas will be utilized by the contractor. Contractor's on-site facilities shall

- be contained within an adequate security fence;
- not interfere with the welfare of the surrounding communities with noise and dust;
- prevent the release of untreated sanitary waste or grey water;
- ensure workshops and fuel storage areas will drain to an oil and water separator;
- ensure fuel storage areas will not be located within 20 m of a water course, and
- be located on a road with sufficient capacity to avoid traffic impacts.

i) Impacts on the Physical Environment

176. **Sensitive receptors (existing businesses - Dominique's Pizza, Clam Aquaculture Research centre, marina and dive centres, swimming at the Blue Hole, Senior Citizens Meeting Building, Family Beach, FSM Bank).** The existing commercial activities along the causeway road are long-established and operate within a highly constrained corridor where space is already at a premium. Maintaining the continued safe, uninterrupted, and economically viable operation of these businesses throughout the construction period is a key consideration for the project.

177. In addition, the community places high value on safe access to the swimming hole, which is used daily for recreation, bathing, and cultural purposes. Ensuring that this access remains available and safely managed over the 24-month construction period is an important social requirement and will be incorporated into the construction traffic management and staging plans.

178. The contractor is required to:

- Prepare and implement the TRSMP in consultation with DTC&I and State representative agencies and reviewed by relevant stakeholders including key businesses (Dominique's pizza shop, Clam Aquaculture Research Center, marina, Senior Citzen's).
- The detailed needs of the TRSMP are discussed in Section 5 - (iii) Impacts on Socio-economic - Road safety, traffic management and vehicular access to private and public property.

179. **Protection of the Integrity of the Clam Aquaculture Research Center (CARC) Water Supply Pipeline and Water Quality**

180. Good quality marine water for the breeding and grow out facility for clams at the CARC is pumped continuously from the Big Blue Hole near Yenasr Island, ~ 300m from CARC (see Figures 5 and 8).

181. During roadway construction, it is critical that the integrity of the water supply pipeline to the CARC in maintained. The pipeline is buried in the causeway roadway where it crosses from the ocean side to the CARC. During construction, the contractor and the operator of the CARC, will identify the pipeline route and barricade this area off when works are to be undertaken in this area.

182. The contractor, the Works Supervision Engineer (ICT), the PIU and the operator of the CARC, will agree on a method to undertake roadworks in this area, so the integrity of the pipeline is maintained. During the agreed works, supervision will be undertaken by the contractor and ICT and the PIU, to ensure the roadworks are completed to the design

specifications while maintaining pipeline integrity.

183. An emergency response protocol will be in place to provide sufficient water for the operation of the CARC should pipeline integrity become compromised during construction. The protocol will detail necessary material and manpower requirements to undertake immediate repairs to the pipeline should that be required. This protocol will be agreed between the contractor, the Works Supervision Engineer (ICT), the PIU and the operator of the CARC.

184. As this area is well developed, and difficult to work in, embankment works have been put deferred up to 50 m on either side of the CARC (see Figure 5). The source of water for the CARC is from the Blue Hole ~ 300m from the causeway and any roadway disturbance. A high-water quality standard is to be maintained in the Big Blue Hole during construction. Disturbance of sandy sediments on the ocean side during embankment works will most likely be the source of any sediment. As there will be no embankment works up to 50 m on either side of the CARC along the causeway, this strategy reduces the potential for sediment levels to increase in the vicinity of the water intake.

185. Elsewhere along the causeway both road and embankment works will have detailed mitigation strategies for soil and erosion control as outlined below.

186. **Air quality.** The potential air impacts from road rehabilitation, drainage works and embankment construction are a) dust from exposed soils and base course materials, and 2) vehicle emissions. Both types of emissions causing a nuisance to sensitive receptors e.g. residents, recreational users at the pier and Blue Hole and workers and customers of businesses on the causeway e.g. Dominique's pizza shop and Clam Aquaculture Research Centre. The following mitigation measures are to be undertaken by the contractor:

- regular water spraying of roads, work areas and other construction-related facilities in windy and dry conditions to minimize dust generation;
- provision of cover in storage area of construction materials, stockpiles, and spoils to prevent fine materials from being blown;
- prohibit use of equipment and vehicles that emit dark sooty emissions;
- provision of tight tarpaulin cover on delivery trucks to avoid spills and dust emission; and
- prohibit burning all types of wastes generated.

187. **Concrete batching (air quality):** Concrete batching plants generate air emissions, primarily in the form of fugitive dust (particulate matter which can cause respiratory issues, reduce air quality, and affect local amenities). Key emission sources include handling raw materials like sand and cement, storage silo loading, truck mixers, and unsealed road dust. The contractor must manage emissions to avoid causing a nuisance beyond the boundary of the compound. The following mitigation measures may be undertaken by the contractor to achieve this:

- Cover or spray water or mist on stockpiles, material loading and screening operations, conveyer belts and rock crushers to suppress dust during windy and dry conditions.
- Install covers, fans, fabric filters, dry vacuums and bag houses to enclose and capture dust from dusty processes.
- Observe evidence of dust settlement at the boundary of the compound and adapt operations if dust settlement is excessive.

188. All waste that cannot be recycled or reused will be disposed of at the licensed KIRMA Landfill. This includes excess base course materials and gravels which are not able to be reused by others, as it can be used as cover material at the landfill.

189. Waste management measures will include, but not be limited to, the following:

- Construction workers shall have access to sufficient general trash receptacles, with secure lids, to allow for the collection and storage of waste separated to hazardous waste.
- Construction workers shall have access to on-site toilet and hand-washing facilities.
- Wastewater from toilet facilities shall be collected and disposed of at the licensed wastewater treatment plant at Tofol.
- Stockpiling, burying, burning, or dumping of solid or liquid wastes shall be strictly prohibited.
- Separate solid waste into hazardous, non-hazardous, and reusable waste.

190. **Oil and hazardous materials management.** Petrochemicals and other hazardous substances will necessarily be used and transported during the project construction. These present a risk from spillages and other uncontrolled events, leading to potential pollution events.

191. Mitigation measures to be undertaken by the contractor consistent with a WMMP as part of the CESMP, which will include measures for clean-up and handling of hazardous and contaminated materials:

- Storage of all hazardous substances and chemicals (including fuel) and refueling activities are to occur at least 50 m away from watercourses and be appropriately contained (e.g. in bunded and roofed structures) to prevent contamination of surface water or groundwater;
- Contractors shall conduct daily inspections of machinery with particular attention to repair of hydraulic and fuel systems to prevent leakage;
- The Contractor shall have fully stocked, relevant spill kits available and staff be trained in their use;
- In case of any fuel or chemical spill, Contractors shall immediately contain the spill and contact the PIU immediately to report the incident and should be reported to the KIRMA within 24 hours;
- Provision of training on the proper handling of fuels/hazardous substances, and containment and disposal of spills;
- All cement works to be done in dry conditions;
- Spill management for quick containment and clean-up of wet concrete;
- Collection and disposal of oil- stained wastes and used oil through authorized waste handlers and waste facilities; and
- Restoration of temporary work sites will include removal, treatment, and disposal of oil contaminated soils through authorized waste handlers and waste facilities;

192. **Cultural Heritage Protection.** The CESMP will include a chance find procedure, based on the measures set out in the ESMP. While discovery of physical cultural sites or resources is unlikely due to the road existing in an already highly modified environment,

any site clearance and excavation activities can unearth archaeological sites, human remains or cultural or historical artefacts. In the event this occurs, work shall cease immediately and inform the Department of Resources and Economic Affairs (Historic Preservation Office) about the presence. A project-specific Cultural Heritage Protocol is found in Appendix G.

193. Activities shall not re-commence until the authorities have signed off that the site/resources have been dealt with appropriately and that work may continue.

194. The contractor shall ensure the identified grave near the end of the causeway is protected throughout the works through mandatory worker induction, clear Standard Operating Procedures (SOP's) prohibiting any stockpiling, machinery operation (including turning circles), parking, or worker congregation within the designated buffer area (20m) , and installation of temporary fencing and visible signage where required to prevent inadvertent encroachment.

195. The protection zone shall be clearly marked on site layout plans, reinforced during toolbox talks, and supervised daily to ensure compliance. Public access to the grave will be maintained at all times, with no obstruction, disturbance, or degradation permitted under any circumstance.

ii) Impacts on Biological Environment

Roadworks on the Causeway (marine ecology)

196. The terrain of the causeway is very flat. The causeway road will be upgraded and be raised by one foot above the existing level to enhance drainage and longevity. Roadworks will require movement of material primarily soil and aggregates on and around the causeway.

197. The marine receiving environment is relatively pristine with both the Blue Hole and the estuarine environment located in the LMPA. The near-shore marine ocean environment adjacent to the causeway features a mix of coral patches, seagrass beds, and sandy substrates (see Section 4C i) whereas mangroves are found predominantly on the lagoon side adjacent to the causeway road and in larger numbers near the junction of main island and the causeway. Embankment works stop 50 meters from the Blue Hole.

198. In addition, the Clam Aquaculture Research Center (CARC) takes water for the facility from an intake located in the ocean side marine environment, at a distance of 300 m from the causeway. The Blue Hole is also a swimming recreational area for the community.

199. Soil loss leading to sediments entering the marine environment can reduce light penetration, cause gill abrasion and can smother seagrass and coral leading to potential for changes to flora and fauna assemblages in the area of impact. Elevated turbidity values are also a concern for both water quality and recreational use.

200. All construction works are located immediately adjacent to the marine environment, so it is important that erosion and sediment control measures are functional and constantly maintained to minimize soil loss to the marine waters over the 24-month construction period.

201. The potential impacts are suspended sediment pollution from earthworks and dewatering affecting water quality in a mixing zone of approximately 100 ft from shore due to dispersion in a large tidal environment. Within this mixing zone there is also a deposition zone for sediment to settle on the sea floor. Close to the location of works this sediment can smother benthic habitats (such as described above in Section 4) C) i).

202. A reference turbidity value will be established from a single surface-water sample collected during mid-tide (the midpoint between the daily high and low tide) and during daylight hours. The sample will be taken 100 feet perpendicular to the causeway side where road works are occurring. The reference site will be located at least 300 feet along the causeway from any active construction area.

203. A turbidity reading will be collected at the same time from the Blue Hole recreational area to confirm baseline turbidity values so that any future impacts may be identified and managed, where required.

204. During road-work activities, a weekly surface-water turbidity measurement will be collected during mid-tide and during daylight hours from a single surface-water sample taken 100 feet perpendicular to the causeway on the embankment side adjacent to the active works. A corresponding turbidity reading will be collected at the reference site on the same day to enable direct comparison and assessment of any construction-related turbidity increase.

205. Where turbidity at the impact-monitoring location exceeds the baseline reference value by more than 50 NTU, the result will be referred to the Supervising Engineer and the PIU. They will apply an adaptive management approach to determine whether

additional water-treatment measures, modified work practices, or other controls are required to manage the proportional ecological risk. The 50 NTU threshold provides a conservative buffer to account for natural variability and sampling uncertainty. As illustrated in Figure 21, a 50 NTU sample contains only a very low concentration of suspended material, indicating that exceedances above this level warrant review but do not represent high turbidity conditions.

206. In addition, these turbidity values will be shared with the operator of the CARC to confirm suitable water quality is being sourced by CARC during the construction phase.

207. The contractor will be required to implement the following measures to prevent sediments from moving offsite during roadworks including:

- Earthworks and areas to be exposed should be carefully planned, and disturbances to be minimized to the maximum possible extent.
- Diversion of upstream storm water around open work areas;
- Install small interceptor dikes, pipe slope drains, silt fence, to divert clean storm water from the work area
- Cover all material stockpiles with tarpaulins to prevent dust and material loss during rainfall events,
- Soil / gravel stockpiles not to be stored on the causeway and contained (e.g. bunded) to prevent any discharge of sediment during rain events;
- Care shall be taken during the transportation of material to and from the site to avoid spillage including not over filling the tray, covering loads etc.; and
- Where required, and with discussion with the Works Supervisor Engineer (ICT), treatment of sediment laden water through geo bags or similar such treatment system to be undertaken to improve water quality discharge.

208. **Causeway embankment renovations (marine ecology)**

209. There are a number of cavities in the embankment layers where pavement layers/fill material have been washed away and will continue to do so, undermining the structural integrity of the road. The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe leading to works within the LMPA., and by 10 ft into the adjacent oceanic waters.

210. Embankment renovations are to be undertaken for 1,907 ft on the ocean side (82 % of causeway length) and 1,357 ft (58 % of causeway length) for the lagoon side (Figure 5).

211. The marine ecology on the ocean side of the causeway is dominated by seagrass beds adjacent to the causeway (see Figures 5, 16 and 18). An area of 10 ft x 1907 ft or ~ 19,000 sq ft of potential seagrass habitat will be lost as result of the area required due to embankment renovations. Figure 16 shows the seagrass beds on the oceanic side as an area of 3.7 million sq ft. The loss of seagrass beds due the embankment renovation is equivalent to 0.5 % of the mapped seagrass areas in Lelu Harour. Given the loss of this very small footprint, the abundance of unaffected foraging habitat, and the absence of breeding or critical-life-stage use in the area, the impact on the wider ecological system is low significance—it does not alter population viability, ecosystem processes, or the integrity of biodiversity values.

212. Given the extensive remaining seagrass habitat, the absence of local nesting

activity, and the opportunistic nature of turtle use of the harbor, the impact on sea-turtle foraging behaviour—with standard mitigation measures in place—is assessed as Insignificant.

213. On the lagoon (estuarine) side of the causeway, extensive areas of unconsolidated material are present, consisting of a mix of coral rubble and finer sediments (see Figures 5, 16, and 19). Within the proposed footprint, most of the 8-ft by 1,357-ft area—equivalent to approximately 10,856 sq ft—is composed of this coral-rubble–sediment matrix. The coral rubble sediment in the lagoon area has an area of 3246,090 sq ft. The area of rubble covered by the embankments renovations is less than 0.3% of the rubble area in the lagoon.

214. Given that the rubble area affected by the embankment renovation represents less than 0.3% of the total rubble habitat within the lagoon, the ecological implications are negligible. At this scale, the loss does not alter habitat availability, trophic pathways, species movement, or the functional role that rubble substrate plays in supporting juvenile shelter and foraging dynamics. Ecological processes continue uninterrupted within the remaining >99.7% of habitat, and species are readily able to redistribute within adjacent, identical rubble areas. Accordingly, the impact on ecological function is assessed as very low (negligible), with no measurable change to wider biodiversity values or ecosystem integrity.

215. There is a small number of mangroves established on the lagoon side of the embankment which are regularly trimmed by KUA to maintain access and security for the power line (see Figure 10). These mangroves will be removed where embankment renovations are to take place. Once the embankment works are completed, mangroves are expected to naturally re-establish.

216. **Causeway embankment renovations - Soil erosion and sediment control, sheet piling and armor rock management:** The embankment renovations require excavation into the sediment / rock, layering of fill materials, geofabric installation and rock armouring to prevent erosion of the roadway. The works will occur progressively over an 18 month period.

217. The potential impacts are suspended sediment pollution from earthworks and dewatering affecting water quality in a mixing zone of approximately 100 ft from shore due to dispersion in a large tidal environment. Within this mixing zone there is also a deposition zone for sediment to settle on the sea floor. Close to the location of works this sediment can smother benthic habitats (such as described above in Section 4) C) i).

218. As per the monitoring program for roadworks, a similar program will be undertaken for the embankment works. The contractor will establish a baseline turbidity reference value from a single surface-water sample collected during mid-tide and daylight hours, at a distance of 100 ft perpendicular to the causeway on the embankment side where works will commence. The reference location will be situated no less than 300 ft along the causeway from any active or upcoming embankment works, ensuring it remains outside the zone of construction influence.

219. A turbidity reading will be collected at the same time from the Blue Hole recreational area to confirm baseline turbidity values so that any future impacts may be identified and managed, where required.

220. During all embankment works including treated egress-water discharge, the contractor will collect a weekly surface-water turbidity measurement during mid-tide and daylight hours, at 100 ft perpendicular to the active work area. During all embankment works including treated egress-water discharge, a weekly surface-water turbidity measurement will be collected during mid-tide and daylight hours, at a distance of 100 ft

perpendicular to the active work area. On the same day, an equivalent turbidity measurement will be collected at the reference site to allow for direct comparison and assessment of construction-related turbidity variation.

221. Where there is a difference in turbidity values of greater than 50 NTU at the impact zone than the baseline reference value, this will be referred to the Works Supervision engineer and the PIU who will use an adaptive management approach to review whether additional water treatment should be undertaken by the contractor or other such measures to manage the proportional ecological risk. A value of 50 NTU provides a small sampling buffer. In Figure 21: Vial of water with turbidity value of 50 NTU on the bottle cap.., the turbidity of a 50 NTU water sample is shown and highlights the very low level of suspended material in such a sample.

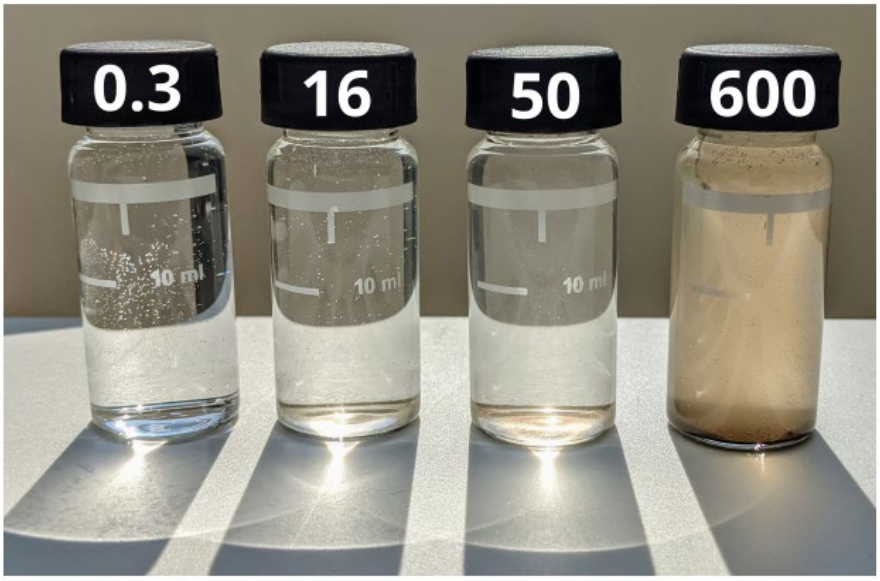
222. In addition, these turbidity values will be shared with the operator of the CARC to confirm suitable water quality is being sourced by CARC during the construction phase.

223. To manage sedimentation impacts and deliver good water quality to the receiving environment during the embankment renovations, the following mitigation measures will be implemented, by the Contractor including:

- Limit open excavation lengths to ≤50 m at any one time, unless otherwise approved by ICT.
- Prohibit simultaneous exposure on both sides of the causeway unless justified and approved.
- Sheet piling/sandbagging during embankment renovations to limit water ingress to the working areas.
- Due to the substantial embankment renovations to be undertaken and the sensitive receiving environment, any excess turbid egress water from sheet piling or sandbagging activities will be treated prior to discharge.
- All egress water must consider a two-stage treatment similar to that described below to produce a discharge water turbidity value which will meet a mixing zone criterion of < 50 NTU at mixing zone distance of 100 ft perpendicular to the embankment works than a reference baseline turbidity value.
- **Primary**: geotextile filter bags or sediment tanks sized for peak pump rate.
- **Secondary**: settlement tank or baffled chamber or similar such mechanism
- Lagoon derived egress water will be discharged back to the lagoon side after treatment and oceanic water will be discharged to the oceanic side. Discharge points must be located away from sensitive habitats including recreation areas, (blue hole), the CARC, marina and the water quality intake required for aquaculture facility.
- Maintain a **daily log** of pump rates, filter bag condition, and discharge clarity.
- The placement of geofabric must be progressively installed on a daily basis over any exposed soil to minimize impacts soil loss and impacts on water quality.
- all work to be carried out from roadside.
- Excavated material to be trucked and stockpiled in lay down areas away from the causeway. The laydown areas are to be bunded, and materials are to be covered to prevent soil loss

- Where possible these materials are to be reused any residual material considered as cover material at the local landfill.
- All cement works to be done in dry conditions.
- Should the criteria be exceeded stop work immediately and inspect and repair controls, review adaptive management processes with the Works Supervising Engineer (ICT) and the PIU.
- A site-specific Works Method Statement will be prepared by the contractor and approved by the Construction Work Supervisor to ensure the environmental controls specified in the ESMP are in place.

Figure 21: Vial of water with turbidity value of 50 NTU on the bottle cap..[23]



Pictured above: four solutions with turbidities of 0.3, 16, 50 and 600 NTU as indicated by their vial caps.

224. **Vibration during Sheet piling for embankment work:** The Project works during sheet pile installation has the potential to disrupt aquatic ecological function. Underwater vibrations, caused by human activities in construction, can significantly affect aquatic animals by interfering with their ability to navigate, hunt, mate, and communicate. Effects range from behavioral changes and increased stress to hearing loss, physical injury, or death, particularly in fishes, crustaceans, and cephalopods. The impacts are short term and there are large areas of nearby habitat for animals to move to. Specific mitigation measures to minimize impacts on marine fauna during sheet piling to maintain ecological function include:

- Soft-start / ramp-up procedures to allow species to vacate the area.
- Use of vibro-piling instead of impact piling where feasible, as it produces lower peak pressures.

225. Vibration impacts on flying foxes may also be a significant factor on behaviour, and adaptive management may be required based on the advice of the Flying Fox specialist during the pre-construction monitoring program.

226. **Coastal flora and fauna** – terrestrial vegetation removal and site clearance. The

[23] https://freeup.world/turbidity/#:~:text=As%20illustrated%20below%2C%20turbidity%20values,depth%20of%20water%20under%20observation.

road corridor is a highly modified transportation zone with small stands of vegetation. The vegetation that will be removed during the road and embankment works consist primarily of plantings established by the state or community, along with some naturally regenerated growth.

227. Trees on the ocean side of the causeway consist of coconut trees, screw palms and sea almonds. Many of these trees may be removed during embankment works. The contractor will be required to replace like for like, in consultation with the tree owner.

228. **Terrestrial Fauna Biodiversity & Habitat – Endangered Kosrae Flying Fox**. The Kosrae Flying Fox roosts/feeds/breeds on Yen Yen Island. Flying foxes can be sensitive to noise, vibration and light, and may change their feeding behavior or roost location to avoid these emissions from the road project. The baseline describes a reasonably quiet roost on Yen Yen Island with foraging ranges in rural / suburban areas, indicating they can adapt to background residential and traffic emissions.

229. For this ESMP, a precautionary approach was taken because of the lack of noise data and a desktop analysis was completed to predict whether construction activities will generate intermittent and higher-intensity noise at Yen Yen Island at a level that will affect Flying Fox behavior at the roost.

230. The baseline noise level at the perimeter of Yen Yen Island is calculated to be ~ 45 to 55 dB(A), whilst 200 ft further into the well-vegetated section of the island it was calculated be 10 dB(A), quieter (35 to 45 dB) (see Section 4 (b)). Road construction noise in the order of level of 84 dB(A)[24] will attenuate to approximately 66 dB(A) at a distance of 250 ft across a soft site (e.g., vegetated terrain), consistent with Figure 22.

[24] Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Bats July 2016 California Department of Transportation Division of Environmental Analysis © 2016 California Department of Transportation

Figure 22: Equation 2.1 in Effects of Traffic Noise and Road Construction Noise on Bats (2016).[25]

$$dBA_2 = dBA_1 + 10 * \log_{10}(D_0/D)^{2+\alpha} \qquad \textbf{Equation 2.1}$$

Where:

- dBA_1 = Noise level at reference distance (usually 50 feet)
- dBA_2 = Noise level at specific distance from source
- D = the distance from the noise source measurement is being taken
- D0 = the reference measurement distance (50 feet for construction noise)
- α = 0.5 for a soft site and 0 for a hard site

Example: the noise level at a bat tree hollow roost (entrance) in a forest (soft site; 40 dBA background) (Table 2) 250 feet from a project generating construction-related noise of 84 dBA ($\mathbf{L_{max}}$) would be:

$$dBA_2 = dBA_1 + 10 * log_{10}(D_0/D)^{2+\alpha}$$

Where:

$dBA_1 = 84$; $D = 250$; $D_0 = 50$ and $\alpha = 0.5$

$$dBA_2 = 84 + 10 * \log_{10}(50/250)^{2+0.5}$$
$$dBA_2 = 84 + 10 * \log_{10}(0.2)^{2.5}$$
$$dBA_2 = 84 + 10 * \log_{10}(0.02)$$
$$dBA_2 = 84 - 17.474$$
$$dBA_2 = \mathbf{66.526}$$

231. The construction noise level at Yen Yen Island at **100 ft inland** i.e. 150 ft from the road to the plus 100 ft inland (i.e. 250 ft from construction noise source) is calculated to **be 66 dB(A).** When combined with the existing baseline noise environment of 40 dB(A), the overall level remains governed by the louder source and therefore effectively stays at 66 dB(A).

232. At approximately **450 ft from the construction noise source**—comprising 150 ft to the island perimeter and a further 300 ft inland (middle of the island); the attenuated construction noise level is estimated to **be 56 dB(A).** When combined with the existing baseline noise environment of 40 dB(A), the overall level remains governed by the louder source and therefore effectively stays at 56 dB(A).

233. For context, 40 dB(A) is comparable to a quiet library or refrigerator hum, whereas 56 dB(A) aligns with the sound of a normal conversation or a quiet vacuum cleaner, noting that the noise level at 56 dBa is three times higher than the noise level at 40 dBa.

234. The impacts on elevated noise on bat behavior are summarized in the Technical Guidance for Assessment and Mitigation of the effects of Traffic Noise and Road Construction Noise on Bats, 2016 by the California Department of Transportation Division of Environmental Analysis.

235. "Through constant acoustic scene analysis (Moss and Surlykke 2010), bats continually monitor their environment and develop, through experience and learning, dynamic acoustic pictures of what is normal, different, or possibly threatening. Generally, potentially threatening conditions or situations require constant vigilance and monitoring of different threat levels to prepare for appropriate responses.

236. At perceived high levels of potential threat, bats may abandon their roosts

[25] Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Bats July 2016 California Department of Transportation Division of Environmental Analysis © 2016 California Department of Transportation

(Pearson et al 1952; Kunz 1982; Sherwin et al. 2000), be it a day roost or night roost, and move to locations less threatening. These threats may be associated with close proximity to human activity, chronic high noise, and sudden and repeated high level impulse noise that is not part of the common background noise. The consequences of this action can be severe if young are abandoned at a maternity roost, predation exposure increases, or there is loss of access to important nearby foraging or alternate roosting areas.

237. At lower levels of perceived threat, the bats may stay in place but invest moderate to high amounts of time and energy in vigilance behavior—time and energy often redirected from other critical behaviors such as care of young, foraging, rest, and proper thermoregulation (Schaub et al. 2008; Barber et al. 2010).

238. In summary, these short-duration but elevated noise events have the potential to disturb individuals and may influence population distribution or behavior during the construction and post construction period.

239. **Ground Vibration** generated by road construction machinery (e.g. vibratory rollers and sheet piling) may impact Flying Fox behaviour. Such impacts are typically associated with intense or chronic vibration exposure and may result in Flying Fox abandoning established roost sites, as well as a reduction in activity levels and foraging (feeding) behaviour.

240. Roberts (2009)[26] found that computer modelling of the ground vibration transmitted by various items of construction equipment indicated that:

- The ground vibration decreases progressively from hard competent rock (n = 1.0) to weak or soft soils (n = 1.4). The causeway is on hard component rock as the site was once used as a runway.
- For hard, competent rock the ground vibration at 30m (100 ft) determined as peak particle velocity (ppv) varies from 6mm/s (impact pile driver, energy rating 108,560J) to 0.02mm/s (small bulldozer).

241. The distances required from operating heavy impact and vibratory pile drivers for continuous vibration and hard, competent rock to achieve an acceptable annoyance criterion (strongly perceptible) of 2.5mm/s at sensitive premises varies from 160 ft to 230 ft. Vibratory rollers under identical conditions require a separation distance of up to 160 ft. Smaller items of construction equipment under identical conditions require separation distances varying from 35 ft (jackhammers) to 80 ft (large bulldozers).

242. A vibration level of peak particle velocity (PPV) is generally considered low-to-moderate in construction, often falling below thresholds causing minimal long-term impact on mature flying fox colonies. While 1–5 mm/s causes subjective human disturbance and 2 mm/s is often a long-term regulatory goal, transient levels below 5 mm/s typically allow mature colonies to remain.[27]

243. Vibration impacts on the Kosrae Flying Fox roost on Yen Yen Island are therefore likely to be limited, as the separation distances for the road construction machinery e.g. vibratory rollers and large bulldozers are on the border of acceptable annoyance criterion.

Managing Terrestrial Biodiversity & Habitat – Endangered Kosrae Flying Fox

244. As a minimum, to minimize impacts on the Kosrae Flying Fox during construction,

[26] Roberts, C. 2009. *Construction noise and vibration impact on sensitive premises*. Proceedings of Acoustics, Australian Acoustical Society. Available: http://www.acoustics.asn.au/conference_proceedings/AAS2009/papers/p11.pdf

[27] https://www.environment.nsw.gov.au/topics/animals-and-plants/wildlife-management/management-flying-foxes/camp-management/creation-of-buffers-level-2#:~:text=Disturbance%20of%20flying%2Dfoxes%20at,cost%20effective%20than%20ongoing%20dispersal.&text=If%20possible%2C%20land%2Duse%20planning,be%20used%20by%20flying%2Dfoxes.

the PIU and the contractor will undertake the following:

- The PIU will support noise monitoring in and around the Yen Yen island to measure noise levels during construction as guided by the Flying Fox ecological expert. The PIU will support population and behaviour studies of the Kosrae Flying Fox during construction to establish whether disturbance of populations are affected by construction noise .
- Should the pre-construction impact assessment of both studies conclude that specific impacts may occur; an adaptive management plan will be prepared and implemented to minimize these impacts during construction. Additional mitigation measures to be considered include portable noise barriers and other noise reducing mechanisms e.g. sound insulation of machinery, dedicated work times etc to reduce noise levels, controls of any fugitive dust from roadworks and controls on lighting as recommended by the flying fox specialist.
- Begin work at the junction of the roadway at the main island and work down the roadway. This activity may provide a period of habituation of the flying fox to the additional construction noise.
- Ensure no night-time lights beyond what exists and no night work on this project.
- Deliver during site induction, a session on the ecological importance of the Kosrae Flying Fox's habitat for roosting/foraging/ breeding and the need to protect this area.
- Insert in the COC, a 'no hunting or poaching' policy.
- Work closely with the PIU during the Flying Fox survey and adapt construction methodology and timing to feedback on Flying Fox behaviour.
- Temporary activities such as laydown areas, borrow pits or quarries must be surveyed for the endangered Kosare Flying Fox, and their key habitat requirements and the site will not be permitted if the survey identifies potential impacts on flying fox behaviour or population. Pits must maintain appropriate setbacks from water bodies (e.g., at least 15m from riverbanks) and infrastructure. Where practicable, excavation should not extend below the water table to prevent groundwater contamination or alteration of natural hydrology.
- Community engagement will highlight the importance of the conservation of the flying fox and the mangrove habitat in the LMPA. This engagement will enhance the community's understanding of the need to conserve these species during and after the Project.
- Work closely with the PIU during the Flying Fox survey and adapt construction methodology and timing to feedback on Flying Fox population and behaviour monitoring.

245. Since sea turtles are occasional visitors, consideration of the following has been noted:

246. The response to the conditions on ESS 6 paragraph 26 and 27 regarding impacts on protected areas i.e: LMPA has been provide in Table 11.

Table 11 : Response to ESS 6 Protected Areas – LMPA

ESS 6 Condition	Project Response
Paragraph 26: Where the project occurs within or has the potential to adversely affect an area that is legally protected, designated for protection, or regionally or internationally recognized, the Borrower will ensure that any activities undertaken are consistent with the area's legal protection status and management objectives. The Borrower will also identify and assess potential project-related adverse impacts and apply the mitigation hierarchy so as to prevent or mitigate adverse impacts from projects that could compromise the integrity, conservation objectives, or biodiversity importance of such an area.	Kosrae State Law 12-165 (2020) officially legalized the LMPA as part of the FSM PAN. Approval for causeway upgrades within the LMPA will be coordinated with the Mayor of Lelu and KIRMA. The development permit will be issued by KIRMA with conditions. If requested by KIRMA, the ESMP will be forwarded on to KIRMA to support the development application that are already submitted to KIRMA by DTC&I. Works will not commence until the permits are granted. The road and embankment renovations will have minor disturbances to the LMPA (See Section 5(ii) Causeway Embankments (Marine Ecology): The ESMP includes specific measures to prevent or mitigate impacts on water quality during the embankment renovations in the marine and lagoon environment. An adaptive management plan will be implemented if monitoring indicates a negative trend in the population size or behaviors of the Kosrae Flying Fox during construction, when compared with preconstruction data (See Section 5 d (ii) Terrestrial Fauna Biodiversity & Habitat – Endangered Kosrae Flying Fox.
Paragraph 27: The Borrower will: (a) Demonstrate that the proposed development in such areas is legally permitted; (b) Act in a manner consistent with any government recognized management plans for such areas; (c) Consult and involve protected area sponsors and managers, project-affected parties including Indigenous Peoples, and other interested parties on planning, designing, implementing, monitoring, and evaluating the proposed project, as appropriate; and	a) Approval for causeway upgrades within the LMPA will be coordinated with the Mayor of Lelu and KIRMA. The development permit will be issued by KIRMA with conditions. As requested by KIRMA, the ESMP will be forwarded on to KIRMA to support the development application that has already been submitted to KIRMA by DTC&I. Works will not commence until the permits are granted. (see Appendix D). b) The works to be undertaken in this project are subject to the conditions of this ESMP which includes support for the management of biodiversity and resources within the LMPA. c) The Project plan and outcomes have been presented and discussed with the KIRMA and Lelu community through an initial community

(d) Implement additional programs, as appropriate, to promote and enhance the conservation aims and effective management of the area.	awareness meeting. These consultations will be ongoing throughout the length of the Project. KIRMA has approved the project according to design documents (Appendix D) d) The PIU will implement a biodiversity monitoring program that will monitor the population and behavior of the Kosrae Flying Fox. In parallel, a noise and vibration study will be undertaken to establish noise and vibration levels at the Flying fox habitat and causeway during pre-construction and construction. The PIU, CIU and the contractor will closely monitor the outcomes of the monitoring program of the endangered Kosrae Flying Fox and noise and vibration studies and where required, modify construction activities to minimize impacts on the Flying Fox population

247. Screening of the project area against the Critical Habitat criteria defined in ESS6 indicates that **Lelu Harbour (lagoon and ocean side) does not qualify as Critical Habitat** for sea turtles.

248. Since sea turtles are occasional visitors, consideration of the following has been noted:

- Construction related impact (sediment, noise, occupation of seagrasses)
- Operation related impact (permanent removal of seagrass)

249. Piling and earthworks and associated noise and vibration may deter visits,

250. Permanent removal of seagrass is a very small percentage, probably within natural fluctuations, in an area that is probably not visited by turtles due to close proximity of human activity. Therefore, there should be no measurable impact on the sea turtle species.

251. **Critical Habitat Conclusions:** The Kosrae Flying Fox may be adversely affected by short term and localized road construction, with adaptation already established for some of these impacts e.g. noise, light, vibration and people movement.

252. Mitigation measures include a pre-construction and construction monitoring program for preconstruction and construction noise and vibration, and population and behavioral studies for the Kosrae Flying Fox. Should the studies indicate that noise reduction is required, portable noise barriers will be employed with other noise reducing mechanisms e.g. sound insulation of machinery, dedicated work times etc.

253. If the noise and vibration and flying fox assessment conclude that net gain is required to meet ESS6 requirements, the ESMP proposes a non-offset action - publishing the scientific data collected to build the body of scientific knowledge on the species, the ecological monitoring program for flying foxes studies (over the 30 month period) and publication to increase the body of knowledge, support for NGO or KIRMA advocacy, and community awareness raising.

254. The Project will therefore meet the conditions of ESS 6 relating to the critical habitat classification of the LMPA and surroundings where the endangered Kosrae Flying Fox roosts, feeds and breeds.

iii) Impacts on Socio-economic environment

255. **Road safety, traffic management and vehicular access to private and public property:** Construction activities and associated temporarily with partial road closures may cause traffic congestion and hinder public access, including safety and traffic aspects associated with pizza shop, Clam Aquaculture Research Center, marina, grave sites and the Blue Hole pier, Senior Citizen's Building, family beach and FSM bank.

256. Managing traffic during works along the Lelu Causeway will be critical given that this is the main thoroughfare to Lelu Island and the capital Tofol, markets and the airport.

257. Temporary areas, access paths/roads and ancillary facilities will need to be carefully planned to avoid traffic congestion. Pedestrian access through and around the work sites will be controlled and managed. Traffic management and control, especially during peak traffic times early morning, lunchtime and evening, will ensure safe passage of vehicles and pedestrians. Stakeholders and communities will be notified in advance of the schedule and duration of activities and the access and traffic control arrangements.

258. In accordance with ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), ESS4 (Community Health and Safety), and ESS10 (Stakeholder Engagement and Information Disclosure), the Contractor must implement the traffic management plan to avoid, minimize, and manage access-related impacts.

259. These actions detailed below apply to all construction zones, laydown areas, detours, haul routes, and temporary traffic management arrangements throughout the construction period.

260. The contractor's Traffic Road Safety Management Plan (TRSMP) will maintain continuous, safe, and predictable access to businesses and community facilities, ensure pedestrian safety, with particular attention to business visitors unfamiliar with the area, minimize economic disruption to commercial operators through clear frontage protection and driveway continuity, provide timely, accessible, and transparent communication to all affected stakeholders and ensure emergency access is maintained at all times.

261. This will be achieved by the Contractor by:

- Preparing and implementing the TRSMP in consultation with DTC&I and State representative agencies and reviewed by relevant stakeholders including key businesses (Dominique's pizza shop, Clam Aquaculture Research Center, marina, FSM Bank, Senior Citizens).

- In alignment with ESS10, communication with the local businesses to be informed of the upcoming work (including maps, dates and times of operation) at community meetings and fliers, and the installation of signage, one month prior to commencement (as per SEP).

- To maintain continuous business access, including safe pedestrian and vehicle routes during all construction phases. The contractor will provide:

    - 72-hour notice for any works affecting driveways, business frontage, 7-day notice for major staging changes or night works
    - Multilingual notices delivered via flyers, business visits, school/church liaison, and roadside signage

  - This ensures households, businesses, and institutions can plan around disruptions.

- **To maintain Driveway Continuity,** the contractor will provide:
  - Temporary ramps, steel plates, or graded access across trenches
  - Restoration of access before the end of each workday
  - No unapproved driveway closures
  - Safe turning movements for businesses and delivery vehicles

- **To maintain frontage Protection for Businesses**, the contractor will provide:
  - Customer access at all times
  - Temporary signage where visibility is reduced
  - Relocated loading/unloading zones
  - Consultation with businesses before frontage works
  - Ensuring loading/unloading access for commercial operators, with advance coordination where temporary constraints are unavoidable.

- **Manage parking impacts**, including temporary arrangements where frontage or on-street parking is affected.

- **Prompt restoration of access and frontage** where diversions or temporary works affect business operations, supported by documentation and photographic evidence.

- **Planning construction activities around business hours**, with restrictions on high-impact works during peak trading periods.

- This is essential for ESS10 compliance and commercial continuity.

- Always keeping at least one lane of traffic open. No diversion roads will be used because the roads are not sufficient to handle the causeway traffic.

- Undertaking construction activities from 7 am to 5 pm on Monday through Saturday with no construction activities taking place on Sundays or public holidays without prior approval of State government agencies, traditional leaders, community and the Contractor.

- Maintaining continuous, safe pedestrian routes that meet the following requirements. Clearly delineated temporary footpaths with barriers separating pedestrians from work zones and traffic, night-time lighting where pedestrian movement occurs after dark. Safe crossing points with safety personnel during peak periods. Accessible routes for people with disabilities, including ramps and tactile indicators, where feasible. Prohibition of reversing heavy vehicles across pedestrian routes unless controlled by trained spotters. Traffic safety will be managed after hours by signage and cones.

- Coordinating with the community groups to avoid disruptive works during major services, funerals, weddings, and community gatherings.

- Keeping all emergency routes unobstructed. Provide emergency services with a 24/7 contact number for the Site Supervisor. Provide weekly updates on lane closures and detours and immediately halt works if emergency vehicles require passage.

- Arranging before demobilization from any work zone the restoration of all pedestrian and vehicular access to pre-construction conditions or better. Removal of temporary signage, barriers, and detours. Confirmation with businesses, that access has been fully reinstated and document closure in the final site handover report.

262. **Noise and Vibration:** There are no noise standards in FSM so the World Bank Group ESHS noise standards will apply. Clearing roads, bulldozing, compaction

equipment, moving boulders into place, excavation of existing pavement materials, and grading will generate noise. Construction noise will be temporary (during work hours as described above) and quickly attenuate with distance. During construction, there will be localized impacts at Dominique's pizza shop and the Clam Aquaculture Research Center because of their proximity to the roadworks.

263. It is the responsibility of the contractor to arrange meetings between the key community stakeholders and coordinate work schedules (hours of equipment operation etc.), including the locations of material storage area(s) and concrete batching plant. Additional controls will include:

- Ensuring noise attenuation is in accordance with the World Health Organization (WHO) and WB EHSG. Monitoring sensitive receptors (Dominique's pizza shop, Clam Aquaculture Research Center, Marina and the Blue Hole) is required and management measures employed if noise attenuation does not meet guidelines;

- Construction vehicles and equipment are maintained in good working order and regular equipment maintenance will be undertaken;

- Construction vehicles and machinery will be fitted with mufflers and other noise abatement equipment as necessary;

- Limit noisy construction activities to daytime or traffic off peak hours. As practicable, physical barriers will be established between work areas and nearby residences and business premises; and

- Any complaints regarding noise will be dealt with by the contractor in the first instance through the GRM.

264. **Community health and safety**. People are at risk from exposure to road works hazards. Vulnerable people, including children and those with mobility issues, are at higher risk. The contractor will ensure people and vehicles are always separated from work areas. Community health and safety impact will be managed throughout the construction phase as follows:

265. The contractor will implement relevant elements of the TRSMP and GRM into a CSMP:

- All contracted workers required to sign a Code of Conduct (CoC) which outlines acceptable behavior for the workers and their role, including reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), All new contracted workers engaged during the Construction Phase is required to sign a Code of Conduct which outlines acceptable behavior for the workers and their role, including reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for local customs including respect for Kasrae customs, land tenure, and community protocols and behavior around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behavior in community-facing areas and undergo training

- Adequate signage and security will be provided at work sites for prevention of unauthorized people (including children) accessing any work site(s) including advanced notice of commencement of works, installation of safety barriers and fences and signage or marking areas where works will be carried out;

- Provision of safe access across the works site(s) to people/institutions

whose access is temporarily affected during road rehabilitation activities as part of the contractor implementing the TRSMP that will include traffic control and pedestrian safety measures;

- Child and/or trafficked labor will be strictly prohibited for any activities associated with the subproject with children to be prohibited from entering the worker's accommodation, works area/construction zone and prohibited from playing on any equipment or machinery associated with the project; and

- Age verification will be required before engagement, supported by worker register, these requirements must be adhered to by subcontractors and primary suppliers,

- Periodic spot checks will be undertaken and a safe remediation/referral procedure if a child is identified.

- In consultation with PIU, the contractor will clearly fence off 'no go areas' within work site(s) and erect boundary fences to prevent the public from entering during the construction period (or specific construction activities).

- Construction activities will be undertaken from 7 am to 5 pm on Monday through Saturday with no construction activities taking place on Sundays or public holidays without prior approval of State government agencies, traditional leaders, community and the Contractor.

- Should a chemical spill occur in the vicinity of the businesses or hotels emergency procedures will be activated and the appropriate safety measures taken to protect community health.

- Provide adequate safe passageways for the public crossing the construction sites; and advise local community of site health and safety site plans and seek feedback on appropriate mitigation measures via Community Advisory Committee meetings.

- SEA/SH and GBV training to all workers (as described above) and all workers sign a Code of Conduct.

- A project-specific SEA/SH prevention and response is detailed in Appendix E addressing ESS2 & ESS4, specifying an approved Code of Conduct, induction before deployment and refresher sessions, worker and community awareness, trained focal points, mapped referral services, confidential reporting channels, survivor-centred handling, sanctions, responsible parties, timing, attendance records, and anonymized monitoring indicators.

- For clarity, the project-specific SEA/SH prevention and response plan is in Appendix C, and the survivor-centered intake and referral pathway is in Appendix E.

- Transparency and open communication with the communities on issues that affect them.

- **Worker health and safety.** The contractor will be required to comply with the LMP - Project OH&S Management and implement relevant measures through the CESMP. The information found in the LMP contains worker health and safety information relevant to the Project. Road works activities include various hazards and risks including working with heavy equipment and machinery, working on roads/in traffic, exposure to noise and exposure to dust/exhaust particulates and hazardous substances. Risks would include accidental contact between workers and heavy

equipment (reversing plant, excavator swinging booms, etc), trip hazards resulting in falls into deep excavations or onto steel reinforcing cages, etc and equipment or materials being accidentally dropped onto workers, such from broken crane slings or accidental material release from elevated hoppers. The Contractor will employ an ESHS manager on site for the duration of the works.

- OHS training shall be provided on an ongoing basis throughout the construction phase, task by task, and records kept of competencies and training.
- Hazard registers will be kept updated.
- Workers will be allocated tasks based on their skills and experience.
- All drivers and equipment operators will have the appropriate licenses or 'tickets' or evidence of training.
- Daily tool box meetings will include a run through of ESH hazards and controls.
- All workers will be given their own PPE that fits and is appropriate for the hazards they are exposed to and will be trained in how to wear / use it. All workers will be required to always wear / use it while working on site. No PPE, no work.
- The Contractor shall provide potable water supplies, first aid facilities, toilets for all genders and hand-washing facilities at worksites.
- The Contractor OHS procedures shall include the requirement to raise awareness and educate all site staff on the prevention and treatment of communicable diseases including filariasis, dengue, zika, hepatitis, COVID-19 and HIV/AIDS.
- All new contracted workers engaged during the Construction Phase is required to sign a Code of Conduct to ensure that workers' actions at the work site are appropriate and meet community standards including acceptable behavior for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for Kosrae customs, land tenure, and community protocols and behavior around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behavior in community-facing areas and undergo training in these areas.
- Where off-island workers are housed in rented accommodation, the Contractor shall:
- Ensure compliance with IFC/World Bank Worker Accommodation Guidelines.
- Provide adequate sanitation, privacy, lighting, ventilation, and waste management.
- Maintain a register of all residents.
- Conduct monthly inspections using a standard checklist.
- Document corrective actions within 7 days.
- Ensure accommodation hosts understand the CoC and reporting channels.
- Any imported labor related issues to be addressed through the GRM and complaints register
- The contractor will ensure that the wider labor and working-condition requirements, are met including written terms and conditions, wages and working hours, nondiscrimination and equal opportunity, freedom from harassment and retaliation, prohibition of recruitment fees and forced labor, a separate worker GRM, subcontractor and primary-supplier oversight, record keeping, and monthly labor indicators (see Appendix J).

The contractor will ensure that there is prohibition on unauthorized entry to private or customary land by the work team.

Workers are strictly prohibited from:

- Entering private land, gardens, or shoreline areas without permission
- Taking photos or videos of private property or individuals
- Collecting plants, shells, or materials from customary land
- Violations result in disciplinary action and possible removal from site.
- The Contractor shall appoint a Worker Welfare Supervisor responsible for daily oversight, conduct weekly checks on worker behavior, accommodation, and CoC compliance, maintain a log of corrective actions and remove workers from site for serious violations (SEA/SH, violence, theft, trespass).
- The Contractor shall integrate worker behavior oversight into the project GRM by:
- Providing a confidential reporting channel for community members
- Investigating allegations within 48 hours
- Reporting outcomes to the PIU
- Maintaining an anonymized misconduct register
- SEA/SH allegations must follow survivor-centerd protocols.

266. The TRSMP will ensure that workers are kept safe while working in and near traffic.

267. A Works Method Statement will be required for all works with cement, and all works in waterways prior to these works being undertaken.

268. **Emergency Access Protocol to the Kosrae State Hospital**, Tofol

269. The **Kosrae State Hospital** is approximately 5 km from the causeway works and emergency access to the hostile for emergency ambulances and the public must be prioritized for the residents of Lelu Island. An Emergency Access Protocol has been documented below and will be implemented by the Contractor after agreement with the PIU before construction can be begin.

270. The key elements of the Emergency Access Protocol are:

271. **No-Blockage Rule**

272. The Contractor shall maintain **uninterrupted access** for emergency vehicles at all times. No equipment, materials, spoil, or vehicles may obstruct the roadway in a manner that prevents ambulance passage. - Temporary lane closures must always allow an emergency vehicle to pass, including during trenching, concrete works, or embankment activities.

273. **Traffic Marshal Responsibilities**

274. Traffic marshals must be trained and assigned to Immediately clear plant, workers, and traffic when an emergency vehicle is approaching. Maintain radio/phone communication with the site supervisor. Ensure safe pedestrian and vehicle movement during emergency passage. Keep diversion routes free of obstructions.

275. **Emergency-Vehicle Priority Procedure**

276. The Contractor shall implement a formal priority procedure that includes immediate halt of construction activities when an ambulance is detected. Rapid removal of barriers, cones, or temporary obstructions. Direct escort of the emergency

vehicle through the work zone by a traffic marshal. Documentation of each emergency-access event in the site log.

277. **Pre-Notification to Hospital and Emergency Services**

278. Before construction begins, the Contractor must provide the hospital and emergency services with the construction schedule. Share contact details for the site supervisor and traffic control lead. Establish a direct communication line for emergency notifications. Notify emergency services of any major staging changes, diversions, or night works.

279. This protocol ensures compliance with ESS1 and ESS4 by protecting life-safety functions and maintaining uninterrupted emergency access throughout construction

280. A requirement of the ESCP is the community and occupational health and safety (CHS/OHS) risk assessment and actionable measures compliance with World Bank Group EHSG and implementation shall be integral part of the CESMP.[28] In this context, the CESMP must clearly define who is responsible for implementing safety measures, conducting training, and monitoring compliance. Regular monitoring of OHS/CHS performance through daily toolbox meetings, weekly inspections, and incident reporting shall be part of the CESMP. A Community Health and Safety Management Plan (CHSMP) will be developed and implemented as part of the CESMP.

b) **Operational Impacts**

281. The potential environmental and social benefits and impacts of the proposed project have been assessed in line with WB's ESS, including assessment of the possible benefits and impacts with regard to (i) sustainable natural resource management; (ii) pollution prevention and abatement; (iii) community health and safety; and (iv) climate change.

i) Impacts on Physical Environment.

282. **Adaptation to climate change.** The risks of impacts on the road, and associated structures from climate change were addressed in design and construction. Surface flooding will be reduced and embankment strengthening will protect the road asset from coastal erosion.

283. Routine inspections of the roads as part of the tasks of the DTC&I will ensure that the features continue to operate as per their design and construction.

284. **Air quality.** It is envisaged that the current volume of traffic and future forecast traffic volumes will be constant with no noticeable impact on ambient air quality or noise compared to baseline.

285. **Operational impacts on Flying Fox**

286. **Routine maintenance works carried out effectively will reduce the** likelihood of water quality impacts on the receiving marine and lagoon environment. The road maintenance activities required relate to surface structural maintenance which will retain road and embankment integrity.

ii) **Impacts on Socio-economic Environment**

287. **Public access and traffic**. Following rehabilitation of the road, the performance

[28] https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf

of this singular route between Lelu Island and the mainland. The reduction in flooding, the new road seal and enhanced road safety features will facilitate the improved flow of traffic, goods, and passengers and enhance livelihood and general lifestyle opportunities to those who live nearby and use the road on a regular basis.

288. **Community health and safety.** Traffic and pedestrian safety will be significantly improved following the installation of foot paths to safely separate pedestrians from vehicles. Crosswalks are proposed at several locations, to further enhance operational pedestrian safety along the roadway by facilitating cross movement.

6) STAKEHOLDER ENGAGEMENT INFORMATION DISCLOSURE

a) Stakeholder Engagement Activities and Feedback

289. A community consultation event took place on November 18, 2024, in the Governor's Conference Room, in Tofol, Kosrae, from 9:00 am to 12:00 pm. A record of consultations is attached as Appendix H.

290. The purpose of consultations at this stage were to:

- Foster partnerships with beneficiary and stakeholder communities.
- Share information on the PRIME projects and activities in Kosrae;
- Communicate with stakeholders that their cooperation (and possible participation) in project activities, including surveys, site investigations, planning, feasibility and potentially future design, construction, monitoring, and maintenance is key to achieving a high-quality strategy that most benefits their concerns; and
- Develop and inform the site options analysis, to help develop the recommendation of an overall project scope.

291. In line with general good practice and the requirements of PRIME SEP and ESS10, these public consultations were held in November 2024 to support the development of the ESMP. These included key informant interviews (KII), a perception survey (Appendix H - Annex A), and focus group discussions with women (FGD). The purpose was to gather community opinions about the project and collect information essential for establishing baseline conditions and understanding possible environmental and social impacts.

292. During these discussions with residents about the project road, the following aspects were to be considered for improvement:

(i) requirement of a pedestrian walkway along the roadway;

(ii) height of the road improvement to be 1 foot, not 3 feet

(iii) The pavement surface chosen will be easily accessible for repairs by the State Works Department.

(iv) Solar lighting to be installed

(v) Beautification of the causeway with additional benches and sitting areas

(vi) Cultural training for the workforce

(vii) Speed restrictions on the causeway e.g. speed bumps

293. Stakeholders have expressed support for the project as they clearly see the benefit to the country and their community with improved roads.

294. Additional consultations will be held with the project stakeholders to inform them of project implementation timing and to help to resolve any complaints and grievances. Information regarding the approved projects and the proposed environmental management measures will be posted at suitable locations within the project site using Kosraean and accessible formats.

295. Further consultations will be undertaken with the resource management committees for LMPA on how this ESMP will be used to mitigate any potential impacts

during the construction of the road and embankment renovations adjacent to and within the LMPA.

b) **Construction Phase Consultation and Grievance Redress**

296. The consultation approach to be undertaken during the construction phase and the responsible stakeholders are detailed in Table 12. During the quarterly meetings, the minutes will detail the issues raised with each stakeholder group, the project response or design change, unresolved actions, responsible party, deadline, and evidence of closure.

Documentation of the meetings will include:

- Attendance sheets
- Photos of meetings
- Summary of issues raised
- Project responses and design changes
- Commitments and deadlines
- Updated entries in the Consultation & Commitments Matrix

297. The contractor will include relevant elements of the GRM in the CSEMP so that any concerns raised during project implementation can be addressed. Further consultation and disclosure will be undertaken during implementation through:

- ongoing community consultation by the appointed contractor;
- the project's GRM; and
- disclosure of a summary of the project documents including the preparation and dissemination of a brochure in English and the local language, explaining the project, works required and anticipated timing of the works.

c) Information Disclosure

298. All safeguard documents are subject to public disclosure and therefore will be made available to the public. Following clearance of the ESMP by WB, the document will be posted on government and WB websites as per the Access to Information Policy, SEP and ESS 10. Updates to the community will also be provided using sign boards, fliers and social media.

299. All ESMP are subject to public disclosure and therefore will be made available to the public. Following clearance of the ESMP by WB, the document will be posted on the Kosrae Department of Transport and WB PRIME project website as per the Access to Information Policy, SEP and ESS10. Updates to the Community will also be provided by the PIU.

300. Future stakeholder activities will be undertaken in the pre-construction phase and then during construction and coordinated by the PIU with the selected contractor.

Table 12: Project Stakeholder Engagement and Communication Plan During Construction

Component Activities	Stakeholder Type	Stakeholders	Stakeholder Engagement Topic/ Scope	Stakeholder Engagement Objectives	Milestones	Engagement Type	Responsibility
	Community	Dominique's Pizza Shop and Clam Aquaculture Research Centre Manager	Support for the two business whilst road and embankment works are being undertaken	Develop a suitable safe works method statement that meets the needs of the Project and the two businesses	No grievance from the Dominique's pizza shop owner and the aquaculture research centre manager.	In-person meeting/s Ongoing liaison between these two businesses and the contractor preferably on a weekly basis where issues can be discussed and resolved	PIU CIU E&S Team; Contractor
	Community/KIRMA	Community/KIRMA/Lelu Mayor/Contractor	Ecological values of LMPA and embankments works Ecological values and behaviours of the flying fox on Yen Yen Island	Review of embankment works to maintain ecological values of the LMPA Review of ecological data with knowledgeable community members and contractor	As works are ongoing	In person Meeting/s	PIU, CIU E&S team, Flying Fox ecological expert
	Community	Community/Lelu Mayor/Contractor	Establish/form stakeholder committee(s), future work plans, site requirements, labor and material requirements and problems are discussed	Clarify and Confirm: future work plans, site requirements, labor and material requirements and problems Prioritize employment of locals,	Community fully informed of workplace activities and other decisions	One public consultation session a quarter to provide an update on the project and resolution of issues	PIU, Lelu Mayor, CIU E&S Team; Contractor
	Community	Community (women, older persons, persons with disabilities)/Lelu Mayor/Contractor	Establish/form stakeholder committee(s), focusing on future work plans and impacts and mitigation strategies for women, older persons, persons with disabilities	Clarify and Confirm: future work plans, and issues and resolutions for access and other issues for women, older persons, persons with disabilities	Resolved outcomes for access and other issues for women, older persons, persons with disabilities	One public consultation session a quarter to provide an update on the project and resolution of issues	PIU, Lelu Mayor, CIU E&S Team; Contractor
	Public Utilities	FSMTC, FSMTCC, KUA.	Specific one-on-one meetings with key relevant public utility	Assessment of utility infrastructure prior to disturbance (i.e.	• Prior to preparatory construction activities. • After completion of construction/reinstatement	Phone; Email; In person meeting/s	PIU, CIU E&S Team; Contractor

Component Activities	Stakeholder Type	Stakeholders	Stakeholder Engagement Topic/ Scope	Stakeholder Engagement Objectives	Milestones	Engagement Type	Responsibility
			providers with assets impacted by the works	benchmark). Acceptance of condition of reinstatement utility infrastructure after completion of works.	of land/asset disturbed, or temporarily acquired / used		
	All	All	Public notification of works to be advertised via radio and newspaper (if appropriate), and notice board/signage in the vicinity of the Project works.	Outline scope and design of road works. • Project status and schedule. • Outlining grievance mechanism and providing contact details.	Prior to preparatory construction activities. Regular updates throughout construction.	newspaper; social media, radio; notice board/sign; letter; drop/door knocking	PIU, CIU E&S Team; Contractor
	All	All	Specific one-on-one meetings with aggrieved parties on the submission of a complaint/grievance.	Reach agreement on corrective action	Various (as required).	Phone; Email; Meeting	PIU, CIU E&S Team; Contractor

7) GRIEVANCE REDRESS MECHANISM

301. The process for the GM is as follows:

302. The grievance mechanism is a process for managing feedback, complaints and grievances. Any person can get in touch with project personnel through the grievance mechanism to ask questions or provide comments. If any person is not satisfied with, or has a complaint about, an aspect of the Project they have the right to lodge grievance. The PRIME Project has a grievance mechanism that is detailed in the ESMF and RF.

303. The community GRM is free, accessible, confidential where needed, and open without retaliation. It does not stop a person from using customary processes, administrative review, the courts, or the World Bank Grievance Redress Service. SEA/SH complaints will use the separate survivor-centred pathway and will not be recorded with names or identifying details in the general grievance register.

304. The list below of the GRM requirements to assist in Resolution of Disputes during the Construction Phase meets the Contractor's CESMP obligations, aligns with World Bank ESF expectations and complements the broader actions in the GRM detailed in Table 12.

Table 13: Project Grievance Mechanism Process

Step	Feedback, Queries or Grievance Process	Duration
1	Any person can submit a query, feedback, complaint or grievance to any of the following: - the PIU State Focal Point, PIU Director, national DTC&I office, Contractor, or Complaint Portal: www.rebrand.ly/FSM-GRS, feedbackWB@gov.fm, complaintsWB@gov.fm. - DTC&I: PIU Ph: 3202080 Email: tci@tci.gov.fm For SEAH: - Kosrae: 691 370-3012; Email: ltaulung@fsmhealth.fm Note: SEA/SH complaints are never entered with names or identifiable details in the general register	• Any time within 1 day of submission.
2a	Every submission received by the Contractor will be screened for relevance to their role and responsibility. Those submissions not directly related to their role and responsibility will be passed on to the PIU State Focal Point for further screening and record keeping. Submissions directly related to their role and responsibility will be actioned as per the process below. The responsible actor (Contractor (2a) or State GRM Focal Point (2b)) will endeavor to resolve the complaint/issue immediately.	• Within 1 day of submission

Step	Feedback, Queries or Grievance Process	Duration
2b	Upon receipt of each submission, the State GRM Focal Point is to screen to assess whether it is related to i) the PRIME Project generally or this project specifically and ii) environmental and social issues. Non-eligible grievances (i.e. those not Project related) are then to be referred to the relevant agency to follow up, if appropriate. Any submissions that are managed directly by the Contractor is retained in the records with no further action.	• Within 3 days of submission.
3	If satisfactorily resolved, the submission and resultant resolution/corrective action will be logged and reported to the PIU Project Manager and copied to the Centralized Implementation Unit (CIU) (Program Manager and E&S Team).	• Within 2 weeks of grievance lodged
4	Where a complaint or grievance has not been resolved, the PRIME/SCORE Project Manager will refer the grievance to the DTC&I PIU Manager for his/her action/resolution. The PRIME/SCORE Project Manager will log the details of issue and resultant resolution status (copy CIU Program Manager and E&S Team).	• Within 2 weeks of grievance lodged
5	If the matter remains unresolved, or the submitter is not satisfied with the outcome, the DTC&I PIU Manager refers the matter to the Project Steering Committee (PSC) for a resolution, copying the PRIME/SCORE Project Manager . The PRIME/SCORE Project Manager will log details of issue and resultant resolution status (copy CIU Program Manager and E&S Team).	• Within 1 month of grievance lodged
6	If it remains unresolved or the complainant is dissatisfied with the outcome proposed by the PSC, the affected party may refer the matter to the appropriate legal or judicial authority. A decision of the Court will be final.	• Within 3 months of grievance lodged (where possible) or otherwise as agreed between parties during the process.

305. Steps 1 to 5 should be undertaken immediately (i.e., as soon as possible). Where the matter is referred to the PRIME/SCORE Project Manager, a resolution should be made within two weeks. If unsuccessful and the matter is referred to the PSC, this should occur within a month. The PRIME/SCORE Project Manager shall report back the outcome of the resolution to the affected party within one week total of the corrective action occurring.

306. The State GRM Focal Point will be the grievance focal point and receive, record and report on Project related concerns. If the complaint/grievance relates to a Contractor activity, the Project will ensure the Contractor remedies any damage, pays compensation for damage or loss, etc. Use of community leaders and customary methods of conflict resolution is encouraged and utilized if and when appropriate – on a case-by-case basis.

307. A complaints register will be maintained by both the Contractor and the State GRM Focal Point. It will record the nature of the complaint, the date received, actions taken, status and closure date. A complainant's name will be recorded only where it is provided and the person agrees. Anonymous complaints will remain anonymous, and SEA/SH cases will be recorded only through the confidential survivor-centred pathway, without names or identifying details.

308. Each record is to be allocated a unique number, reflecting year and sequence of received complaint (for example 2021-01, 2021-02 etc.). Complaint records (letter, email, record of conversation) should be stored together, electronically or in hard copy. Contractors will report their register details in the monthly report to the PIU.

309. While every effort should be made to resolve conflicts by mutual agreement of the parties involved, in some cases, arbitration and adjudication on disagreements and conflicts by an external mediator will be required.

310. Any grievance related to corruption or another criminal offence, with the exception of complaints relating to GBV/SEA/SH (which should follow the GBV/SEA/SH specific GM detailed Appendix E needs to be managed confidentially through the following process.

(i) The aggrieved party/ies take their grievance to the relevant State and/or National Police and notifies the PRIME/SCORE Project Manager.

(ii) The PRIME/SCORE Project Manager notifies the DTC&I PIU, the Secretary of DTC&I and CIU (Program Officer and E&S Team).

(iii) If the grievance includes an alleged crime, with exception of GBV/SEA/SH, the PRIME/SCORE Project Manager will notify the state and national legal offices (e.g., police or Department of Justice) and report the incident.

311. Resolution of these grievances will be the responsibility of the legal systems within each state and/or national agencies as dictated by state and national law. In these cases, the projects grievance mechanism will ensure the above due diligence is enacted and due process is documented with the grievance given a complaint number and recorded. Confidentiality associated with all criminal cases must be compliant and follow State and National laws.

312. A separate worker GRM is detailed in Appendix J.

8) ESMP MONITORING PLAN

a) Introduction

313. The ESMP monitoring plan (MP) contains the components crucial to effective environmental and social risk management of the Project

314. The MP includes the following information:

(i) Implementation arrangements, including institutional roles and responsibilities for the ESMP implementation throughout all phases of the project.

(ii) Environmental and social risk management matrices include:

(a) Potential environmental and social impacts at each stage of the project;

(b) Proposed mitigation measures to address each potential impact;

(c) Costs associated with implementation of the mitigation measure;

(d) The institutional responsibility for implementing proposed mitigation measures

315. The MP was developed to achieve the following objectives:

(i) To reflect the environmental and social issues and impacts identified during the design phase.

(ii) To implement and monitor mitigation measures within the construction areas and in the operational phase; and

(iii) To comply with the laws and regulations of the state and FSM and with World Bank ESS, PRIME instruments, international standards and best practice guidelines.

b) Implementation Arrangement and Responsibilities

316. The following section summarizes the organizational responsibilities for the Lelu Causeway Upgrade Project.

317. Implementation of environmental and social risk management is a joint responsibility between the PIU on behalf of DTC&I, the Works Supervision Consultant (ICT), and the contractor. Table 14 summarizes the organizational responsibilities for the projects.

Table 14: Organizational Environmental and Social Responsibilities

Project implementation organization	Environmental and Social Risk Management Roles and Responsibilities
Department of Transportation, Communication and Infrastructure (DTC&I)	• Responsible for overall project implementation and monitoring at the implementing agency level including inter-ministry coordination. • Responsible for the project's delivery and day-to-day project management activities, through the PIU. • Ensure that the PIU is provided with the necessary resources to effectively carry out its duties and responsibilities • Responsible for ensuring that the contractors do not commence construction activities until requisite approvals have been received from KIRMA. • After the completion of the project, Kosrae State Government will be responsible for operation and ongoing maintenance of all assets.
Project Implementation Unit (PIU) on behalf of DTC&I	• Responsible for overall project management, implementation and monitoring. • Update the ESMP as required to meet the requirements of the KIRMA or to address new/novel risks throughout the Project • Prepare the applications for necessary permits from KIRMA. • Ensure the ESMP and any conditions of the necessary permits are integrated into the project's bid and contract documents. • Ensure environmental and social concerns are incorporated in to any changes to engineering design. • Participate in and facilitate consultations to advise affected communities of the scope and scheduling of the work. • Review and clear the CESMP of contractors once cleared by World Bank. • Review contractors' monthly reports to ensure compliance with the CESMP and ESMP. • Ensure the contractor observes the GRM requirements. • Implement the GRM and maintain records of complaints/ grievances. • Ensure contractor compliance with required resources for mitigation measures as reflected in the CESMP. • Undertake regular site visits to independently inspect and audit the contractor's compliance with the approved CESMP and ICT monitoring.
Works Supervision Consultant (ICT)	• Consulting firm to support PIU in overseeing project implementation, with reviewing and clearing the CESMP, providing regular on-site supervision during the construction period. • Review monthly environmental monitoring reports for consolidation to the semi-annual monitoring reports for DTC&I and WB. • Ensure required government permits and clearances are acquired by DTC&I prior to actual construction activities. • Establish a system for monitoring as described in the ESMP. • Review, monitor, and evaluate the effectiveness of implemented mitigation measures and recommend corrective actions whenever necessary. • Ensure grievance redress mechanism is activated prior to the start of construction.

Project implementation organization	Environmental and Social Risk Management Roles and Responsibilities
	• During construction, conduct site visits and coordinate with the project engineers to ensure that required mitigation measures are implemented at the construction sites, and • Coordinate with the contractors' environmental, social, health and safety team to ensure that awareness trainings for workers are done.
CIU E&S Specialists	• Provide technical support to the ICT or PIU as and when required, including document review, incident management, compliance management and grievance responses. • Review Contractor's reports and ICT reports to ensure compliance with ESMP and CESMP. • Conduct audits as required by PIU or DOFA.
Contractor	• Prior to construction, prepares and submits the CESMP for review by ICT for approval by DTC&I. • Understand the ESMP requirements and allocate necessary resources for implementation of the CESMP. • Employ an ESH Manager to ensure that the contractor complies with requirements concerning environmental, social, health and safety, and labor and working conditions during construction. • Provide PPE for all workers. • Provide training for all workers in accordance with the ESMP and CESMP. • Implement construction activities with the required mitigation measures. • Conduct compliance monitoring as required by CESMP. • Act promptly on complaints and grievances concerning the construction activities in accordance with the project's GRM. • Submit monthly progress reports on CESMP implementation to PIU. • Manage incidents as per the ESMP and CESMP, including the reporting requirements. • Respond promptly to all instructions from ICT and / or PIU regarding non-conformances, non-compliances etc. and resolve them within the agreed timeframes.
KIRMA	• Responsible for issuing necessary earthmoving permits for construction. • Monitors construction progress for compliance with the terms of the issued permits. • Monitors implementation of the mitigation measures and the CESMP in general. • Review permit requirements for any works to take place in the LMPA.
World Bank	• Review and clear CESMP for compliance against the ESMP and World Bank ESF. • Conducts project review missions to assess project implementation progress of all outputs and compliance with the ESCP, ESMP and CESMP and other PRIME E&S instruments. This may include site visits. • Review monitoring reports from the PIU and CIU.

i) Impact Mitigation, Management, Monitoring and Reporting

318. The MP includes the description of the potential environmental impact of project activities during the pre-construction, construction, and operation phases, with mitigation measures and responsibility for implementing the measures. The contractor will respond to the ESMP and provide detailed and site-specific methodology and risk assessment in their CESMP.

319. Environmental and social monitoring is an integral component of an ESMP to i) prevent uncertainties pertaining to unanticipated impacts; ii) ensure mitigation measures are working; and iii) reassure the public on the progress of the development. Progressive monitoring must accompany various stages of the project activities.

320. The environmental and social monitoring plan is based on the potential impacts, significance of the impacts and mitigation approaches identified during the environmental and social assessment (Table 15). The plan comprises parameters to be monitored, frequency of monitoring, responsible authorities, and cost estimates. The contractor will be required to prepare a detailed environmental and social monitoring plan in the CESMP based on the ESMP and as set out in the contract documents.

321. Progress reports will be issued by the PIU and ICT to DoFA, DTC&I and WB. These will report on all aspects of the project, including those documented in the contractor's reports and environmental and social monitoring reports prepared by ICT and contractor.

322. The monitoring and reporting required under the project includes:

(i) Review of the contractor's monitoring plan as part of their CESMP, based on contract documents and grant approval when requirements are met;

(ii) Contractor's reports include status of implementation of the approved CESMP (completed checklists) and corrective action requests.

(iii) PIU and ICT inspection and audit reports reflecting on compliance of the contractor with the approved CESMP;

(iv) Preparation of quarterly progress reports for submission to DoFA and DTC&I; and

323. Reporting requirements are outlined in Table 16.

ii) Incident Reporting

324. Should an environmental incident, such as a spill of hazardous substances, or a social incident such as serious injury or death occur during the course of site works, the Contractor Site Manager is to immediately notify the PIU State Focal Point, who is then to forward the incident to the PIU Project Manager, CIU and KIRMA. The Site Manager is to take prompt and immediate action to minimize any impact and where necessary, liaise with all relevant authorities.

325. The Site Manager is to, in liaison with the PIU and CIU, direct an appropriate course of action and shall record the date, time and nature of the incident, full details of the causes and effects, further investigations to be undertaken, person responsible for such investigations, outcomes of the investigation, actions and resolution of the incident (including preventative measures implemented to prevent recurrence). Preventative measures are to be subject to monitoring and review. Incidents will be included in any audit reports during site work. The WB must be

informed within 24 hours of a severe injury or a significant environmental incident (Table 16).

326. **Sub Plans for the CESMP:** The list of subplans as required from the PRIME Environmental and Social Commitment Plan required for this ESMP are listed below:

- Erosion and Sediment Control Plan (ESCP)
- Surface Water and Management Plan (SWMP)
- Waste Minimization and Management Plan (WMMP)
- Spill Management Plan (SMP)
- Traffic and Road Safety Management Plan (TRSMP)
- Pollution Prevention and Control Plan (PPCP)
- Community Health and Safety Management Plan (CHSMP)
- Chance Find Procedure
- Occupational Health and Safety Management Plan (OHSMP)
- Noise and Vibration Management Plan
- Flying Fox Management Plan
- Social Interaction Plan
- Cultural Heritage Management Plan

327. Justification for the following subplans listed in the PRIME ESCP NOT to be included in CESMP:

- Subcontractor Management Plan - scale of project is small and the sub-contractors (if any) will all follow the main contractor's CESMP as a condition of their contract.
- chance of UXO or contamination is low and a Chance Find Procedure and emergency procedures are considered sufficient to manage under the CESMP without the need for a specific subplan.

328. The indicative table of contents for a CESMP is provided in Appendix I.

Table 15: Environmental and Social Impact Mitigation and Management

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
PRE-CONSTRUCTION							
Development Permit from KIRMA	• Prior to works commencing at the project site, the contractor and the PIU will liaise with KIRMA to obtain a Development Permit for the project to commence. • The PIU has been liaising with KIRMA and the contractor has to complete the approval process to obtain the Development Permit from KIRMA.	Part of contractors' bid cost	PIU and Contractor	DTC&I PIU ICT	▪ Relevant documentation	▪ Development Permit awarded for start of work	Minimal cost to contractor
Preparation and approval of CESMP	Tender documents and construction contract will require the following: • issuance of this ESMP to bidders; • preparation of detailed CESMP prior to construction activities; and • review and clearance of CESMP by the PIU and World Bank prior to site mobilization.	Part of contractors' bid cost	ICT and Contractor	DTC&I PIU ICT	▪ CESMP	CESMP submission and contains appropriate controls prior to commencement of site works	Minimal cost (part of ICT and PIU's task)
Extraction of local construction materials	For extraction of construction materials: • Only material from licensed local, inter-State or international land-based sources (i.e., quarries) to be used (i.e. no coastal – lagoon sand and coral reef / rock to be used). • Supply agreements must comply with the LMP relevant for the risks to significant OHS risks to quarry workers, avoidance of child labour and avoidance of forced labour. • PIU and the Contractor will screen the source of materials [vendor] that the contractor must perform due diligence to ensure the vendor's quarry is registered and operates legally. The Contractor shall confirm Commercial Supplier is permitted and approved /licensed compliance with the Part 3 of the EPA Earthmoving Regulations of 1988 and applicable KIRMA regulations. • Preparation of a supplementary ESMP or CESMP will be required prior to supply to the Project, and the Project shall not use material sourced from: • coral rock below highest astronomical tide, or coastal and/or lagoon mining within the FSM, except where the source is licensed, demonstrated to be sustainable, and is consistent with the WB ESSs. • The Contractor shall provide a record of the asphalt/ bitumen batching plant permit for all asphalt/ bitumen used on site.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Government permits • Inspection sheets	▪ Visual inspection of permits ▪ Site inspections and audits will be conducted throughout the duration of the project to ensure compliance with the ESMP and relevant subplans	Minimal cost to DTC&I PIU
Land Access Arrangements	• Prior to works starting, the Contractor will confirm that the Lelu Causeway belongs to the Government of the State of Kosrae, as does the land upon which the Dominique's Pizza outlet and house servicing the Clam Aquaculture Research Centre are located. • All reclaimed land associated with the causeway and the intertidal reef flat and marine estuarine ecosystems either side of the causeway are owned and managed by the State. As part of the approval to work in the LMPA by KIRMA, a land access	Road right of way to be part of the project cost. Temporary land access and compensation to be part of Contractor's budget.	DTC&I Contractor	DTC&I PIU ICT	Land Access Agreements	Documentation review and validation with land owners.	Minimal cost, part of PIU task

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	agreement should be confirmed by the relevant Kosrae State agency. • At any time, the Contractor identifies the need for new land areas for road works (due to necessary layout changes), they will alert the PIU and further land access consultations and agreements will be completed. • PIU and ICT and landowners, including any compensation, in accordance with PRIME Resettlement Framework (RF) and Land Acquisition and Due Diligence Report (LADDR). Borrow pit / quarry operations bitumen and concrete batching plant locations will be agreed between the Contractor and landowners, KIRMA, PIU and ICT including any compensation, in accordance with PRIME RF and LADDR. • Suitably remote from sensitive receptors (noise and dust) and access to a suitable road network for hauling material in and product out. Water and power connectivity are required and sufficient area for agitator truck wash down bays to facilitate washing water recycling. Wash water will be captured, treated, and recycled for the next batch or for cleaning purposes including dust suppression, preventing uncontrolled release of alkaline wastewater to the environment. • Details of the agreement between the contractor and the landowner will include: ○ documented voluntary and informed agreement, ○ proof of ownership or authority, ○ agreed rent/compensation and restoration terms, ○ confirmation of no coercion, ○ consultation with users or tenants, ○ access to the GRM, and monitoring. • No temporary site should be used until written clearance is issued. • Once locations are selected, update the project footprint, screening, and LDDR/LADDR, and assess affected users, access, livelihoods, cultural heritage, community safety, and restoration requirements (PIU, supported by the Supervision Consultant and CIU). Establish this as a pre-mobilization hold point. • The PIU, supported by the Supervision Consultant and CIU, will complete and document the due diligence and issue written clearance before any temporary land agreement is signed or any site is used. If screening finds land acquisition, restricted access, loss of assets or livelihood impacts, the PIU will prepare the required ESS5 instrument for CIU and World Bank review and clearance before the affected activity starts.						

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
Introduction of Alien Species	• Construction equipment where possible to be sourced locally. In case that there are equipment and materials to be imported, these including the vessels that import them will be subjected to clearance procedures under the Bio-Security Act and Regulations and may require issuance of phytosanitary certificates from Biosecurity FSM.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	Phytosanitary certificates from Biosecurity FSM	Verification of certificates	Minimal cost (part of ICT and PIU's task)
Disruption of utilities and services	The DTC&I PIU and the contractors will: • Coordinate with the other utility companies regarding the potential disruptions; • Make provisions to preserve the operation of current facilities; and provide prior notification to affected households and establishments. • Consult with the Clam Aquaculture Research Centre Manager to protect the pipeline during the roadway construction works which supplies water from the oceanic side of the Lelu Harbour to the Aquaculture centre. Consultation prior to roadworks commencing is required and a management strategy agreed and monitored to eliminate any risk of damage to the pipeline. • The Contractor shall be liable for any services disrupted as a result of the construction works. • Contractor due diligence to ensure potential safety issues are prevented or swiftly addressed, and to ensure all staff are aware of service locations. .	Part of contractors' bid cost	DTC&I PIU ICT and Contractor	DTC&I PIU ICT	▪ Coordination with the other utility companies ▪ Notification of affected households and establishments ▪ No disruption of services as a result of the proposed works. ▪ Contractor to fully detail in CESMP	▪ Verification of coordination meetings and notifications	Minimal cost (part of ICT and PIU's task)
Mobilization of workers and laydown areas.	Measures to minimize disturbance by construction workers and presence of the works site/area include: • A Code of Conduct is to be signed by all employees to ensure that workers' actions at the work site are appropriate and meet community standards including acceptable behaviour for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for Kosrae customs, land tenure, and community protocols and behaviour around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behaviour in community-facing areas and undergo training in these areas. There will be hunting or fishing in the LMPA. The contractor will identify a member of their staff to act as liaison officer between the communities and contractor and manage the GRM; A small number of construction sites and storage/laydown areas will be required by the contractor during construction. Where these temporary facilities will be used, the following activities will be followed: • The Contractor will be responsible for identifying suitable laydown areas, including locations for concrete batching or bitumen plants. The location of the concrete batching plant location will be determined by the contractor in consultation with the PIU, the Flying Fox specialist, the ICT and the KIRMA. The contractor will obtain landowner approval in accordance with the RF and the	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• COC records ▪ GRM Liaison officer appointed	▪ Verification of coordination meetings and notifications as required ▪ Verification of GRM records monthly	Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	Land Acquisition and Due Diligence Report (LADDR) and be approved by the PIU and ICT prior to mobilization. • Suitably remote from sensitive receptors (noise and dust) and access to a suitable road network for hauling material in and product out. Water and power connectivity are required and sufficient area for agitator truck wash down bays to facilitate washing water recycling. Wash water will be captured, treated, and recycled for the next batch or for cleaning purposes including dust suppression, preventing uncontrolled release of alkaline wastewater to the environment. Details of the agreement between the contractor and the landowner will include: • documented voluntary and informed agreement, • proof of ownership or authority, • agreed rent/compensation and restoration terms, • confirmation of no coercion, • consultation with users or tenants, • access to the GRM, and monitoring. • No temporary site should be used until written clearance is issued						
Managing Terrestrial Biodiversity & Habitat – Endangered Kosrae Flying Fox	• Pre-construction surveys for location and population of individuals at Yen Yen Island • Undertake noise and vibration monitoring in and around the Yen Yen island to establish noise and vibration levels during pre-construction and construction as guided by the Flying Fox ecological and noise and vibration monitoring expert.	Baseline noise and Flying fox initial reports.	PIU	CIU E&S Team	• TOR • Field Survey work • Draft deliverable	• Review of draft TOR • Review of Draft deliverables	Cost part of PIU task $267,000 for both preconstruction tasks
CONSTRUCTION							
Impacts on the sensitive receptors businesses, aquaculture research center, swimming at the Blue Hole, Senior Citizen building	Contractors will be required to: • Prepare and implement the TRSMP in consultation with DTC&I and State representative agencies and reviewed by relevant stakeholders including key businesses (Dominique's pizza shop, Clam Aquaculture Research Center, marina). • The detailed needs of the TRSMP are discussed in Section 5 - (iii) Impacts on Socio-economic - Road safety, traffic management and vehicular access to private and public property. • Protection of the Integrity of the Clam Aquaculture Research Center (CARC) Water Supply Pipeline and Water Quality • During roadway construction, it is critical that the integrity of the water supply pipeline to the CARC in maintained. The pipeline is buried in the causeway roadway where it crosses from the ocean side to the CARC. During construction, the contractor and the operator of the CARC, will identify the pipeline route and barricade this area off when works are to be undertaken in this area.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Complaints through GRM	▪ Ongoing meetings between the operator of the CARC, Contractor and ICT	Cost to contractor

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• The contractor, the Works Supervision Engineer (ICT), the PIU and the operator of the CARC, will agree on a method to undertake roadworks in this area, so the integrity of the pipeline is maintained. During the agreed works, supervision will be undertaken by the contractor and ICT and the PIU, to ensure the roadworks are completed to the design specifications while maintaining pipeline integrity. • An emergency response protocol will be in place to provide sufficient water for the operation of the CARC should pipeline integrity become compromised during construction. The protocol will detail necessary material and manpower requirements to undertake immediate repairs to the pipeline should that be required. This protocol will be agreed between the contractor, the Works Supervision Engineer (ICT), the PIU and the operator of the CARC. • Elsewhere along the causeway both road and embankment works will have detailed mitigation strategies for soil and erosion control as outlined below.						
Road safety, traffic management and vehicular access to private and public property	In accordance with ESS1 (Assessment and Management of Environmental and Social Risks and Impacts), ESS4 (Community Health and Safety), and ESS10 (Stakeholder Engagement and Information Disclosure), the Contractor must implement to avoid, minimize, and manage access-related impacts. The actions detailed below apply to all construction zones, laydown areas, detours, haul routes, and temporary traffic management arrangements throughout the construction period. The contractor's Traffic Road Safety Management Plan (TRSMP) will maintain continuous, safe, and predictable access to businesses and community facilities, ensure pedestrian safety, with particular attention to business visitors (pizza shop, CARC, marina) unfamiliar with the area, minimize economic disruption to commercial operators through clear frontage protection and driveway continuity, provide timely, accessible, and transparent communication to all affected stakeholders and ensure emergency access is maintained at all times. This will be achieved by the Contractor by: • Preparing and implementing the TRSMP in consultation with DTC&I and State representative agencies and reviewed by relevant stakeholders including key businesses (Dominique's pizza shop, CARC, marina). • In alignment with ESS10, communication with the local businesses to be informed of the upcoming work (including maps, dates and times of operation) at community meetings and fliers, and the installation of signage, one month prior to commencement (as per SEP). • **To maintain continuous business access**, including safe pedestrian and vehicle routes during all construction phases. The contractor will provide:	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Complaints through GRM • No obstruction of access to adjacent properties, other than essential works which extend for pre-agreed periods and where affected parties are appropriately notified. • Consultation and notification undertaken 72-hour notice for any works affecting driveways, business frontage, 7-day notice for major staging changes or night works • Implementation and adherence to approved TRSMP throughout construction.	▪ Verification of coordination meetings and notifications ▪ GRM notifications	Cost to contractor

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• 72-hour notice for any works affecting driveways, business frontage, 7-day notice for major staging changes or night works • Multilingual notices delivered via flyers, business visits and roadside signage • This ensures households, businesses, and institutions can plan around disruptions. • **To maintain Driveway Continuity,** the contractor will provide: • Temporary ramps, steel plates, or graded access across trenches • No unapproved driveway closures • Safe turning movements for businesses and delivery vehicles • **To maintain frontage Protection for Businesses**, the contractor will provide: • Customer access at all times • Temporary signage where visibility is reduced • Relocated loading/unloading zones • Consultation with businesses before frontage works • Ensuring loading/unloading access for commercial operators, with advance coordination where temporary constraints are unavoidable. • Avoidance of business entrance obstruction during peak business operating hours • Prompt restoration of access and frontage where diversions or temporary works affect business operations, supported by documentation and photographic evidence. Manage parking impacts, including temporary arrangements where frontage or on-street parking is affected. • Prompt restoration of access and frontage where diversions or temporary works affect business operations, supported by documentation and photographic evidence. • Planning construction activities around business hours, with restrictions on high-impact works during peak trading periods. • This is essential for ESS10 compliance and commercial continuity. • Always keeping at least one lane of traffic open • Undertaking construction activities from 7 am to 5 pm on Monday through Saturday with no construction activities taking place on Sundays or public holidays without prior approval of State government agencies, traditional leaders, community and the Contractor. • Maintain vehicular access to adjacent properties and adjoining roads throughout road rehabilitation except for essential works where temporary closure shall be minimized. Any restrictions to property access or access to adjoining roads are to be undertaken and managed in consultation with stakeholders and the local community prior to the phase of work starting, and adequate signage provided for the duration of the restrictions to keep road users safe and to allow alternatives to minimize inconveniences.						

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• Maintaining continuous, safe pedestrian routes that meet the following requirements. Clearly delineated temporary footpaths with barriers separating pedestrians from work zones and traffic, night-time lighting where pedestrian movement occurs after dark. Safe crossing points with safety personnel during peak periods. Accessible routes for people with disabilities, including ramps and tactile indicators, where feasible. Prohibition of reversing heavy vehicles across pedestrian routes unless controlled by trained spotters. Traffic safety will be managed after hours by signage and cones. • Coordinating with the church and community groups to avoid disruptive works during major services, funerals, weddings, and community gatherings. • Keeping all emergency routes unobstructed. Provide emergency services with a 24/7 contact number for the Site Supervisor. Provide weekly updates on lane closures and detours and immediately halt works if emergency vehicles require passage. • Arranging before demobilization from any work zone the restoration of all pedestrian and vehicular access to pre-construction conditions or better. Removal of temporary signage, barriers, and detours. Confirmation with businesses, that access has been fully reinstated and document closure in the final site handover report. • Any minor road user complaints to be to be addressed through the GM and complaints register. **Emergency Access Protocol to the Kosrae State Hospital, Tofol** • The Kosrae State Hospital is approximately 5 km from the causeway works and emergency access to the hostile for emergency ambulances and the public must be prioritized for the residents of Lelu Island. An Emergency Access Protocol has been documented below and will be implemented by the Contractor after agreement with the PIU before construction can be begin. The key elements of the Emergency Access Protocol are: **No-Blockage Rule** • The Contractor shall maintain **uninterrupted access** for emergency vehicles at all times. No equipment, materials, spoil, or vehicles may obstruct the roadway in a manner that prevents ambulance passage. - Temporary lane closures must always allow an emergency vehicle to pass, including during trenching, concrete works, or embankment activities. **Traffic Marshal Responsibilities** • Traffic marshals must be trained and assigned to Immediately clear plant, workers, and traffic when an emergency vehicle is approaching. Maintain radio/phone communication with the site supervisor. Ensure safe pedestrian and vehicle movement during emergency passage. Keep diversion routes free of obstructions.						

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	Emergency-Vehicle Priority Procedure • The Contractor shall implement a formal priority procedure that includes immediate halt of construction activities when an ambulance is detected. Rapid removal of barriers, cones, or temporary obstructions. Direct escort of the emergency vehicle through the work zone by a traffic marshal. Documentation of each emergency-access event in the site log. **Pre-Notification to Hospital and Emergency Services** • Before construction begins, the Contractor must provide the hospital and emergency services with the construction schedule. Share contact details for the site supervisor and traffic control lead. Establish a direct communication line for emergency notifications. Notify emergency services of any major staging changes, diversions, or night works.						
Complaints due to project-related impacts	The contractor will: • establish and implement the approved project's grievance redress mechanism (GRM). • publicize the existence of the project's GRM through campaigns, websites, billboards, etc.; and • ensure that the contact details are placed on noticeboards and/or website.	Part of contractors' bid cost	ICT and Contractor	DTC&I PIU ICT	▪ Consultation meetings • Tender documents GRM activated with responsible focal identified	▪ Verification of meeting documents, tender documents ▪ After completion of meetings ▪ Once after preparation of tender documents prepared	Part of Contractor's task. Minimal cost (part of ICT and PIU's task)
Causeway Embankment Renovations - Soil erosion and sediment control, sheet piling and armor rock management	To manage sedimentation impacts and to deliver good water quality to the receiving environment during the embankment renovations, the following mitigation measures will be implemented, by the Contractor including: • Limit open excavation lengths to ≤50 m at any one time, unless otherwise approved by ICT. • Prohibit simultaneous exposure on both sides of the causeway unless justified and approved. • The placement of geofabric must be progressively installed on a daily basis over any exposed soil to minimize impacts soil loss and impacts on water quality. • all work to be carried out from roadside. • Sheet piling/sandbagging during embankment renovations to limit water ingress to the working areas. • Excavated material to be trucked and stockpiled in lay down areas away from the causeway. The laydown areas are to be bunded, and materials are to be covered to prevent soil loss • Where possible these materials are to be reused any residual material considered as cover material at the local landfill. • Sheet piling/sandbagging during embankment renovations to limit water ingress to the working areas.	Part of contractors' bid cost	Contractor	Monitoring undertaken by Contractor with supervision by DTC&I PIU/ICT	• The number and management of disturbed sites • Weekly reference and Impact zone turbidity values. • The use of appropriate sediment control	• Visual inspection of sites • A reference turbidity value will be established from a single surface-water sample collected during mid-tide (the midpoint between the daily high and low tide) and during daylight hours. The sample will be taken 100 feet perpendicular to the causeway on the embankment side, at a location where no road work is occurring. The reference site will be located at least 300 feet along the causeway from any active construction area. • During road-work activities, a weekly surface-water turbidity measurement will be collected during mid-tide and during daylight hours from a single surface-water sample taken 100 feet perpendicular to the causeway on the embankment side adjacent to the active works. A corresponding turbidity reading will be collected at	Part of Contractor's task. Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• Due to the substantial embankment renovations to be undertaken and the sensitive receiving environment, any excess turbid egress water from sheet piling or sandbagging activities will be treated prior to discharge. • All egress water must consider a two-stage treatment similar to that described below to produce a discharge water turbidity value which will meet a mixing zone criterion of < 50 NTU at mixing zone distance of 100 ft perpendicular to the embankment works than a reference baseline turbidity value. (see notes in Section 5 – Impacts on Biological Environment). • Primary: geotextile filter bags or sediment tanks sized for peak pump rate. • Secondary: settlement tank or baffled chamber or similar such mechanism • Lagoon derived egress water will be discharged back to the lagoon side after treatment and oceanic water will be discharged to the oceanic side. Discharge points must be located away from sensitive habitats including recreation areas, (blue hole), the CARC, marina and the water quality intake required for aquaculture facility. • Maintain a daily log of pump rates, filter bag condition, and discharge clarity. • All cement works to be done in dry conditions. • Should the criteria be exceeded stop work immediately and inspect and repair controls, review adaptive management processes with the Works Supervising Engineer (ICT) and the PIU. • A site-specific Works Method Statement will be prepared by the contractor and approved by the Construction Work Supervisor to ensure the environmental controls specified in the ESMP are in place. • Turbidity values will be shared with the operator of the CARC to confirm suitable water quality is being sourced by CARC during the construction phase.					the reference site on the same day to enable direct comparison and assessment of any construction-related turbidity increase. • Where turbidity at the impact-monitoring location exceeds the baseline reference value by more than 50 NTU, the result will be referred to the Supervising Engineer and the PIU. They will apply an adaptive management approach to determine whether additional water-treatment measures, modified work practices, or other controls are required to manage the proportional ecological risk. • Verification of plans daily during rainy periods • Visual inspection of sites • All monitoring results to be shared with ICT • A turbidity reading will be collected at the same time from the Blue Hole recreational area to confirm baseline turbidly values so that any future impacts may be identified and managed, where required.	
Soil erosion and sedimentation control for road works	The contractor will be required to implement the following measures to prevent sediments from moving offsite during roadworks including: ▪ Earthworks and areas to be exposed should be carefully planned, and disturbances to be minimized to the maximum possible extent. ▪ Diversion of upstream storm water around open work areas; ▪ Install small interceptor dikes, pipe slope drains, silt fence, to divert clean storm water from the work area ▪ Cover all material stockpiles with tarpaulins to prevent dust and material loss during rainfall events, ▪ Soil / gravel stockpiles not to be stored on the causeway and contained (e.g. bunded) to prevent any discharge of sediment during rain events; ▪ Care shall be taken during the transportation of material to and from the site to avoid spillage including not over filling the tray, covering loads etc.; and	Part of contractors' bid cost	Contractor	Monitoring undertaken by Contractor with supervision by DTC&I PIU/ICT	• The number and management of disturbed sites • Weekly reference and Impact zone turbidity values. • The use of appropriate sediment control	• Visual inspection of sites • A reference turbidity value will be established from a single surface-water sample collected during mid-tide (the midpoint between the daily high and low tide) and during daylight hours. The sample will be taken 100 feet perpendicular to the causeway where road work is occurring. The reference site will be located at least 300 feet along the causeway from any active construction area. • During road-work activities, a weekly surface-water turbidity measurement will be collected during mid-tide and during daylight hours from a single	Part of Contractor's task. Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	▪ Where required, and with discussion with the Works Supervisor Engineer (ICT), treatment of sediment laden water through geo bags or similar treatment system to be undertaken to improve water quality discharge. ▪ Turbidity values will be shared with the operator of the CARC to confirm suitable water quality is being sourced by CARC during the construction phase.					surface-water sample taken 100 feet perpendicular to the causeway on the embankment side adjacent to the active works. A corresponding turbidity reading will be collected at the reference site on the same day to enable direct comparison and assessment of any construction-related turbidity increase. • Where turbidity at the impact-monitoring location exceeds the baseline reference value by more than 50 NTU, the result will be referred to the Supervising Engineer and the PIU. They will apply an adaptive management approach to determine whether additional water-treatment measures, modified work practices, or other controls are required to manage the proportional ecological risk. • Verification of plans daily during rainy periods • All monitoring results to be shared with ICT • A turbidity reading will be collected at the same time from the Blue Hole recreational area to confirm baseline turbidly values so that any future impacts may be identified and managed, where required.	
Managing Terrestrial Biodiversity & Habitat – Endangered Kosrae Flying Fox	The Kosrae flying foxes are **strictly nocturnal species** and the proposed construction works are also expected at the day time. The Flying fox spend their days resting and roosting in large colonies (called "camps or roosts") and become active at dusk, flying out under the cover of darkness to forage for fruit, nectar, and pollen before returning to their roosts near dawn. The nocturnal nature of flying-foxes means actions are most likely to impact a camp during the day while they are resting. However, actions that are scheduled to occur at night during the crèching period could also affect young flying-foxes at the camp. Literature reveals that Flying foxes appear **most agitated by impulsive sounds**. In context of the subproject, impulsive sounds impacts are potentially due to ground-borne vibration anticipated due to installation of the sheet piles and rollers. Disturbance at or adjacent to flying-fox camps may result in diurnal lifting, diurnal fly or reduced occupancy. This ESMP recommends the requirements of the supplementary studies and the actionable mitigation measures as integral part of the ESMP, and the construction contractor will be responsible for	PIU cost for noise and ecological specialist	PIU	DTC&I CIU ICT	▪ Flying fox populations and behavior studies including feeding and roosting if required as a result of outputs from the pre-construction study. ▪ Population and behavior aspects of the Flying Fox during co nstruction ▪ Noise levels in and around	▪ Should the monitoring activities of the Kosrae Flying Fox during construction determine any adverse effects on the behavior of the Flying Fox, an adaptive management program will be established by the contractor in conjunction with PIU and CIU to mitigate these impacts for works to continue.	Cost part of PIU task $267,000 Flying Fox survey and noise and vibration cost during construction funded by PIU Noise monitoring cost $44, 000 during construction

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	implementation and consideration of the ESMP as well as supplementary studies recommendations into the CESMP. The TOR for each Flying Fox and Noise/Vibration Modelling specialists are included in Annex 1 – Appendix B. The PIU will support noise monitoring in and around the Yen Yen island to establish noise levels during pre-construction and construction as guided by the Flying Fox Specialist. The PIU will support population and behavior studies of the Kosrae Flying Fox during preconstruction and construction to establish whether disturbance of populations are affected by construction noise (see Appendix B). The pre-construction robust baseline of both ecologically sensitive sites will be tailored with the proposed subproject construction activities (i.e. critical & non-critical) and accurately assess the impacts and devise pre-tender stage mitigation measures. Under the World Bank's ESF, specifically ESS6, projects proposed in or near environmentally protected areas must strictly apply the mitigation hierarchy: **avoid, minimize, mitigate, and as a last resort, offset** negative impacts. If there is no viable alternative, significant conversion or degradation of "critical habitats" must be avoided and mitigated. The specialists will devise actionable mitigation in line with the WB ESS6 hierarchy, as part of the supplementary studies to limit the anticipated impacts, achieve the goal of No Net Loss [NNL] and preferably a Net Gain (NG) of the reported species. ▪ Suggest monitoring and evaluation as integral part of the ESMP through continued surveys of impacts and offset activities to measure the losses and gains that have actually transpired. ▪ The specialists will devise actionable mitigation in line with the WB ESS6 hierarchy, as part of the supplementary studies to limit the anticipated impacts, achieve the goal of No Net Loss [NNL] and preferably a Net Gain (NG) of the reported species. ▪ The biodiversity monitoring and evaluation is an integral part of the ESMP through continued surveys of impacts and offset activities to measure the losses and gains that have actually transpired. ▪ The supplementary studies are integral part of the ESMP. The ESMP shall be integral part of the tender, bidding and construction contractor contract documents. The Construction Contractor will be responsible to consider the mitigation measures of the supplementary studies and integral part of his responsibilities.Should the pre-construction impact assessment of both studies conclude that specific impacts may occur an adaptive management plan will be prepared and implemented to minimize these impacts during construction. ▪ Mitigation measures to be considered include portable noise barriers and other noise reducing mechanisms e.g. sound insulation of machinery, dedicated work times etc to reduce noise levels				Yen Yen Island as guided by the Flying Fox ecological expert		

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	▪ Begin work at the junction of the roadway at the main island and work down the roadway. This activity may provide a period of habituation of the flying fox to the additional construction noise. ▪ Ensure no nighttime lights beyond what exists and no night work on this project. ▪ Deliver during site induction, a session on the ecological importance of the Kosrae Flying Fox's habitat for roosting/foraging/ breeding and the need to protect this area ▪ Insert in the COC, a 'no hunting or poaching' policy ▪ Temporary activities such as laydown areas, borrow pits or quarries must be surveyed for the endangered Kosrae Flying Fox, and their key habitat requirements and the site will not be permitted if the survey identifies potential impacts on flying fox behavior or population. ▪ Community engagement will highlight the importance of the conservation of the flying fox and the Yen Yen habitat in the LMPA. This engagement will enhance the community's understanding of the need to conserve these species during and after the Project. ▪ Work closely with the PIU during the Flying Fox and noise survey and adapt construction methodology and timing feedback on Flying Fox population and behavior monitoring. ▪ Ensure controls of any fugitive dust from roadworks and controls on lighting as recommended by the flying fox specialist.						
Disposal of excavation spoils, and other solid wastes	The contractor will ensure that all waste that cannot be reused will be disposed of at the licensed KIRMA Landfill. This includes excess base course materials and gravels which are not able to be reused by others, as it can be used as cover material at the landfill. Waste management measures will include, but not be limited to, the following: • Construction workers shall have access to sufficient general trash receptacles, with secure lids, to allow for the collection and storage of waste separated to hazardous waste. • Residual solid wastes shall be collected and disposed of at the KIRMA-licensed disposal facility. This includes excess base course materials and gravels which are not able to be reused by others, as it can be used as cover material at the landfill. • Construction workers shall have access to on-site toilet and hand-washing facilities. • Wastewater from toilet facilities shall be collected and disposed of at the licensed wastewater treatment plant at Tofol. • Stockpiling, burying, burning, or dumping of solid or liquid wastes shall be strictly prohibited. • Separate solid waste into hazardous, non-hazardous, and reusable waste.	Part of contractor bid cost	Contractor	DTC&I PIU ICT	▪ Contractor's WMMP	▪ Monitoring waste storage containers, ▪ Hazardous waste management etc. on site, ▪ MSDS register ▪ review of documentation or receipts from the landfill / recyclers ▪ Export documentation if hazardous waste has to be exported due to lack of on island facilities. ▪ Training records	Minimal cost to DTC&I

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
Concrete Batching Plant (Air Quality)	The following mitigation measures shall be undertaken by the contractor: • Cover or spray water or mist on stockpiles, material loading and screening operations, conveyer belts and rock crushers to suppress dust during windy and dry conditions. • Install covers, fans, fabric filters, dry vacuums and bag houses to enclose and capture dust from dusty processes. • Observe evidence of dust settlement at the boundary of the compound • WHO Global Air Quality Guidelines (2021) – reference values: ○ $PM_{2.5}$: 15 µg/m³ (24-hour) ○ PM_{10}: 45 µg/m³ (24-hour) • These values serve as construction-phase trigger levels for corrective action.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Contractor's WMMP/ CESMP	▪ Equipment inspection for operational efficiency ▪ Visual inspection of dust ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	
Oil and hazardous materials management	The Contractor will be required to implement the SMP, WMMP as part of the CESMP, which will include measures for clean-up and handling of hazardous and contaminated materials: ▪ Storage of all hazardous substances and chemicals (including Petrochemicals and other hazardous substances will necessarily be used and transported during the project construction. These present a risk from spillages and other uncontrolled events, leading to potential pollution events. ▪ Mitigation measures to be undertaken by the contractor consistent with a WMMP as part of the CESMP, which will include measures for clean-up and handling of hazardous and contaminated materials: ▪ Storage of all hazardous substances and chemicals (including fuel) and refuelling activities are to occur at least 50 m away from watercourses and be appropriately contained (e.g. in bunded and roofed structures) to prevent contamination of surface water or groundwater; ▪ Contractors shall conduct daily inspections of machinery with particular attention to repair of hydraulic and fuel systems to prevent leakage; ▪ The Contractor shall have fully stocked, relevant spill kits available and staff be trained in their use; ▪ In case of any fuel or chemical spill, Contractors shall immediately contain the spill and contact the PIU immediately to report the incident and should be reported to the KIRMA within 24 hours; ▪ Provision of training on the proper handling of fuels/hazardous substances, and containment and disposal of spills; ▪ All cement works to be done in dry conditions. ▪ Spill management for quick containment and clean-up of wet concrete. ▪ Collection and disposal of oil- stained wastes and used oil through authorized waste handlers and waste facilities; and ▪ Restoration of temporary work sites will include removal, treatment, and proper disposal of oil contaminated soils.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	▪ Measures required to prevent accidental releases ▪ Records of accidental releases ▪ Measures for clean- up and handling of contaminated materials ▪ Training records of personnel for hazardous materials	▪ Visual inspection of storage area ▪ Verification of records ▪ Daily and as necessary ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
Air quality due to construction activities	Interventions for air pollution from construction activities: ▪ Regular water spraying of roads, work areas and other construction-related facilities to minimize dust generation. ▪ Provision of cover in storage area of construction materials, stockpiles, and spoils to prevent fine materials from being blown; ▪ Provision of tight tarpaulin cover on delivery trucks to avoid spills and dust emission; and ▪ Prohibit burning of all types of wastes generated	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	▪ Dust generation ▪ Smoke emitting equipment, ▪ Open burning of materials	▪ Visual inspection of sites daily during work activities. ▪ Dust monitoring at during nearby work fronts ▪ Dust monitoring at sensitive receptor can be done using low tech collection or observational techniques. ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Cost to contractor
Construction noise and vibration	The Contractor will implement the following mitigation measures to reduce noise and vibration impacts: • Arrange meetings between the key community stakeholders and coordinate work schedules (hours of equipment operation etc.), including at the locations of material storage area(s) and concrete batching plant • Ensure noise attenuation is in accordance with the WHO and World Bank Group EHSG. Monitoring at sensitive receptors is required and management measures employed if noise attenuation does not meet guidelines. • Construction vehicles and equipment will be maintained in good working order and regular equipment maintenance will be undertaken; • Construction vehicles and machinery will be fitted with mufflers and other noise abatement equipment as necessary; • Limit noisy construction activities to daytime or traffic off peak hours. As practicable, buffers will be established between work areas and nearby residences and business premises; • Any complaints regarding noise and vibration will be dealt with by the contractor in the first instance through the GRM.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	▪ Noise level at sensitive receptors ▪ GRM for noise and vibration	▪ Monitoring to occur in accordance guidelines in General EHSG section Noise[29]: ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP. ▪ The World Health Organization focuses on long-term average exposure (L den - day-evening-night) for different sources: Road Traffic Noise: < 53 dB L den (day evening night) and < 45 dB L night.	Cost to contractor Noise meter $2500
Community health and safety	The contractor will implement relevant elements of the TRSMP and GRM into a CHSMP: • A Code of Conduct is to be signed by all employees to ensure that workers' actions at the work site are appropriate and meet community standards including acceptable behaviour for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, , respect for Kosrae customs, land tenure, and community protocols and behaviour around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behaviour in community-facing areas and undergo training in these areas • Provide adequate safe passageways for the public crossing the construction sites; and advise local community of site health and	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	▪ Construction safety policy ▪ Hazards in the area ▪ Safety control such as signages, lightings, and barriers ▪ Health and safety records (near miss, first aide, lost time accident)	▪ Verification of construction safety policy and health and safety record ▪ Verification of health and safety record ▪ Visual inspection of sites daily during work activities. ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Cost to contractor

[29] World Bank Group. (2007). *Environmental, Health, and Safety (EHS) Guidelines: General EHS Guidelines: Construction and Decommissioning*. Washington, D.C.: World Bank Group.

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	safety site plans and seek feedback on appropriate mitigation measures via Community Advisory Committee meetings. • Adequate signage and security will be provided at work sites for prevention of unauthorized people (including children) accessing any work site(s) including advanced notice of commencement of works, installation of safety barriers and fences and signage or marking areas where works will be carried out; • Provision of safe access across the works site(s) to people/institutions whose access is temporarily affected during road rehabilitation activities as part of the contractor implementing the TRSMP that will include traffic control and pedestrian safety measures; • Child and/or trafficked labour will be strictly prohibited for any activities associated with the subproject with children to be prohibited from entering the worker's accommodation, works area/construction zone and prohibited from playing on any equipment or machinery associated with the project; and • In consultation with PIU, the contractor will clearly fence off 'no go areas' within work site(s) and erect boundary fences to prevent the public from entering during the construction period (or specific construction activities). • Should a chemical spill occur in the vicinity of the businesses or hotels the emergency procedures will be activated and the appropriate safety measures taken to protect community health. • Any imported labor related issues to be addressed through the GRM and complaints register • Age verification will be required before engagement, supported by worker register, these requirements must be adhered to by subcontractors and primary suppliers, • Periodic spot checks will be undertaken and a safe remediation/referral procedure if a child is identified.				▪ COC sign up ▪ Contractors CHSMP (TRSMP, GRM):		
Worker health and safety	The contractor will implement relevant elements of the OHSMP The Contractor will employ an EHS manager on site for the duration of the works. • OHS training shall be provided on an ongoing basis throughout the construction phase, task by task, and records kept of competencies and training. • Hazard registers will be kept updated. • Workers will be allocated tasks based on their skills and experience. • All drivers and equipment operators will have the appropriate licenses or 'tickets' or evidence of training.	Part of contractors' cost	Contractor	DTC&I PIU ICT	▪ Observe all risks are managed on site. ▪ Health and safety records (near miss, first aide, lost time accident) ▪ Training records ▪ Contractors OHSMP	▪ Verification of health and safety plan ▪ Verification of health and safety record ▪ Visual inspection of sites daily during work activities. ▪ inspections and audits of the effectiveness of the contractor's implementation of the approved OHSMP.	Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• Daily toolbox meetings will include a run through of ESH hazards and controls. • All workers will be given their own PPE that fits and is appropriate for the hazards they are exposed to and will be trained in how to wear / use it. All workers will be required to always wear / use it while working on site. No PPE, no work. The Contractor shall provide potable water supplies, first aid facilities, toilets for all genders and hand-washing facilities at worksites. The Contractor OHS procedures shall include the requirement to raise awareness and educate all site staff on the prevention and treatment of communicable diseases including filariasis, dengue, zika, hepatitis, COVID-19 and HIV/AIDS. All new contracted workers engaged during the Construction Phase is required to sign a Code of Conduct to ensure that workers' actions at the work site are appropriate and meet community standards including acceptable behaviour for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for Kosrae customs, land tenure, and community protocols and behaviour around women, elders, and vulnerable persons, prohibition on entering private/customary land, and rules for behaviour in community-facing areas and undergo training in these areas. Where off-island workers are housed in rented accommodation, the Contractor shall: • Ensure compliance with IFC/World Bank Worker Accommodation Guidelines. • Provide adequate sanitation, privacy, lighting, ventilation, and waste management. • Maintain a register of all residents. • Conduct monthly inspections using a standard checklist. • Document corrective actions within 7 days. • Ensure accommodation hosts understand the CoC and reporting channels. Any imported labour related issues to be addressed through the GRM and complaints register • Age verification will be required before engagement, supported by worker register, these requirements must be adhered to by subcontractors and primary suppliers, • Periodic spot checks will be undertaken and a safe remediation/referral procedure if a child is identified. The contractor will ensure that: • the wider labour and working-condition requirements, are met including						

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• written terms and conditions, • wages and working hours, • non-discrimination and equal opportunity, • freedom from harassment and retaliation, prohibition of recruitment fees and forced labour, • a separate worker GRM, • subcontractor and primary-supplier oversight, • record keeping, and monthly labour indicators (see Appendix F), The contractor will ensure that there is prohibition on unauthorized entry to private or customary Land by the work team. Workers are strictly prohibited from: • Entering private land, gardens, or shoreline areas without permission • Taking photos or videos of private property or individuals • Collecting plants, shells, or materials from customary land • Violations result in disciplinary action and possible removal from site. The Contractor shall appoint a Worker Welfare Supervisor responsible for daily oversight, conduct weekly checks on worker behaviour, accommodation, and CoC compliance, maintain a log of corrective actions and remove workers from site for serious violations (SEA/SH, violence, theft, trespass). The Contractor shall integrate worker behaviour oversight into the project GRM by: • Providing a confidential reporting channel for community members • Investigating allegations within 48 hours • Reporting outcomes to the PIU • Maintaining an anonymized misconduct register SEA/SH allegations must follow survivor-centred protocols. The TRSMP will ensure that workers are kept safe while working in and near traffic. A Works Method Statement will be required for all works with cement, and all works in waterways prior to these works being undertaken.						
Cultural heritage management	Mitigation measures include: • Review Chance Find Procedure • Implement any mitigation measures identified from pre-construction consultation	Part of contractors' cost	Contractor	DTC&I PIU ICT	▪ Protection and mitigation actions (if any required) ▪ Action and	▪ During regular site visits ▪ After notice of an event. ▪ inspections and audits of the effectiveness of the contractor's	Minimal cost (part of ICT and PIU's task)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• Immediate stoppage upon discovery of archaeological and cultural assets. • Inform the Department of Resources and Economic Affairs (Historic Preservation Office) about the presence. • Work not to resume until given approval by the authority. • The contractor shall ensure the identified grave near the end of the causeway is protected throughout the works through mandatory worker induction, clear Standard Operating Procedures (SOP's) prohibiting any stockpiling, machinery operation (including turning circles), parking, or worker congregation within the designated buffer area, and installation of temporary fencing and visible signage where required to prevent inadvertent encroachment. • The protection zone shall be clearly marked on site layout plans, reinforced during toolbox talks, and supervised daily to ensure compliance. Public access to the grave will be maintained at all times, with no obstruction, disturbance, or degradation permitted under any circumstance.				documentation following an event	implementation of the approved CESMP.	
Improper closure of construction sites after subproject completion.	• Site restoration and removal of all temporary facilities, excess materials, equipment, plant, and excavated materials on site. • All dumping shall be to approved locations.	Part of contractors' cost	Contractor	DTC&I PIU ICT	▪ Rehabilitation of disturbed sites, staging areas, and office areas.	▪ Visual inspection of sites ▪ Review and "clear" site remediation through issue of certificate once when all site work is complete ▪ Inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost to DTC&I
OPERATIONS							
Health and safety risks during ongoing maintenance	• Identify potential causes of impacts; • Provide written management procedures; and provide written standard operating procedures (SOPs)	Part of DTC&I's operational cost	DTC&I's Operations Dept.	DTC&I's Operations Dept. Mgt	▪ Written management procedures SOPs	▪ Verification of management procedures, SOPs, and records ▪ Weekly verification Implementation of SOPs	Minimal cost (verification of documents only)

Activity/ Environmental and Social Risk and Impact	Proposed Mitigation Measure or Enhancement Measure	Mitigation Cost	Implementation	Supervision/ Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
Routine and ongoing maintenance	• Inspect and ensure roadway and drainage system is clear of any debris. • Coordinate with stakeholders on all maintenance work	Part of DTC&I's operational cost	Maintenance contract DTC&I budget	DTC&I routine maintenance contractor	▪ Condition of the roadway and embankment	▪ Routine maintenance records. ▪ Annual inspections or as required by the DTC&I.	Minimal cost to DTC&I
Safety aspects of traffic	• Maintain shoulder and sealed road and install road safety signage to improve general safety. • Awareness raising of stakeholder through meetings to create road safety programs.	Part of DTC&I's operational cost	Maintenance contract or DTC&I budget	DTC&I PIU, local police	▪ Accidents and collisions. Safety issues discussed in schools. Effectiveness of traffic calming measures (e.g., speed signs).	▪ Monthly or as required by the DTC&I. ▪ Consultations and visual inspection by the DTC&I.	Minimal cost to DTC&I

Table 16: Schedule of reporting

Report Type	Frequency of Submission	Responsibility	Submit to:
CESMP	Prior to commencement of works	Contractor	PIU and CIU, then World Bank
CESMP updates	As required	Contractor	PIU and CIU, then World Bank
Other Contractor Management Plans	Prior to commencement of works	Contractor	PIU and CIU, then World Bank
Updates to any Contractor Management Plans	As required	Contractor	PIU and CIU, then World Bank
Incident Reporting	As below in Section 10	Contractor (Site Manager)	ICT, PIU, CIU, then to KIRMA (for environmental incidents) and World Bank. EHS in the FSM is regulated by the Occupational Safety and Health Act 2022.
Complaints and Grievances Reporting	Within 24 hrs of grievance	Contractor (Site Manager).	PIU and CIU
Audit reports by PIU	Quarterly or as undertaken	PIU Lead	CIU
Complaints and Grievances Reporting	Within 24 hrs of significant or serious grievance	PIU and CIU	World Bank
Weekly Construction Reports	Mondays (for week prior)	Contractor (Site Manager)	ICT
Monthly ESHS report within the Construction Report	First week of month (for month prior)	Contractor	ICT
Monthly Construction Report	Second week of month (for month prior)	ICT	PIU and CIU, then World Bank

Works Completion Report	After completion of works and reinstatement of site	Contractor/ICT	ICT - PIU and CIU, then World Bank
Reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to: i. The implementation of the ESCP; ii. Status of preparation and implementation of E&S documents identified and required under the ESCP; iii. Stakeholder engagement activities; iv. Contractors ESHS implementation, ESHS incidents; and v. Functioning of the grievance mechanisms. vi. The number of pre notified households and businesses, vii. access complaints received and resolved viii community meetings held, worker code of conduct, ix. training records and x. outstanding grievances. xi. local/off-island status and sex; age-verification and child/forced-labour checks; xii. worker GRM cases; xiii. Code of Conduct sign-off and breaches;	Six Monthly throughout Project implementation.	PIU Project Manager and CIU E&S Team.	World Bank

xiv. SEA/SH awareness and referral actions in anonymized form; incidents; access and business disruption; xv. cultural heritage and sensitive-receptor inspections; corrective actions; and evidence of closure. xvi labor report including: • Total workforce numbers (by gender, type, subcontractor) • New hires and terminations • Hours worked and overtime • Wages paid and deductions • Worker GRM statistics • Training delivered (OHS, SEA/SH, induction) • Accommodation inspections • Any non-compliance and corrective actions			

iii) Non-Compliance/ Incident Management

329. Monitoring will identify non-compliance with CESMP and contract clauses, the ESMP and the earthmoving permits.

330. Should an incident, such as a spill of hazardous substances, an injury or a community complaint occur during the course of site works, the contractor Site Manager is to immediately notify ICT who is then to forward the incident to the PRIME/SCORE Project Manager, CIU and KIRMA. The Site Manager is to take prompt and immediate action to minimize any impact and where necessary, liaise with all relevant authorities.

331. The Site Manager is to, in liaison with the ICT and CIU, direct an appropriate course of action and shall record the date, time and nature of the incident, full details of the causes and effects, further investigations to be undertaken, person responsible for such investigations, outcomes of the investigation, actions and resolution of the incident (including preventative measures implemented to prevent recurrence). Preventative measures are to be subject to monitoring and review. Incidents will be included in any audit reports during site works.

332. Where non-compliances or non-conformances with instruments are identified, the following process applies (Table 17).

Table 17: Non-compliance management

Incident Type	Identified By:	Process
Minor breach, procedural, no harm	Construction ESHS team	Results and corrective actions reported in monitoring forms and weekly reports to ICT / PIU. Corrective actions maintained on register and progress reported weekly until close out.
	ICT or PIU or CIU	Communicated with contractor for remedy within 1 week. Results and corrective actions reported in monitoring forms and six monthly reports to World Bank. Corrective actions maintained on register and progress reported weekly until close out.
Moderate breach or non- compliance. Has led to an incident or could lead to an incident without corrective action.	Construction ESHS team	Results and corrective actions reported in monitoring forms and weekly reports to ICT / PIU. Corrective actions maintained on register and reported weekly until close out. Close out of corrective action signed off by ICT / PIU.
	ICT or PIU or CIU	Results and corrective actions reported in monitoring forms and weekly reports to ICT / PIU. Corrective actions are maintained on register and regularly reported until close out. Close out of corrective action signed off by ICT / PIU. .
		Results and corrective actions reported in progress meetings and missions and documented six monthly reports to World Bank. World Bank assists where appropriate and necessary.

Significant non- compliance or breach leading to substantial or high risk situation. Major incident caused or could be caused by non- compliance.	Construction ESHS team	Immediate notification to ICT / PIU, then World Bank. Corrective action report prepared, documenting root cause analysis, risk analysis, and proposed remedies, actions, stakeholder involvement etc. for clearance by PIU and World Bank. Results and corrective actions reported in progress meetings with ICT / PIU. (at least weekly) and in progress meetings and missions with World Bank. Corrective actions maintained on register and regularly reported until Formal reporting in monthly reports to ICT / PIU close out.
	ICT / PIU or CIU	Immediate notification to contractor, ICT/ PIU, CIU and World Bank. Corrective action report prepared, documenting root cause analysis, risk analysis, and proposed remedies, actions, stakeholder involvement etc. for agreement with the Contractor and for clearance by PIU and World Bank. Results and corrective actions reported in progress meetings with contractor (at least weekly) and in progress meetings and missions with World Bank. Corrective actions maintained on register and regularly reported until close out. Close out of corrective action signed off by ICT / PIU. World Bank assists where appropriate and necessary. Formal reporting to World Bank during missions and six monthly progress reports.

333. **Emergency Management and Response Plan.** The objective of emergency response management for the Project is to ensure that Emergency Response procedures are established that can be rapidly implemented in the event of an environmental, health, social, security or natural hazard emergency.

334. Key procedures for preparing for, and responding to, accidental events and natural hazards should include (but not be limited to):

- Emergency Response Procedures.
- Incident Reporting Procedure; and
- Crisis and Emergency Management Standards.

335. Regular environmental risk assessment will be undertaken to review potential environmental emergency situations that may arise. The methodology to be used for the periodic risk assessments will be consistent that outline in ESMP. External stakeholders, such as the local government authorities, may also be involved or notified in relation to emergency response implementation depending upon the severity of an environmental incident.

336. Determination of whether an incident is classified as an Emergency is based on environmental risk assessment. For an incident classified as an emergency, the following procedures will be followed. Any unforeseen environmental incident overlooked during the environmental risk assessment will be treated as an emergency situation until the Contractor management and/or PIU advises otherwise.

337. Emergency response to an environmental incident prioritizes the actions undertaken according to the following sequence:

- Protection and rescue of human life;
- Minimization of the area impacted by the incident
- Protection of the environment, plant and property;
- Rendering the area safe in which the emergency has occurred;
- Restoration of all disrupted services; and
- Decontamination and rehabilitation of the incident scene and surrounding area.

338. Depending upon the severity of an environmental incident, emergency response may also involve using the services of, or notifying, the following groups:

- Police;
- Ambulance;
- Department of Transport, Communication and Infrastructure (and/or State representative authorities;
- KIRMA;

- State and Municipal Government;
- Community leaders (such as Council of Chiefs); and
- Others likely to be affected (e.g., local communities, downstream water users etc).

339. The fire risk from the works is considered minimal, however fire may originate from other sources (including both natural and human sources), but threaten the works site. Potential environmental impacts may include breakout of fire into surrounding vegetation, as well as release of significant quantities of air pollutants and contaminated runoff from burnt areas. Management and mitigation measures to minimize the risks associated with fire will generally include:

- Adoption of mitigation measures including all fuel shall be stored in a bunded container away from machinery and other sources of ignition and fire extinguishers and/or a water pump to be kept on site;
- Development of detailed firefighting procedures, fire fighter training, emergency drills, first aid/evacuation, and systems for warning Local Government;
- Provision of induction sessions to Project employees on fire hazard to provide a basic understanding of fire awareness, measures to prevent accidental fires and the importance of reducing the risk of accidental fire for both safety and the protection of adjacent lands;
- Fire equipment adequate for the level of risk identified for the various facilities, which are regularly maintained and tested to ensure good working order;
- Adequate water supplies for use in the case of fire will be established in critical areas;
- Earthing and lightning protection will be installed to structures vulnerable to lightning strike; and
- Storage and handling of all substances under conditions which minimize the risk of fire or toxic emissions.

340. Flooding and storm events (including Typhoons) have the potential to impact the Project works area (e.g., traffic accident, power interruption).

341. A flood risk may exist for the works areas, and transport routes, given its location and proximity to the coast.

342. Rainfall intensities can also be relatively high in Kosrae. High rainfall intensities have the potential to create a flood risk, particularly in low-lying areas where transport routes and other infrastructure may be located. Even minor flooding within these low-lying areas may have significant impacts on Project infrastructure.

343. Unexploded Ordinance (UXO) are known to exist in FSM as a result of military actions throughout the Pacific during World War II from 1942-1945. While many of the UXO's have been cleared there is a chance some may still

remained undiscovered.

344. Given the works to be implemented the Project are largely within existing road corridors that had been constructed and maintained since that time (typically 1970s onwards), the chance of workers encountering UXO's as part of this Project is low.

345. However, mechanisms for identifying and reporting UXO's should be included as part of the OHS procedures. In the event that a causeway alignment is required an assessment for UXO risk should be undertaken, and a UXO clearance team may be required.

346. The Contractor OHSMP shall include the requirement to educate all site staff on the prevention and treatment of communicable diseases including filariasis, dengue, zika, hepatitis, HIV/AIDS and Covid-19.

347. The Contractor and all workers (including imported labor) associated with the Project are to comply to FSM National and State health and safety management plans, and international (i.e. World Health Organization) standards.

iv) Capacity Building and Training:

348. The current ESHS staff in the CIU, PIU and ICT are sufficient for the supervision and monitoring of risk. The proposed ESHS staff for the contractor are sufficient for the planning, implementation and monitoring of CESMP (refer the implementation table). All staff should be adequately qualified and trained for their roles and responsibilities.

349. The following training is required:

350. **GRM:** CIU will provide a training workshop for all people responsible for GRM implementation, including ICT, PIU, PSC and contractor (no additional budget, part of CIU role).

351. **SEA/SH, STI's and HIV and Code of Conduct Awareness**: Contractor will provide awareness training to all workers. Details, including budget, shall be provided in the CESMP, including third party supplier details.

352. **Construction-related training:** All relevant ESHS training to implement the CESMP will be provided by the contractor and detailed in the CESMP along with budget allocation.

Implementation Schedule and Cost Estimates: A total budget of USD $545,500 has been estimated to implement the ESMP over a 24-month period. The allocation covers core personnel, routine monitoring, and compliance-driven management activities. Flying fox population and behavior and noise studies both during the preconstruction phase and the construction phase have been costed and will be funded by the PIU (Table 19).

Table 18: Cost for Inputs for Flying Fox Specialist and Nosie and Vibration Modelling Specialist

Inputs for Flying Fox Specialist and Nosie and Vibration Modelling Specialist (month inputs)				
Baseline studies				0.5
Data analysis and write up				1.5
Revision and update				0.5
Quarterly monitoring (8 quarters and 15 days/quarter)				4
Total months for each expert				6.5
Airfares per trip x 2	$1000	18 trips	Total cost	$18 x2 000
Accommodation	$200USD /night)	30 nights x 9	Total cost	$54000
Days of work x 2	$700/day	270 days	Total costs	$189,000
			Total Costs	**$267,000**

Table 19: Estimated ESMP Implementation and Monitoring Cost for Construction

Items	Unit	Unit Cost (USD)	No. of Units	Monitoring Frequency	Total (USD)
ESHS Staffing					
Environmental / Safety Officer/Community Liaison (1) - Local Hire [30]	Month	3,000	24		72,000
One Environmental, Health, Social and Safety Manger (ESHSM)[31]	Month	10,000	24		240,000
Flying Fox Specialist (quarterly) –months (PIU Funded)	Initial study then Quarterly	94,500	11	Quarterly	94,500
Noise & Vibration Modelling Expert (monthly) –months (PIU Funded)	Initial study then Quarterly	94,500	11	Quarterly	94,500
Airfare Expenses for Flying Fox Specialist and Noise & Vibration Modelling Expert (PIU Funded)	Airfare/trip	1,000	18	Initial then quarterly	18,000
Accommodation Expenses for Flying Fox Specialist and Noise & Vibration Modelling Expert (PIU Funded)	Accommodation/trip	200	270	Initial then quarterly	54,000
ESMP Cost					
KIRMA Fee		500	1		500
PPE		5,000			5,000
On-Site Toilets		10,000			10,000
Traffic Management including safety signages		5,000			5,000
First Aid Equipment		100	10		1,000
Public consultation (printing, catering, hall hire, information publication etc)		1,000	8	One public consultation session a quarter to provide an update on the project	8,000
Training					
Capacity Building / Training (Approx. 20 staff)	Monthly – in house				
Third party training (e.g. Kosrae Women's Council)	6 monthly	1,000	3		3,000
Environmental Monitoring (Construction Phase)					
Noise Monitoring – 1x Class 1 sound meter	Equipment	5,000	1	Prior to works commencing (preconstruction), Daily monitoring during activities/ if a complaint are received from the community	5,000
Surface water quality – 1x turbidity meter, calibration solution for 24 months of operations	Equipment	2,000		Weekly monitoring during construction	2,000

[30] The Environmental / Safety Officer/Community Liaison Officer (local) will assist the Senior ESHS Manager and visit the construction site regular on daily basis. Apply the ESHS checklists designed by the Senior ESHS manager as per frequency defined and report to the ESHS manger on daily basis. Train the contractor's labour in the ESHS related aspects. Will carry out any task assigned by the Senior ESHS manager or Project manager.

[31] Environmental, Social Health and Safety (ESHSM) Manager will prepare the Contractor's Environmental & Social Management Plant (CESMP) and required subplans in line with the ESMP, SCORE/PRIME ESMF, ESCP, World Bank ESSs, World Bank general EHS guidelines & FSM or State level applicable regulations. Undertake regular daily site inspection visits, prepare the ESHS related monitoring checklists with its frequency, train the local ESHS manager that how to apply the checklist organizes and follows up the ESHS Program under the direction of the Project Manager. Train the Contractor's labor force as per CESMP requirements. Prepare monthly, quarterly, semi-annual CESMP progress reports as per requirement of the ESMP and Client and submit the PIU and CIU for review. Participate in the weekly and monthly CESMP progress review meetings. Ensure compliance to all ESHS related applicable local legislation, contractual & other requirements. The overall responsibility for the development and implementation of the Project ESHS Policies and plans and updating the CESMP including subplans as required. Supervision and monitoring of ESHS personnel including local ESHS officers and supervisors. Provide specialized ESHS input into engineering, construction and contracts, ensuring requirements are properly integrated into project planning, design criteria, construction plans and specifications and contracts. Coordinating and organizing regular meetings with the Project Manager and Construction Manager in order to discuss the site's ESHS issues and requirements. Monitoring construction activities and performance to ensure compliance with the CESMP and subplans and effectiveness of control measures adopted. When required, arrange the ESHS trainings for relevant staff. Oversee subcontractor / Vendor /Parties OHS manager and their performance.

Reporting					
Contractor's Environmental & Social Management Plan (CESMP)	Monthly	No cost	24	Reporting required as part of the project	
Sub-Total (in USD)					**$518,000**
Contingency					**5%**
Total					**$545,000**

353. **Integration of the ESMP with other Project documents and Plans.** The ESMP is fully integrated with the Project's design documents, technical specifications, procurement packages, and overarching PRIME instruments including the SEP, LMP, and M&E framework. The ESMP will be translated into a detailed CESMP for all activities under the responsibility of the Contactor. This integration ensures that environmental and social requirements are embedded throughout the Project lifecycle and that all implementing parties understand and fulfil their responsibilities in accordance with the World Bank ESF and applicable national regulations.

9) CONCLUSIONS

354. The improvements in surface and flood mitigation will bring positive outcomes to Lelu Island and the nearby communities in Kosrae. Transport efficiency will be enhanced as result of new road pavement, improved flood mitigation, increased resilience to climate change, pedestrian safety with the construction of footpaths and road crossings, and road safety upgrades for vehicles.

355. The program of works is strongly supported by the community.

356. Off island labour numbers are expected to be moderate and suitable housing exists in Tofol to accommodate them.

357. A code of conduct to be signed by all workers outlines the acceptable behaviour expected within the community and prevent SEA/SH.

358. Most environmental and social benefits and impact mitigation measures have been achieved in design. The potential environmental and social impacts arising from construction and operation will be moderate, localized, and acceptable, with the implementation of corrective actions and mitigation measures, as set out in the ESMP.

359. The roosting habitat of the endangered Kosrae Flying Fox on Yen Yen Island within the LMPA may be disturbed by road noise, vibration or lights, during the construction works. Although the flying fox population may exhibit a degree of habituation to human activity, pre-construction monitoring of population numbers and behavioural patterns will be undertaken prior to construction, with continued monitoring throughout the construction phase to assess potential impacts. In parallel, noise monitoring will be undertaken to determine both pre-construction and construction noise to assist in understanding the Kosrae Flying Fox behaviour during construction.

360. Should monitoring indicate there may a change in roosting or foraging behaviour during construction, an adaptive management response will be implemented to mitigate these impacts on the flying fox colony roosting on Yen Yen Island.

361. The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe, leading to works within the LMPA and by 10 ft into the adjacent oceanic waters.

362. To protect the marine environment during construction, sediment and erosion controls during roadway and embankment renovations will be designed and implemented as part of the E&SCP, to minimize sediment discharges to the receiving marine and lagoon environment to maintain the biodiversity values of the LMPA, the recreational values of the Blue Hole and swimming pier and the quality of seawater supplied to the Clam Aquaculture Research Center (CARC).

363. Road safety during construction will be implemented through a TRSMP, ensuring continual movement of traffic around the work area within the existing road right of way while keeping workers safe and separated from vehicle traffic and keeping pedestrians out of the work area. The contractor’s Traffic Road Safety Management Plan (TRSMP) will maintain continuous, safe, and predictable access to businesses and community facilities, ensure pedestrian

safety, with particular attention to business visitors (Dominique's pizza shop, Clam Aquaculture Research Center (CARC), marina) unfamiliar with the area, minimize economic disruption to commercial operators

364. This ESMP is considered appropriate to meet the environmental and social risk management requirements of the PRIME Project, WB, FSM and Kosrae state, in respect to the upgrade of the causeway road.

Appendix B: Kosrae Lelu Causeway Land Access Due Diligence Report (LADDR)

Background

The Prioritized Road Investment and Management Enhancements (PRIME) Project was approved in [month/year]. The Project will provide funds for technical assistance and institutional strengthening to improve the management of the road network in relation to potential climate change impacts for the FSM. In addition, the Project will fund the feasibility, design and construction of physical works on priority road assets to improve resilience to climate-related hazards or events. The Project is financed by the World Bank and the implementing agency is the FSM Department of Transportation, Communication & Infrastructure (DTCI).

The PRIME Project environment and social (E&S) risks are managed in accordance with the World Bank Environment and Social Framework (ESF) and relevant FSM and Kosrae State laws and regulations. Instruments prepared for the project to guide E&S risk management include the Environment and Social Management Framework (ESMF), Resettlement Framework (RF), Labor Management Procedure (LMP) and the Stakeholder Engagement Plan (SE).

This Land Access Due Diligence Report (LADDR) presents the finding of the due diligence with respect to land access impacts of the Lelu Causeway improvement works in Kosrae State in accordance with the requirements of the Project ESMF and RF to demonstrate that involuntary resettlement impact will be avoided.

Purpose of the LADDR

ESF Environment and Social Standard 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement provides guidance on assessment of impact and mitigating impacts on affected persons when land is acquired for project purposes. In the event of involuntary land acquisition and restricted access caused by projects, a Resettlement Plan is to be prepared to mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons to at least restore their livelihoods and living standards to pre-displacement levels.

For PRIME, where screening and due diligence concludes that works will not involve land acquisition or produce involuntary resettlement impacts, a LADDR is to be prepared upon completion of the engineering design. The PRIME RF states that the LADDR will include the following: (i) a description of the works site; (ii) a description of proposed works; (iii) findings of the field visit and observations on the works site; (iv) process and outcome of consultations with stakeholders; (v) plans for monitoring and ongoing consultations with local community; and (vi) confirmation that there are no involuntary resettlement impacts and that neither a Voluntary Land Donation Report, or Resettlement Plan is required. The LADDR is to be included with the feasibility report to be submitted to the WB.

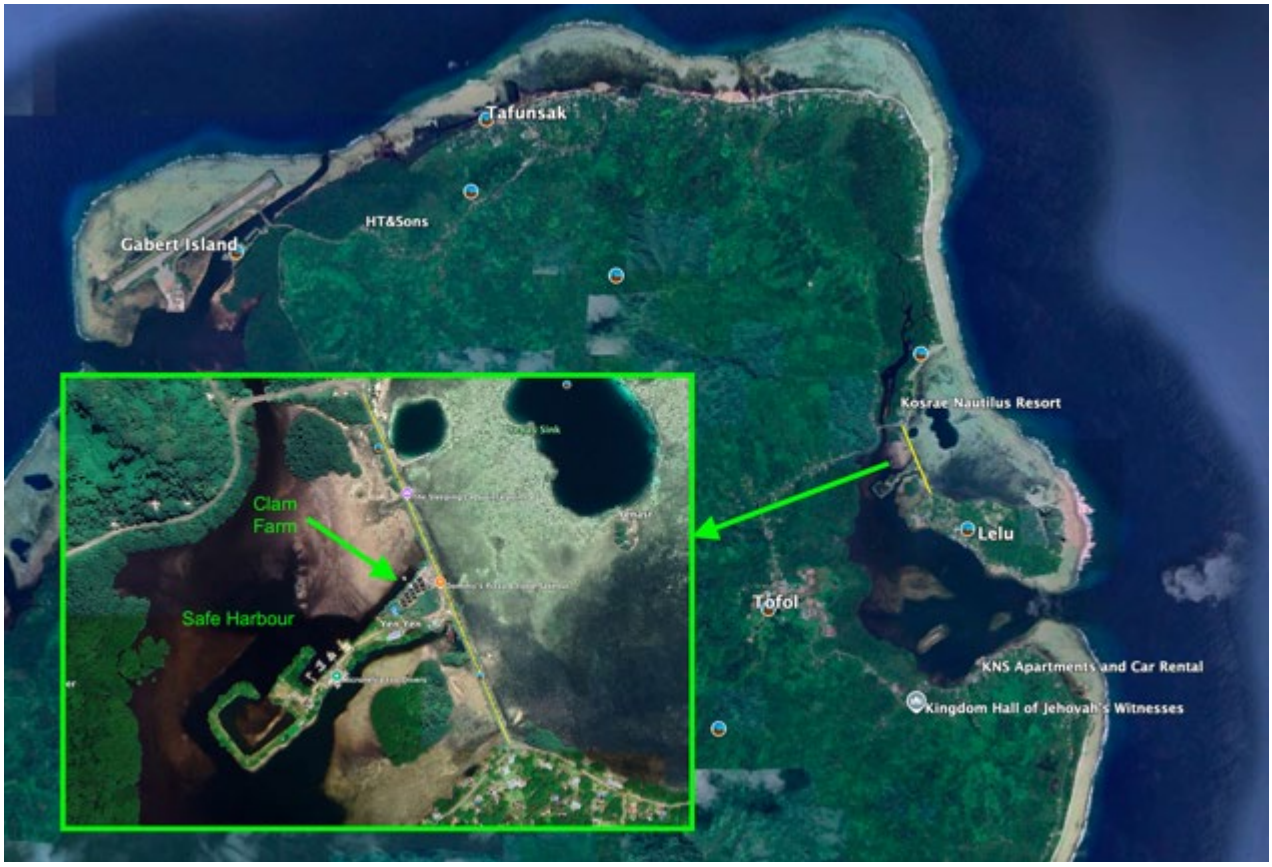
An Environmental and Social Management Plan (ESMP) has been prepared for the works in accordance with the ESMF. Conclusions and any recommendations from the LADDR will be reflected in the ESMP. The ESMP will be included in the Request for Proposals for the works tenders. A Contractors ESMP (CESMP) will need to be prepared by the Contractor based on the requirements of the ESMP and planned works in relation to actual site conditions.

Site Description

The Lelu Causeway is located on the eastern side of the island of Kosrae and is approximately 0.43 miles (690 m) long. It is a coral and basalt rock-sealed causeway constructed directly

onto the intertidal reef platform that dissects the intertidal reef between Lelu Island and the main island of Kosrae. The causeway is bordered on both sides (east and west) by an extensive coastal intertidal reef flat, small volcanic islands, and an extensive sheltered tidal bay that possesses mangroves along its western, eastern, and southern sides. The intertidal reef flat, which includes two natural reef "blue holes", terminates to open ocean approximately 1.6 miles off shore. It lies on the east coast of the island linking the promontory with the main island (Figure 1). The embayment formed by the promontory is called Lelu Harbor.

Figure 1: Road and bridges location map



On the western side, the causeway is constricted by the bay; on the eastern side, the causeway faces the open sea. There is very little available space for providing traffic diversions or a bypass. Equally, space is limited for construction activities such as lay-down areas and batching plants. The current vehicle speeds are maximum of 15 miles per hour.

There is a residence and a pizzeria outlet approximately midway of the Western side of the causeway, a small community further into the mangrove area on the landward side of the causeway towards the safe harbour, and a clam raising business closer to the proposed roadworks. There is also a public swimming area at the first blue hole with a concrete pedestrian jetty that will have an upgraded parking area (Figure 2).

Figure 2: Road visual inspection November 2024





Proposed works

The work includes a full width reconstruction of the existing road (no change to existing alignment), with improved side protection by use of rock revetments, climate resilience through raising of the causeway levels and a pedestrian walkway on both sides of the road. The road will be done using asphaltic concrete and revetments using rock fill. They will incorporate upgrades to existing parking areas and access points along the full route.

The initial junction area will be rehabilitated through signage, road markings and a short piece of pedestrian walkway up to the front face of the existing covered meeting area to the Northwest of the causeway.

During road works, the road will be constructed in two parts, left and right, and in separate sections along the existing road. There will be safety barriers to protect pedestrians from diverted traffic whilst construction proceeds.

The overall length of road works is 2,307 feet (690 metres) which will follow the existing alignment and be raised approximately 1 foot. The existing culverts and crossing structures will remain with additional revetments added to the sides to offer upgraded coastal protection and support the higher and nominally wider causeway.

To ensure continued use of the parking area outside of the pizzeria (also used as a loading area for the clam farm), additional onsite facilitation will need to be made by the contractor as part of their works when raising the causeway to ensure continuous access. Please see minutes of the consultation in the site specific environmental and social management plan in Appendix B.

There is no requirement for easements across properties to discharge water as this is a causeway. The access points for all adjacent land users will be maintained or improved with any temporary construction impacts dealt with through the CESMP. The existing embankment sections of the roadway are not in good condition due to the continuous influence of water bodies as well as extreme conditions, during high tides and water level rise. There are a number of cavities in the embankment layers and pavement layers/fill material have been washed away and will continue to do so, undermining the structural integrity of the road.

The amour protection design for the embarkments to be renovated and stabilized is shown in Figure 4. A geomembrane (0.75mm thick) is placed at the base of the embankment, then a section of underlayer stone (0.5ft thick) before a two stone width amour layer (1ft thick) filled with mortar is placed on top. The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe, and by 10 ft into the adjacent oceanic waters leading to works within the LMPA. This design has been approved by KIRMA.

The marine and lagoon (estuarine) foreshore and seabed either side of the causeway are owned and managed by the state. A Development Permit to undertake these works in Lelu Marine Protected Area is being coordinated by the PIU and KIRMA.

Embankment renovations are to be undertaken for 1,907 ft on the ocean side (82 % of causeway length) and 1,357 ft (58 % of causeway length) for the lagoon side (Figure 5).

A cross section of the stairway to the water's edge is shown in Figure 6. The following diagrams depict an outlay of the proposed works and typical cross section (Figure 3, Figure 4 and Figure 5).

Figure 3: Typical cross section – road works

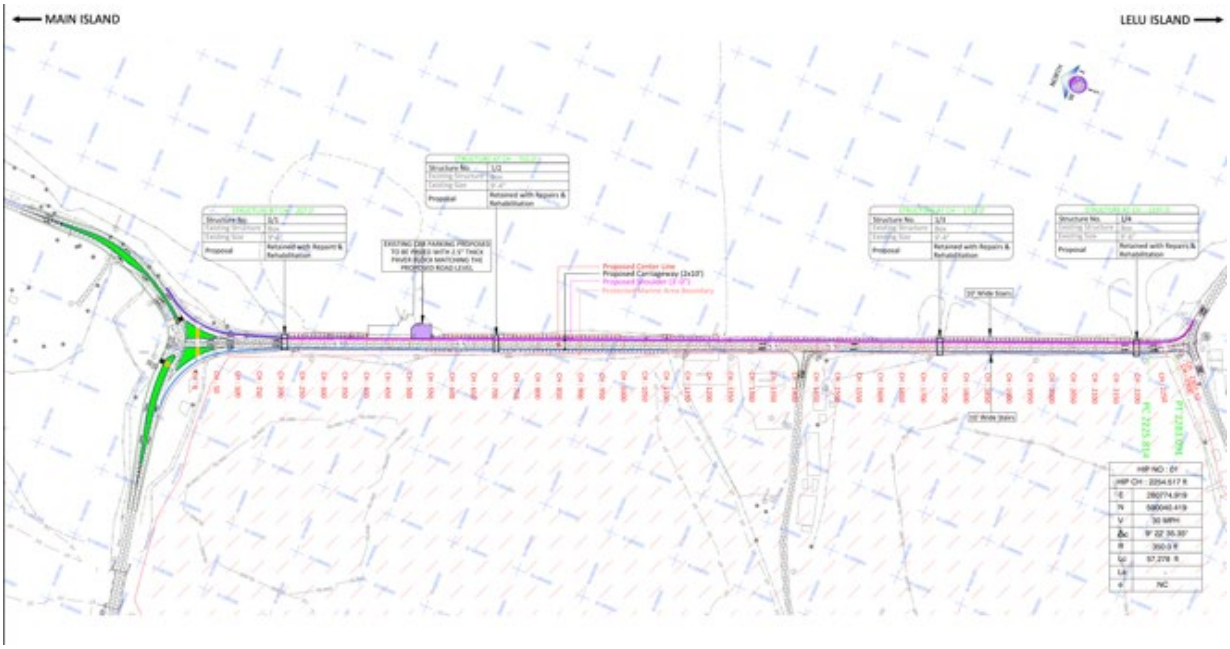


Figure 4: Typical cross section - intersection





Community meeting area to be serviced using a pedestrian walkway that starts from Lelu side and terminates at the shelter.

Figure 5: Typical cross section – Lelu Causeway with stairs on both sides

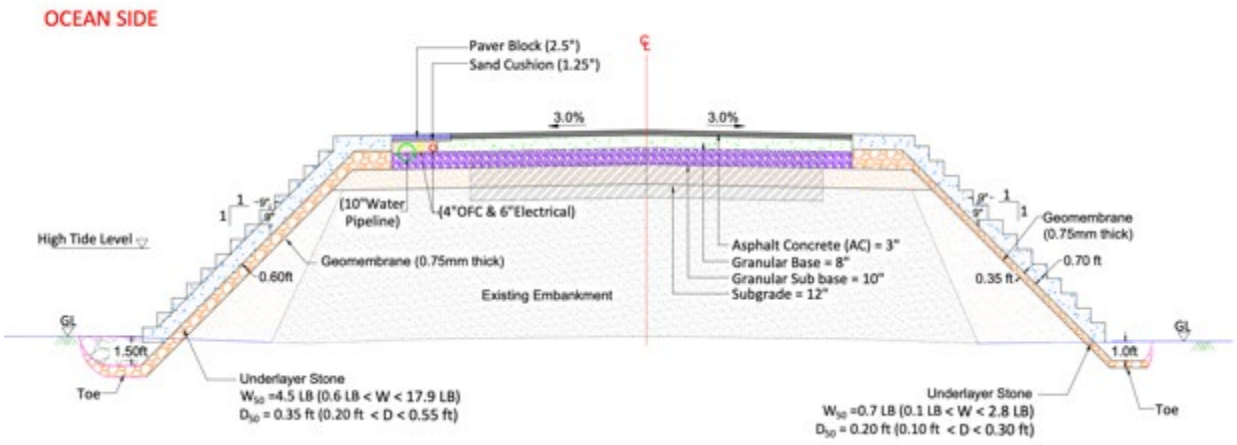


Figure 6: Embankment Armoring Design and Shoulder Area for Pedestrians on Ocean Side

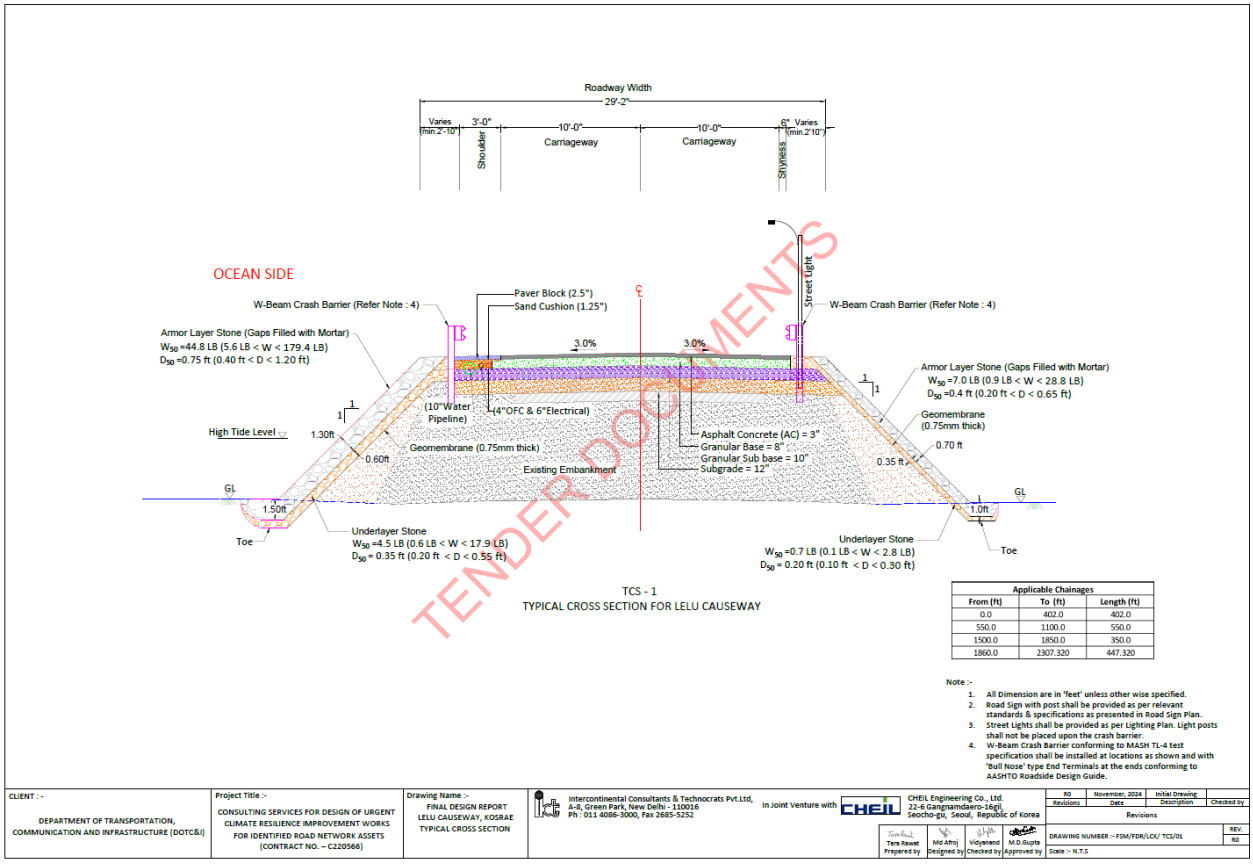


Figure 7: Embankment protection along the project area (yellow dotted line)



Land Use Due Diligence Findings

Visual inspection of the road area and the bridge against the engineering designs as well as consultations were conducted by the E&S consultant in November 2024. The assessment and findings are presented below.

Design features and land use with respect to existing ROW

The proposed works lie entirely within government-owned land. The causeway land where the project works are sited has been confirmed by the Government of the State Kosrae as Government land for which the Government holds the title. It is a reclaimed intertidal reef area. The land is held in free simple estate by the Government of the State of Kosrae as public land, pursuant to the Kosrae State Constitution. (Refer to Annex 2 of the LADDR.)

The project design was checked against the project site in the field. The design relies heavily on the existing centre line of the road which is in the middle of the causeway. The field topographical data was collected over a 14-day period based on the concept design. All data was acquired using GNSS equipment. All data collected was referenced to the concreted control points fixed at the start of the topographic survey, with height adjustment done real time and the points thus collected captured in the field without further required manipulation. All data was processed using a combination of Topcon Tools software for the GNSS data and Model Maker software for drawing and Digital Terrain Modelling. All data was processed using a combination of Topcon Tools software for the GNSS data and Model Maker software for drawing and Digital Terrain Modelling.

The proposed embankment renovations will extend approximately 8 ft beyond the current embankment toe into the LMPA and by up to 10 ft into the adjacent oceanic waters. A limited area of excavation will be required to establish the new embankment toe. Renovation works will be undertaken along approximately 1,907 ft of the ocean side (82% of the causeway length) and 1,357 ft of the lagoon side (58% of the causeway length).

The project road and existing embankments are located adjacent to the Lelu Marine Protected Area (LMPA).

The design does not propose to introduce any form of stormwater drainage addition or make any changes to the current culverts or bridge infrastructure. It is limited to rehabilitating the existing pavement and causeway and strengthening the side slope protection.

The engineer's design was substantially unchanged after the review and a set of engineer's drawings were issued. These drawings showed the toe line of the earthworks being proposed for the full length of construction.

The final design was reviewed against the concept and preliminary design upon which the initial ground survey for the due diligence was undertaken. The material modification in the final design is with respect to embankment works. The embankment renovations in the final design will extend approximately 8 ft beyond the current embankment toe into the LMPA and by up to 10 ft into the adjacent oceanic waters. A limited area of excavation will be required to establish the new embankment toe. Renovation works will be undertaken along approximately 1,907 ft of the ocean side (82% of the causeway length) and 1,357 ft of the lagoon side (58% of the causeway length). The project road and existing embankments are located adjacent to the Lelu Marine Protected Area (LMPA). In Kosrae State all marine areas below the ordinary high-water mark belong to the Kosrae State Government.[32]

A Merged Land Impact Model was produced demonstrating the boundaries of the works. (See Annex 1 of the LADDR.)

Assessment of impacts caused by design features and proposed works

There will be no impacts on property caused by permanent works. The engineers design drawings earthworks toe line, that demarcates the extremities of the road construction earthworks, was overlaid onto the topographic survey. These were designed on the Topographic survey based on the established control above. Thus, creating one homogenous system of drawings. Using the designed extremity of works, it was ascertained that there is no permanent road construction impacting on private land assets or any assets within the planned works areas. Modifications to the causeway dimensions itself is limited to embankment works described above. The modest widening of the embankment will be within Government land.

Assets identified adjacent to and outside the planned works are the Clam Farm and the Pizzeria parking and loading area, as well as several ornamental trees. The earthworks toe line finishes before the parking area, access to the parking needs to be addressed as part of the CESMP much like the public jetty parking area.

[32] The Kosrae State Constitution (Article XI) states that all land below the high tide mark is considered public land. The Kosrae State Court has also explicitly affirmed that all marine areas below the ordinary high-water mark belong to the Kosrae State Government. Jonah v. Kosrae, 9 FSM Intrm. 335, 340 (Kos. S. Ct. Tr. 2000). This case is routinely cited in ESMPs, IEEs, and land-tenure analyses because it removes any ambiguity about ownership of tidelands.

There is a PVC water pipe that runs underneath the main bridge/culvert at ch0+1,225 that was informed to be critical to the health and survival of the Clam Farm. Any interruption of supply from this pipe would, according to the Clam Farm owner, cause millions of dollars of damage to his farm and a large loss of livelihood. The contractor must take due consideration of this when doing any roadworks. This matter has been fully covered in the ESMP (Figure 6).

Figure 6: Pumphouse and PVC supply pipe



Alongside the roadway is the Pizzeria that will require upgrading of the parking area to compensate for the raised, finished road level (Figure 7).

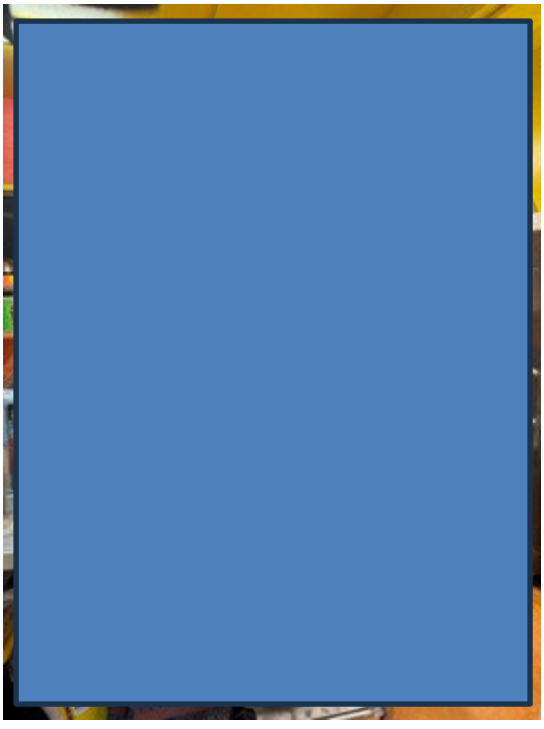
Figure 7: Parking area outside of the Pizzeria



The roadway proper was in good repair but showed signs of aging and substructural settlement. Further it is narrow and does not provide for pedestrian access. This can be seen in the above image and shows the inaccessibility of this very busy small business enterprise. The current designs do address this.

The owner of the Pizzeria employs several female staff and lives with her husband, the Clam Farm owner, in the house attached to the pizzeria (Figure 8).

Figure 8: Staff at the Pizzeria



The contractor will need to arrange works and traffic management in a way that maintains access of customers to the pizzeria. This is likewise addressed in the ESMP.

Consultations

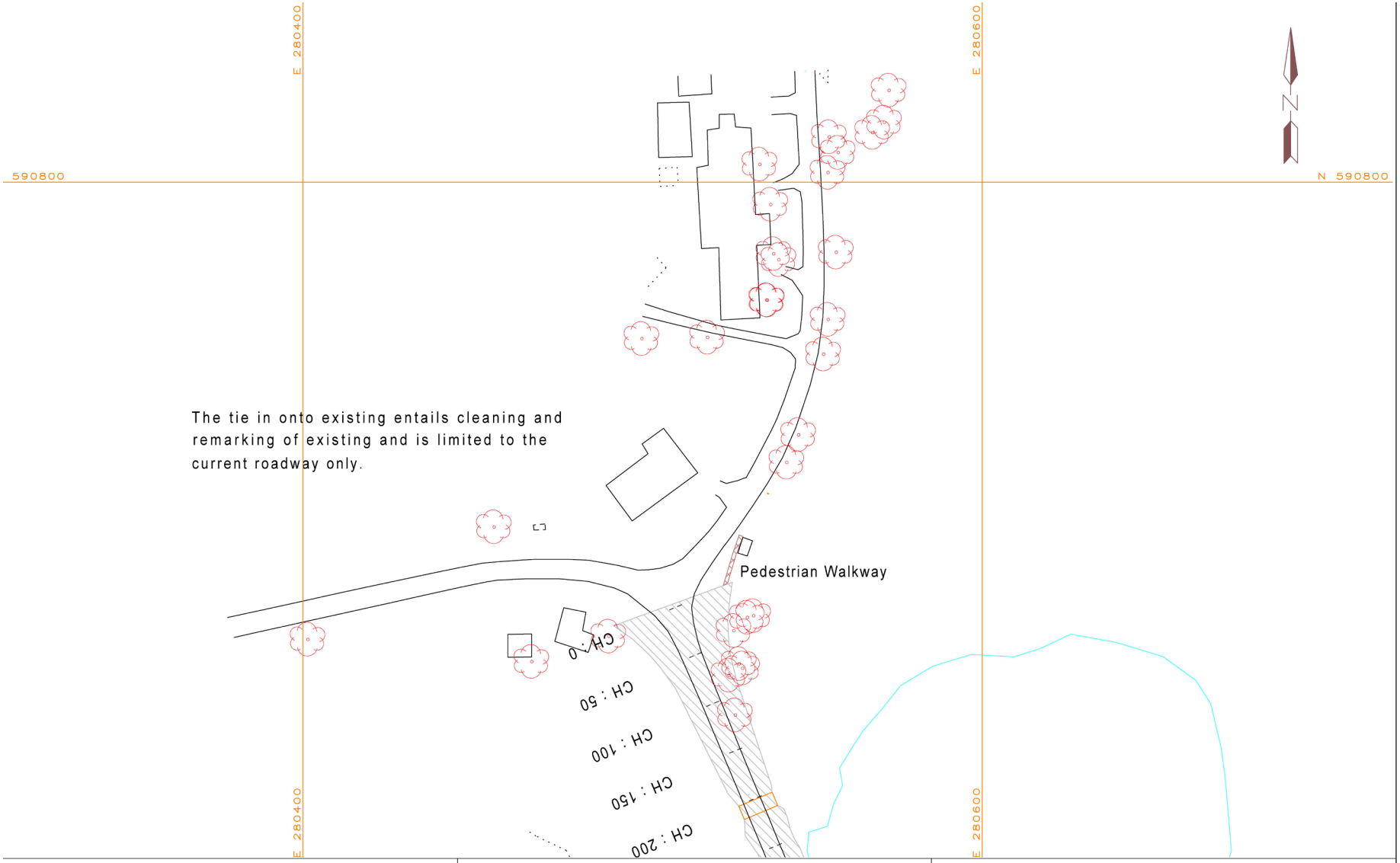
Consultations with local community were undertaken by the engineering consultant in 9-15 August 2022 as part of preparation of the preliminary design and well as by the E&S consultants conducting due diligence to prepare the LADDR on 18 November 2024.

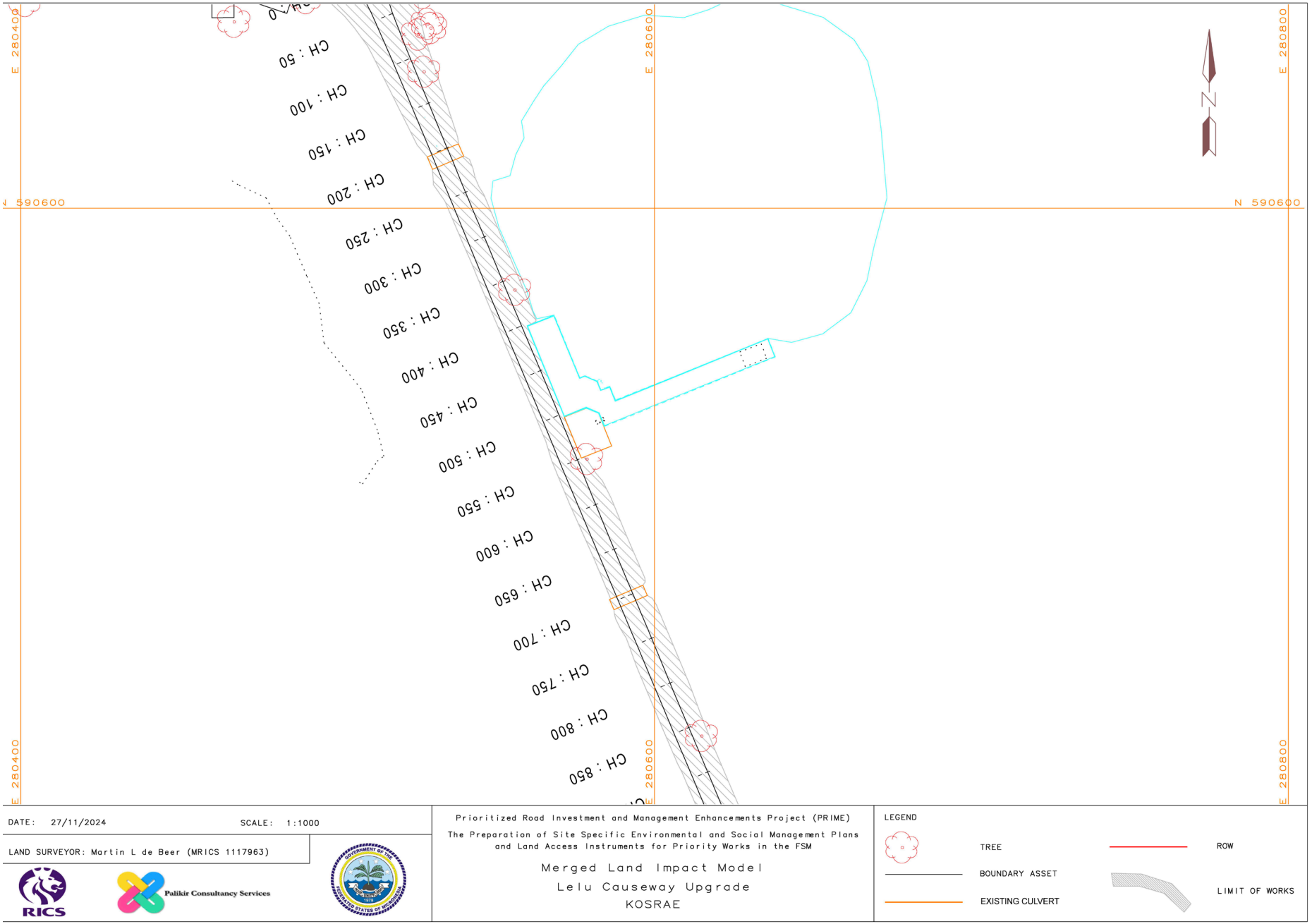
The general consultations conducted by the E&S consultants saw 23 participants from the community out of the overall 39 attendees, the FGD was held with 12 community adjacent land users. The owners of the pizzeria and Clam businesses were directly consulted and site visited. A full record of consultations, ad hoc meetings and details of the businesses can be found in the consultation records included in Annex 3.

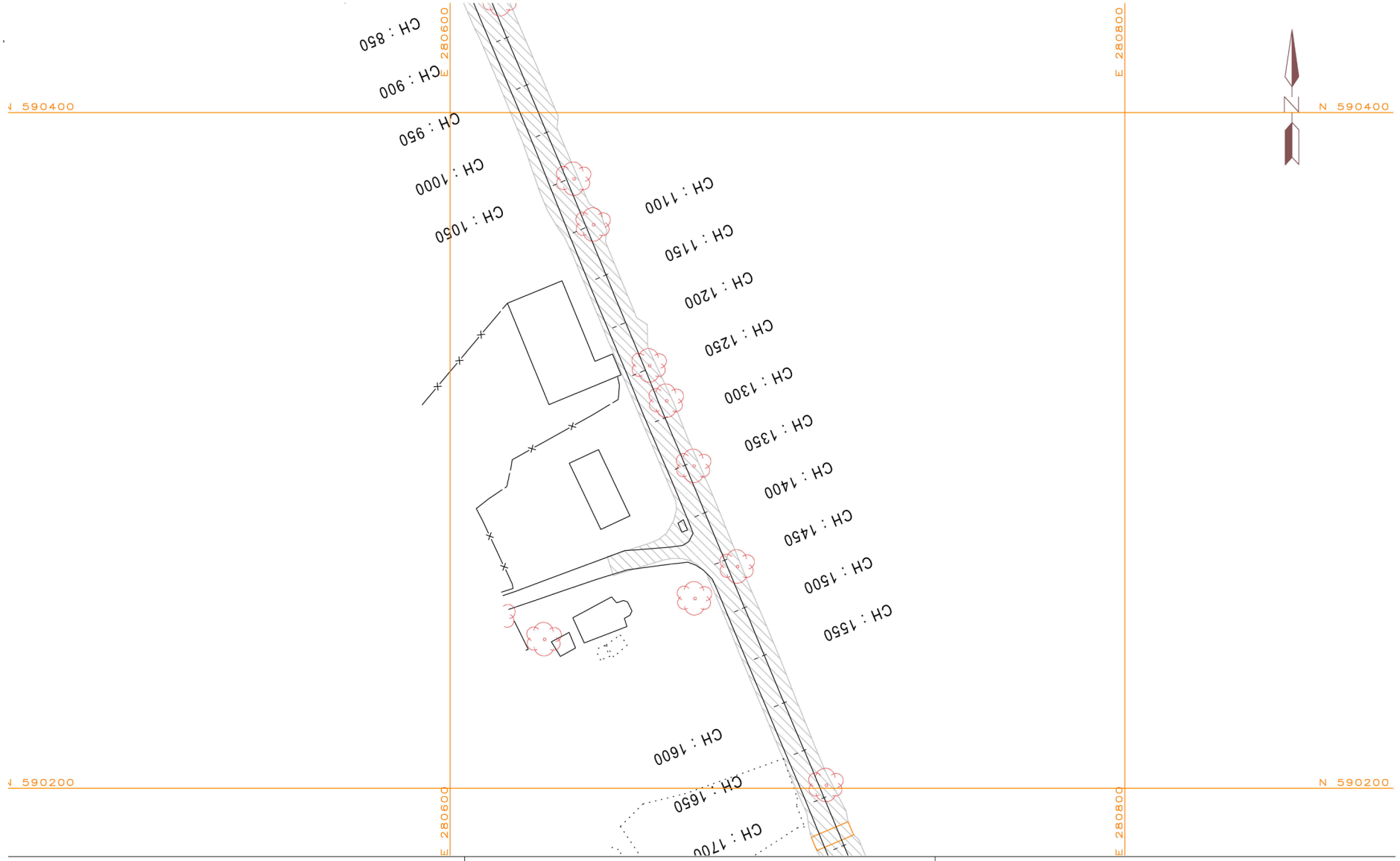
Conclusions and Actions Required in the ESMP

1. The registered ROW has been confirmed for the works area. The Lelu Causeway has been confirmed as Government owned land (refer Annex 2 of the LADDR). There will be no realignment of the existing road and no widening aside from embankment works on the lagoon and ocean side of the causeway. An assessment of the design footprint has confirmed there will not be any impacts on privately owned or occupied property (refer Annex 1 of the LADDR).
2. The due diligence assessed that there will be no loss of land or income generating assets for the permanent works. Proposed management of works and traffic set out in the ESMP provide for ongoing access to existing businesses during works to avoid impacts on businesses adjacent to the works areas. Furthermore, during works there is a need to avoid impacts on the water pipe feeding the clam farm. These are already well covered in the ESMP.
3. Based on this assessment, neither a Voluntary Land Donation Report, nor Resettlement Action Plan required.
4. Should there be a material change of design or ineffective mitigation of restricted access to businesses leading to loss of property or impacts on livelihoods, a Resettlement Plan or corrective action plan will need to be prepared in accordance with the provisions of the Project Resettlement Framework to provide restitution of losses.

Annex1: Merged Land Impact Model


E 280400
E 280600
590800
N 590800
N
The tie in onto existing entails cleaning and remarking of existing and is limited to the current roadway only.
Pedestrian Walkway
CH : 0
CH : 50
CH : 100
CH : 150
CH : 200
DATE: 27/11/2024
SCALE: 1:1000
LAND SURVEYOR: Martin L de Beer (MRICS 1117963)
RICS
Palikir Consultancy Services
Prioritized Road Investment and Management Enhancements Project (PRIME)
The Preparation of Site Specific Environmental and Social Management Plans and Land Access Instruments for Priority Works in the FSM
Merged Land Impact Model
Lelu Causeway Upgrade
KOSRAE
LEGEND
TREE
BOUNDARY ASSET
EXISTING CULVERT
ROW
LIMIT OF WORKS


E 280400
E 280600
E 280800
N 590600
CH : 50
CH : 100
CH : 150
CH : 200
CH : 250
CH : 300
CH : 350
CH : 400
CH : 450
CH : 500
CH : 550
CH : 600
CH : 650
CH : 700
CH : 750
CH : 800
CH : 850
N
DATE: 27/11/2024
SCALE: 1:1000
LAND SURVEYOR: Martin L de Beer (MRICS 1117963)
RICS
Palikir Consultancy Services
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KOSRAE
LEGEND
TREE
BOUNDARY ASSET
EXISTING CULVERT
ROW
LIMIT OF WORKS



DATE: 27/11/2024 SCALE: 1:1000

LAND SURVEYOR: Martin L de Beer (MRICS 1117963)

RICS

Palikir Consultancy Services

Prioritized Road Investment and Management Enhancements Project (PRIME)

The Preparation of Site Specific Environmental and Social Management Plans and Land Access Instruments for Priority Works in the FSM

Merged Land Impact Model

Lelu Causeway Upgrade

KOSRAE

LEGEND

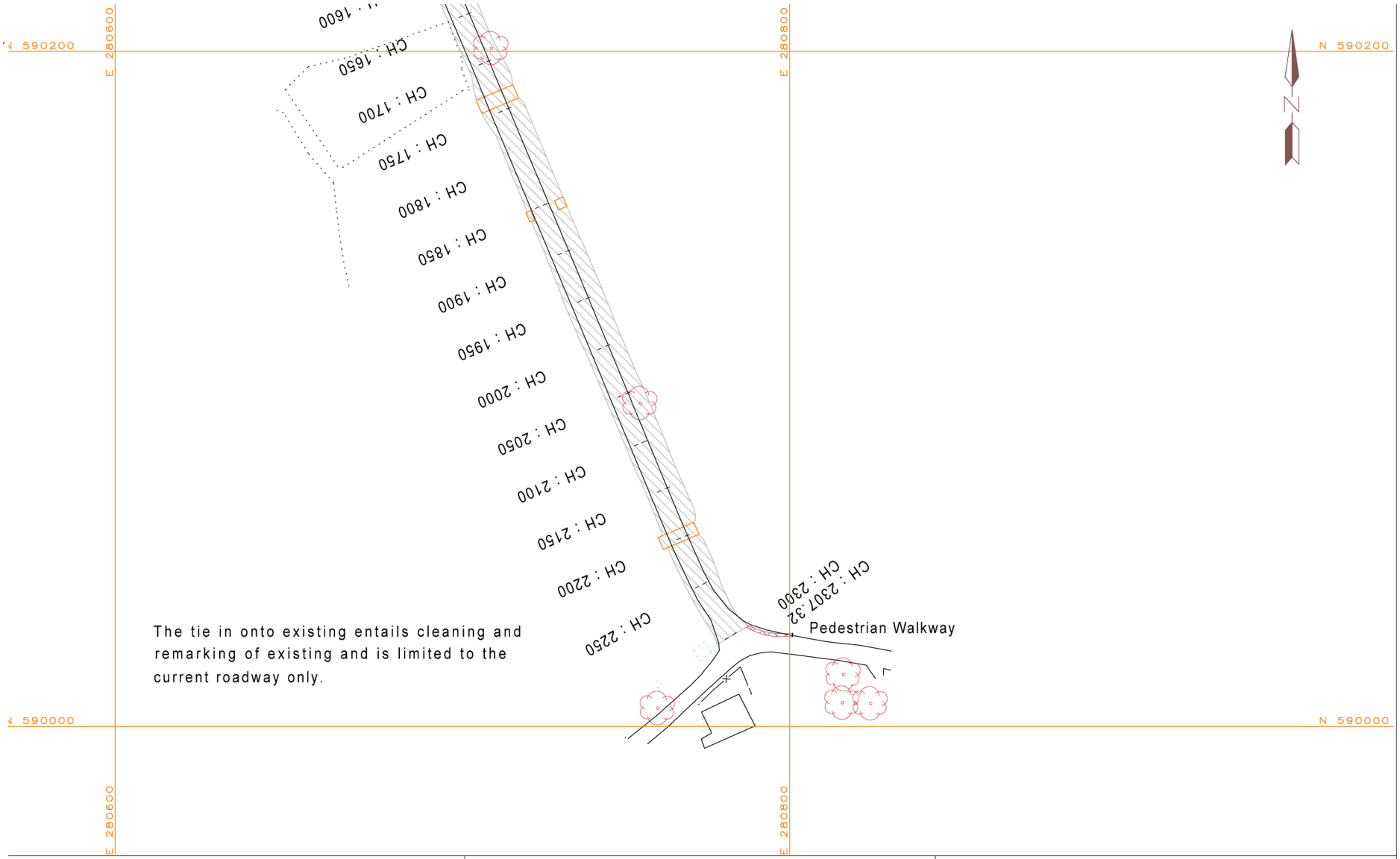
TREE

BOUNDARY ASSET

EXISTING CULVERT

ROW

LIMIT OF WORKS



DATE: 27/11/2024 SCALE: 1:1000

LAND SURVEYOR: Martin L de Beer (MRICS 1117963)

Palikir Consultancy Services

Prioritized Road Investment and Management Enhancements Project (PRIME)

The Preparation of Site Specific Environmental and Social Management Plans and Land Access Instruments for Priority Works in the FSM

Merged Land Impact Model

Lelu Causeway Upgrade

KOSRAE

LEGEND

TREE

BOUNDARY ASSET

EXISTING CULVERT

ROW

LIMIT OF WORKS

Annex 2 – Title Certification

Revised 7/24/20

GOVERNMENT OF KOSRAE
Office of the Governor
Kosrae State
Post Office Box 158
Tofol, Kosrae FM 96944
Telephone (691) 370-3002/3003/3009

==========

TITLE CERTIFICATION

I hereby certify that the Government of the State of Kosrae holds the title or interest as set forth below in or to the following marine area further described as a reclaimed intertidal reef area in and near the vicinity of the Lelu Causeway, the FSM-NAC, and the old Public Market (see attached sketch).

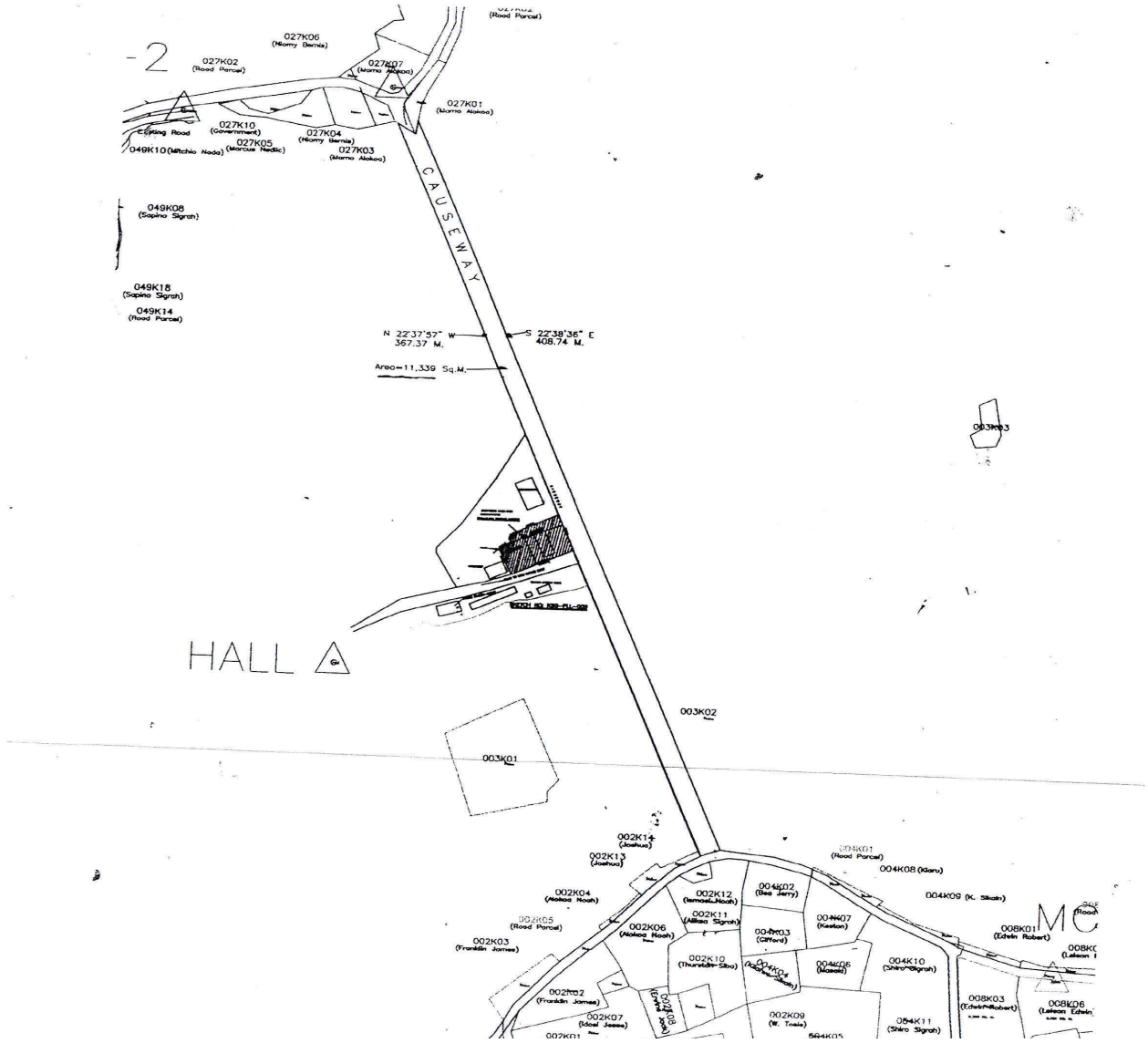
All these reclaimed land are being held in fee simple estate by the Government of the State of Kosrae as public land, pursuant to Article XI, Section 4 of the Kosrae State Constitution.

THEREFORE, in accordance with title 11, Section 11.101 of the Kosrae State Code and the above certification, I hereby authorize the Lelu Causeway Improvement Project to use said referenced property.

Executed this 24 day of July 2020.

Carson K. Sigrah

"TUKENI OREKMA IN AKWOYE MWET LASR A AN SESR KOSRAE"
"WORKING TOGETHER FOR THE WELLBEING OF OUR PEOPLE AND KOSRAE"


-2
027K06
(Nlomy Benita)
027K02
(Road Parcel)
027K07
(Mama Alokoa)
027K01
(Mama Alokoa)
027K10
(Government)
027K05
(Marcus Nedic)
027K04
(Nlomy Benita)
027K03
(Mama Alokoa)
Existing Road
049K10 (Mitchio Nedic)
049K08
(Sapino Sigrah)
049K18
(Sapino Sigrah)
049K14
(Road Parcel)
CAUSEWAY
N 22°37'57" W
367.37 M.
S 22°38'36" E
408.74 M.
Area=11,339 Sq.M.
003K03
HALL
003K02
003K01
002K14
(Joshua)
002K13
(Joshua)
004K01
(Road Parcel)
004K08 (Karu)
002K04
(Mokoa Noah)
002K12
(Ismael Noah)
004K02
(Bea Jerry)
004K09 (K. Silcain)
004K05
(Road Parcel)
002K11
(Alikoa Sigrah)
002K06
(Mokoa Noah)
004K03
(Clifford)
004K07
(Keelan)
008K01
(Edwin Robert)
002K03
(Franklin James)
002K10
(Thurston Sibo)
004K04
(Road Parcel)
004K06
(Masad)
004K10
(Shiro Sigrah)
002K02
(Franklin James)
002K07
(Ideal Jesse)
002K09
(W. Tosia)
004K11
(Shiro Sigrah)
008K03
(Edwin Robert)
008K06
(Lekean Edwin)
004K05

Annex 3 – Consultations

Public Consultations during preparation engineering design

1.1 ENGAGEMENT WITH STAKEHOLDERS AND PROJECT AFFECTED PEOPLE (PAPS)

DoTC&I and Consultant since inception of the project were very particular to ensure engagement of Stakeholders and population who would be end users of the improvement in each of the project islands. Every project site Joint field visits of DoTC&I officials with Consultant team was initiated upon post meeting and detailed discussion with stakeholders and residents around the project area. Further post site visit a rap up discussion meeting with the same group was undertaken to discuss technical aspects involved for likely improvement proposal. The stakeholders group involved various representatives of government agencies, public representatives and settlers in the vicinity of the project.

1.1.1 Inception Stage of the Project

As part of Stakeholders engagement in Kosrae State of FSM, DoTC&I officials and Consultant's key professionals had first interaction with Governor, Lt. Governor, Senator, Director T&I, PMO Project Manager, Chief of Staff at Governors conference room on 9th August 2022 at Kosrae State Government Administration Building, Office of the Governor, to understand perspective of stakeholders for improvement proposal and their past experience of problems encountered with current causeway and Utilities along the causeway. Utility agencies appraised the current utilities along the Lelu causeway. Representatives of respective agencies briefed about the infrastructure, and also responded with details sought by the consultant representatives. Meeting was followed by joint field visit along Lelu Causeway, participated by stakeholders and consultant representative to discuss project specific issues on the site.



Figure 2: *Stakeholder Meeting at Kosrae State Government Administration Building, Office of the Governor & Joint project site visit & Engagement with PAPs*

Details discussed with various stakeholders is summarized below Table 1,

Stakeholder Agency	Discussion and Details
9th August 2022	
Department of Transportation and Infrastructure, **&** **KIRMA,** **&**	• In Improvement of Causeway an important aspect to be considered is to improve water quality, reduce sedimentation on harbor side which has gone bad since construction of causeway in 1960. • Improvement should account for;

KCSO **&** **Kosrae State's Protected Area Network,** **&** **Kosrae Civil Society, Chairman,** **&** **Lelu Marine Operator, &** **KUA,** **&** **FSMTC, Kosrae, &**	1) Widening of Existing Roadway width as per FSM National Standards. 2) Raising of Roadway to address future Climate resilience requirement and improve flow capacity between Ocean and Harbor side and vice versa. 3) Increased Width of waterway Opening to facilitate free flow movement of tidal water from Ocean side to Harbor side and vice versa. 4) Protection of Embankment and shoreline of Lelu Island need to be addressed. 5) Requirement of walkway for pedestrian movement need to be addressed. 6) Specific requirements of disabled and vulnerable to be ensured.
Kosrae Project Management Office **&** **Kosrae State Legislature &** **Lelu Town Government**	• Since Lelu Causeway is the only connectivity for Lelu Island ensuring movement of traffic and goods during construction is utmost priority as such traffic diversion during construction need to be addressed. • It was mentioned that there is no specific easement on both sides of causeway and is mainly marine space; however land on both sides of causeway is private land. • One of the existing Bridge structure is obstructed with land fill during construction of the Airfield, now with Aquaculture office building which has resulted in blockage of water flow between ocean and harbor side. • Availability of recent traffic along causeway was confirmed and was assured to be shared with consultant. • Studies done in the past need to be reviewed where bigger size structures along causeway recommended. • No history of overtopping or submergence of Lelu Causeway till date. • Availability of Tidal Gauge station along the project corridor was confirmed. • Swimming Pool area should be protected from any impact as it's a public use property and also improvement of the same may be considered in the improvement proposal. • Possibility of providing parking spaces along the causeway for tourists stopping for scenic view on both sides of the causeway may be also addressed.

	• Harbor side being protected area where fishing and Harvesting is prohibited as such EIA study of improvement is to be carried for the project.



Figure 3: *Waterline along carriageway in RHS*



Figure. 4: *Electric Poles in RHS along Causeway.*

	• Water pipeline of 8” diameter runs on LHS on the ocean side and is supported on concrete pedestal. • Electric poles are situated along Causeway away from roadway on RHS sides of Harbor. • Telecommunication lines are mostly underground on RHS of causeway on Harbor side. • Fiber optics and other cables run along the Electric poles. • It was confirmed that there is no sewage line along the causeway. • Solar Park project is likely along the harbor side in future. • Sea water pipeline crosses the causeway near the Aquaculture building. • KUA requested that since department does not have much revenue for diversion of Utilities as such the cost should be inbuilt within the improvement proposal for the Causeway. • DOTC&I confirmed that any impact on existing facility or utility restoration cost will be incorporated in the Improvement proposal.

15th August 2022
DOTC&I official, Consultant Representatives and Stakeholders Representative had a wrap up meeting to discuss outcome of Field assessment for Lelu Causeway and also to share additional details to set path for future work by the consultant. Details discussed is summarized below,

1) Stakeholder Representative wanted to know if the improvement proposal also would address Aquaculture development plan as the facility now functioning is under old building structure.

➔ DOTC&I Official and Consultant Representative clarified that the improvement of Lelu Causeway undertaken under PRIME World Bank funding is to address urgent works for identified Road network Assets and will focus on improvement of Lelu Causeway.

2) Stakeholder Representative from KUA wanted to know if the department would be helped in relocating underground Telephone Cables and also provision for carrying overhead fiber optics and cable underground.

➔ DOTC&I Official and Consultant Representative clarified that if there is any impact on existing utilities based on approved improvement proposal for the project the cost for restoration will be incorporated in the project cost and budget will be further discussed with the Department.

3) Stakeholder Representatives wanted to understand implementation timeline for the project.

➔ Consultant representatives detailed the contractual timeline outlined for the project and further clarified that even though there has been some overrun in the timeline for initial Reports they would make it up with extra efforts to complete the design within the timeline framed for the project.

4) Stakeholder Representative wanted to understand that for 2.2 Million USD allocated what would be scenario if improvement proposal budget is more than the allocated budget.

➔ DOTC&I official explained that in a scenario upon approval of the improvement proposal formulated if development cost is more than the budgeted allocation the same would be further discussed within the National Government and decision would be taken to resolve such issue.

5) Stakeholder representatives desired to understand based on field visit and initial assessment what would be likely scenario for improvement.

➔ Consultant representative explained that the team is visiting site for the first time for initial assessment of the project site and collect site related data. Consultant would further carry necessary Engineering Survey and Investigation, hydrology study and analysis of flow, tidal study and climate change effect on rising sea levels and base there recommendation accordingly based on outcome of these studies. Consultant representative assured that upon completion of these studies during next stakeholders meeting they would appraise about likely scenario for improvement of Lelu Causeway.

6) Stakeholder representative mentioned that the alignment for Lelu Causeway being straight as such drivers tend to speed up in this section thus travel speed should be restricted with speed humps.

➔ Consultant representative explained that the issue would be addressed with traffic calming measures adopted in the final design and also with provision of appropriate road signage.

Further to above discussion Stakeholder representatives appraised following issues,

a) Telephone lines and other conduit underground on RHS towards Lelu Island either damaged or likely to be damaged in improvement proposal.

b) Power cables in future should be taken underground than overhead in the present state for better maintenance along the causeway and further mentioned that for this the likely requirement of space for 3 to 4 Cables of around 1.5” in diameter each.

c) The concrete platform at the swimming pool area used for various sports activity

through the day as such better accessibility should be considered in the improvement proposal.

d) Beautifying the Lelu Causeway may be considered in the improvement proposal.

e) Movement of boats from Lagoon to Ocean side and vice versa below the new structures planned should be accounted.

f) Safety barriers on RHS towards Lelu Island on Lagoon side need to be accounted for in the improvement proposal.

Local Community around the project area involve in leisure fishing as such a provision to access ocean front from Lelu causeway by means of steps or any other provision need to be accounted for in the improvement proposal.

The outcome of the detailed discussed paved way to achieve the goal of Participatory Design approach as Final Inception Report for the project and Concept Design Option Analysis report for the project island was achieved based on outcome of these discussions.

1.1.2 Concept Design and Option Analysis stage

With continued efforts to ensure improvement proposal prepared is based on participatory approach, upon submission of Concept Design and Option report the details of the same was again taken to stakeholders for discussion.



Figure 5: *Stakeholder Meeting, Joint project site visit & Engagement with PAPs to discuss Concept Design and Option Report*

As part of the process DoTC&I officials and Consultant team further had discussion meeting with the stakeholders including public representatives and PAPs to discuss various options drawn under the concept design report. The discussion and recommendations helped draw design and detailed report for Preliminary Design Report.

The discussion was more focused on various options and improvement proposal drawn for the project island some of the specific decision with PAPs at site included,

1) Past historical observations of the PAPs during historical hide tide and storm events. These included settlers residing in the vicinity for decades who appraised the consultant team highest level of seas water observed at the causeway.
2) Specific Requirements: Some of the requirements highlighted by PAPs included,
    - Safety of the highway users with requirement of protection on both sides of the carriageway by means of Crash barriers;
    - Provision for boats to cross causeway at least at one location;
    - Requirement of footpath along the causeway;
    - Requirement of staircase to access sea side and lagoon side from causeway;
    - The owner of the fishery complex desired existing parking and access to his property should be restored in the improvement proposal. Further desired provision to allow two pipes crossing Causeway to draw water from sea to the fishery complex should be considered;
    - Parking besides the swimming pool should be restored with some improvement;
    - Lighting all along the causeway to improve safety of highway users;
    - Improved carriageway width for both directional movement of traffic;
    - Improved flow circulation between lagoon and sea to minimize settlement of silt on lagoon side.
3) Utility agencies appraised specific requirement and provisions desired along the improvement proposal for both existing utilities and planned utilities in future.
4) State Administration and Governor House representatives desired that improvement should ensure durability and effective usage of the Causeway improvement with minimal maintenance.

Public Consultations during preparation of land access due diligence
Stakeholder Consultations

Public Consultations

Stakeholder Consultation took place on November 18, 2024, in the Governor's Conference Room, Kosrae, from 9:00 am to 12:00 pm. Flyers were posted in English and local state language.



The Lelu Causeway Kosrae Project

MEETING NUH SIN MWET KOSRAE

WORLD BANK (WB) AHKFAHSRYE KASRUH LALOS KE OREKMA YOHK SE PAHNGPAHNG PRIORTIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMNT (PRIME). WB KASRUH KE IP LUHN MANI IN NAWUH LELU CAUSEWAY. NAWEYUK INGE AC KASRUH ELYAH SE LUO MWET OREKMAKIN INEEK UH PULA KE PACL ELOS OREKMAKIN IN SOM NUH KE NIEN ONO, BANK, LUTLUT, OREKMA, NIEN KUKA, AC MWE ENENU PUKANTEN LUHN MWET UH.

AC TUFAH OASR UN MWET OREKMA LUHN WB AC FSM GOVERNMENT AC OASR FIN ACN UH KE NOVEMBER 18, 2024 AC ELOS SULI MWET NUKEWA KOSRAE IN WELULOS KE MWE AHKAHLEMYE AC KE MWE LOLNGOK LOWOS KE KASRUH LALOS NUH SIN MWET KSORAE.

TUKENI LALOS UH AC AHKFAHSRYEYUK KE CONFRENCE ROOM LAL KAFUNAH FIN ACN TOFOL.

The Lelu Causeway Kosrae Project

Announcement of Stakeholder Consultations

Venue: November 18, 2024, Governor's Conference Room, Tofol, 9:00 am to 12:30 pm.

The World Bank (WB) is providing funding for a Prioritized Road Investment and Management Enhancements (PRIME) Project in Kosrae for the upgrade of the 1 km Lelu Causeway. This project will address a number of current issues faced by commuters travelling along this causeway that connects Lelu Island to vital services such as the hospital and schools and main government and commercial areas of Tofol, including needed climate proofing and upgrading of this section of road and its structures.

An international and local team of experts will be on island from November 15-19, 2024 and will be meeting with potentially affected businesses and residents along the Lelu Causeway, as well as undertaking site visits and field work to prepare the final design and implementation phase of this project.

Through this stakeholder dialogue we would like to capture your concerns and potential solutions regarding commuting along the causeway and climate resilience and factor these into the final project design and implementation, where practical.

You are invited to attend the Public Meeting

Date: November 18, 2024, 9:00 am to 12:30 pm.

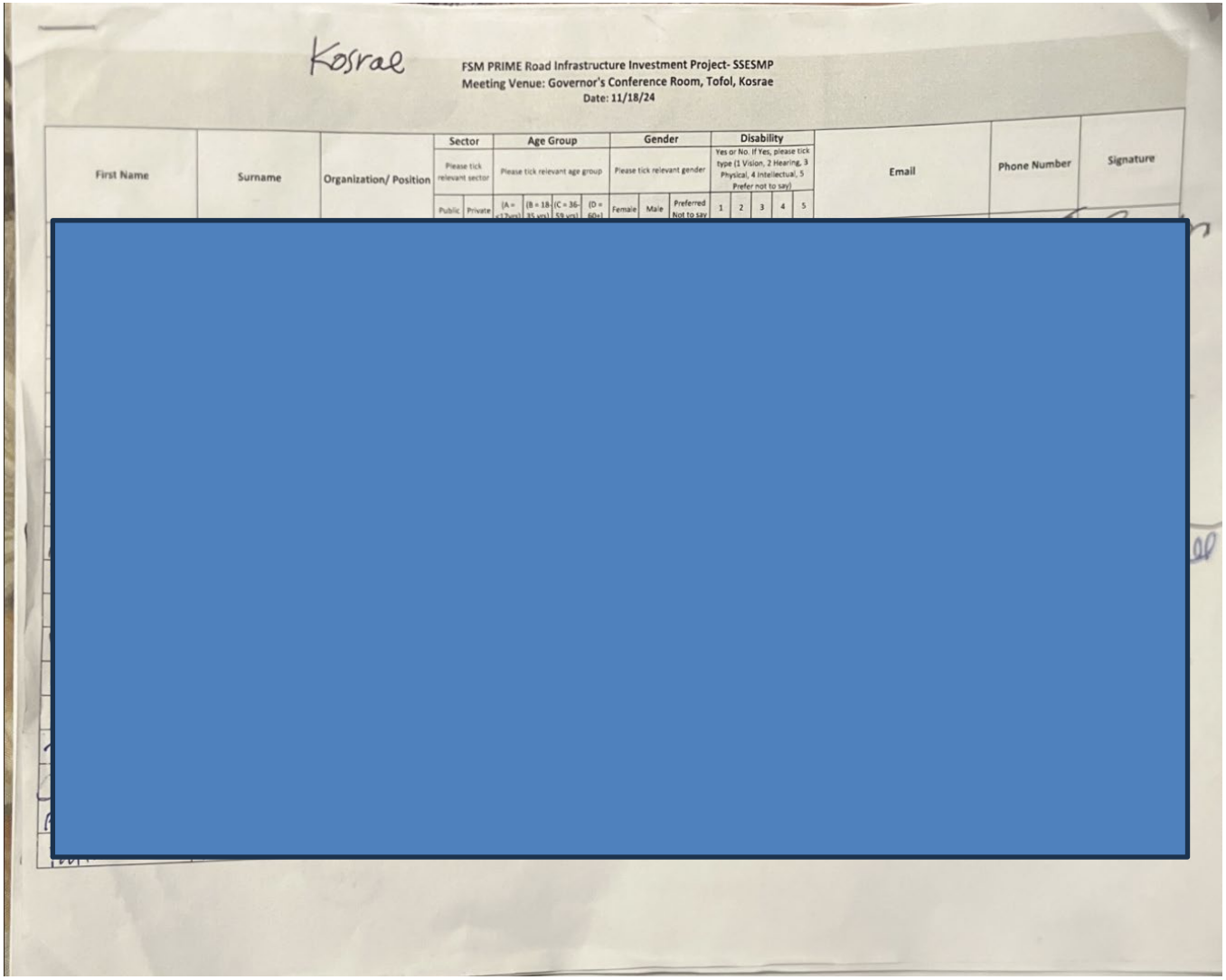
Venue: Governor's Conference Room, Tofol

Any questions and comments are welcome and can be addressed to:
Lelu Mayor's Office:
Sydney Jesse, Phone: 370 – 3037

Figure 1: Lelu Causeway Community Consultation Flyer



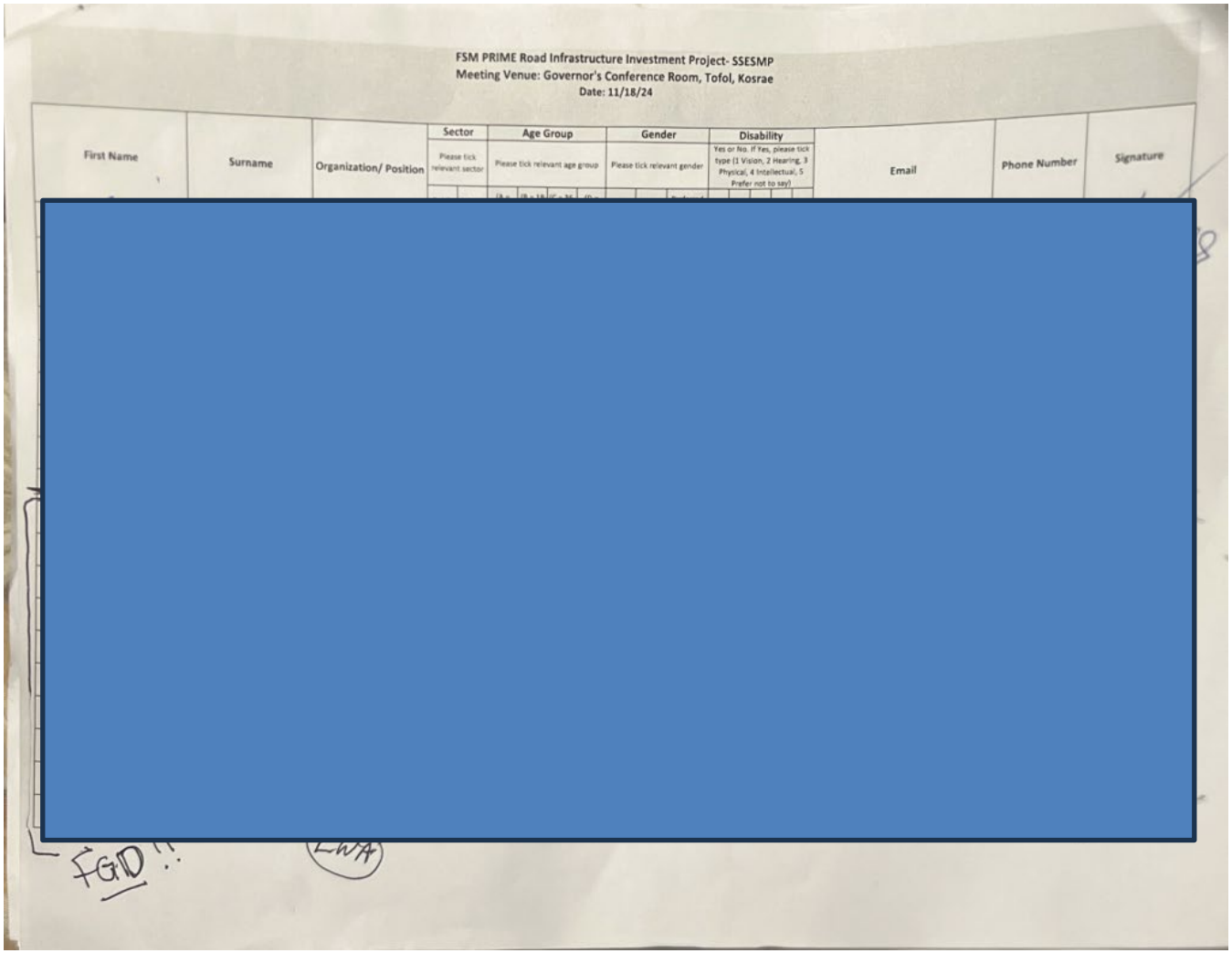
Figure 2: Lelu Causeway Community Consultation Attendance Sheets



Kosrae

FSM PRIME Road Infrastructure Investment Project- SSESMP
Meeting Venue: Governor's Conference Room, Tofol, Kosrae
Date: 11/18/24

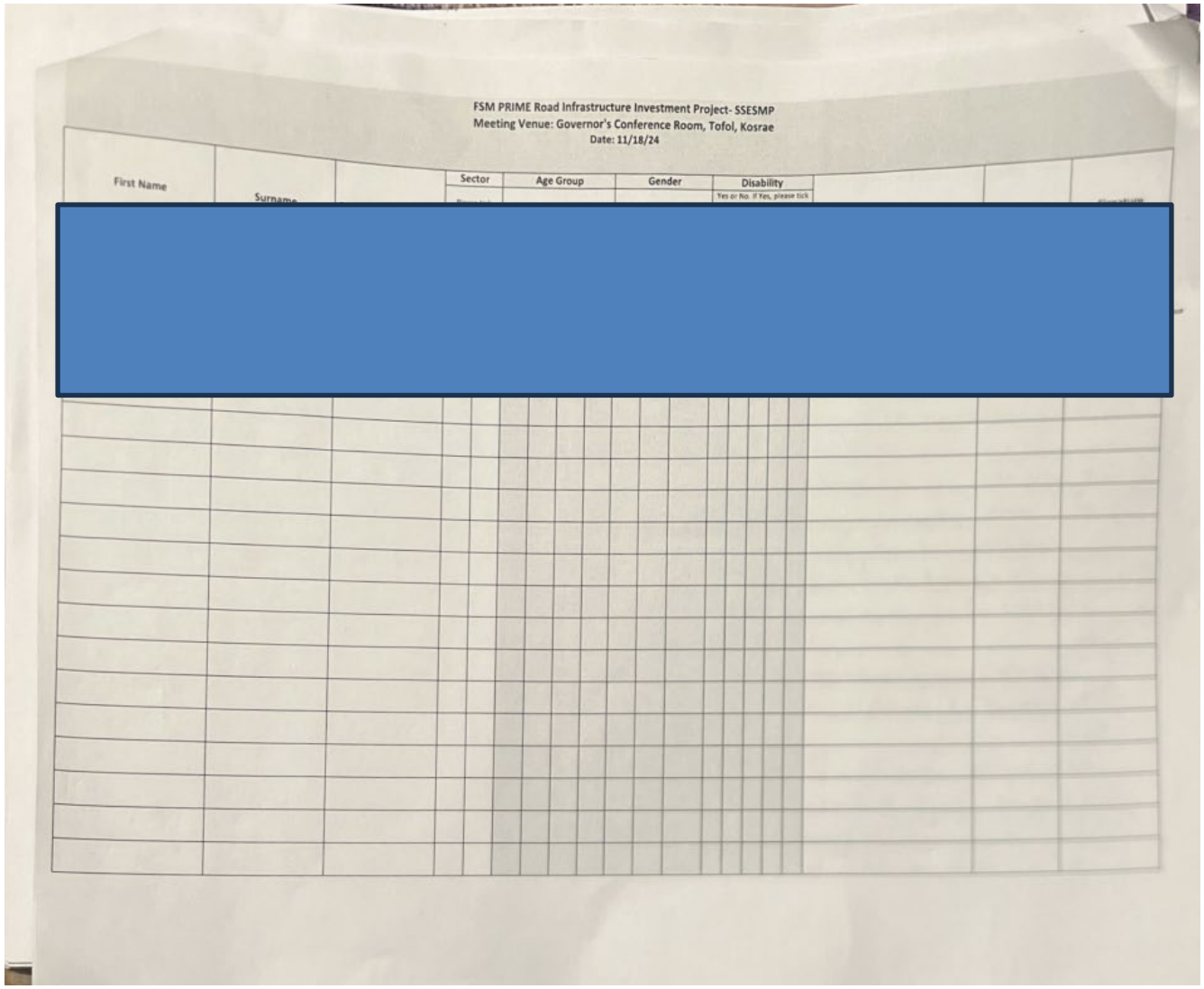
First Name	Surname	Organization/ Position	Sector		Age Group				Gender			Disability					Email	Phone Number	Signature
			Please tick relevant sector		Please tick relevant age group				Please tick relevant gender			Yes or No. If Yes, please tick type (1 Vision, 2 Hearing, 3 Physical, 4 Intellectual, 5 Prefer not to say)							
			Public	Private	[A = <12yrs]	[B = 18-35 yrs]	[C = 36-59 yrs]	[D = 60+]	Female	Male	Preferred Not to say	1	2	3	4	5			



FSM PRIME Road Infrastructure Investment Project- SSESMP
Meeting Venue: Governor's Conference Room, Tofol, Kosrae
Date: 11/18/24

First Name	Surname	Organization/ Position	Sector	Age Group	Gender	Disability	Email	Phone Number	Signature
			Please tick relevant sector	Please tick relevant age group	Please tick relevant gender	Yes or No. If Yes, please tick type (1 Vision, 2 Hearing, 3 Physical, 4 Intellectual, 5 Prefer not to say)			

FGD !!



FSM PRIME Road Infrastructure Investment Project- SSESMP
Meeting Venue: Governor's Conference Room, Tofol, Kosrae
Date: 11/18/24

First Name	Surname		Sector	Age Group	Gender	Disability (Yes or No. If Yes, please tick)		

Community Meeting and Stakeholder Perception Survey
Governor's Conference Room, Tofol, Kosrae

MEETING MINUTES

Meeting Note Taker: Olivier Wortel, National Safeguards Consultant, PCS

Date/Time: November 18, 2024, 9:30 am to 12:30 pm

Welcoming and Overview
National Safeguards Consultant Wortel opened the meeting at 9:30 am, Kosrae time, and welcomed the participants and thanked them for their time. Wortel briefly explained the purpose of the meeting: to gain community feedback and input to the impending Lelu Causeway improvement project, including any concerns and issues that exist. Mr. Wortel invited a local Deacon to give an opening prayer to bless the meeting and the food.
Deacon then delivered a prayer in the local language, and the meeting was formally started.

Introductions
Wortel started by introducing himself as the lead National Safeguards Consultant on the project, representing Palikir Consulting Services (PCS), and that the team present were well-versed in social and environmental safeguards and that such sociological and ecological factors needed to be more fully integrated into the final project design for the Lelu Causeway. Wortel then asked the International Consultants sitting at the presentation table to introduce themselves.

Beyond that, no further introductions were made and the consulting team went into the presentation.

Lelu Causeway Perception Survey Presentation
Dr. Lees thanked the community members for their time and for allowing the consulting team to provide their inputs to the subject at hand. Dr. Lees provided general background and context of the project first, and highlighted the fact that the sociological and ecological receptors of the project were of paramount importance, before launching his presentation, which was themed on the Environmental and Social Standards (ESS) lens for all aspects of the Lelu Causeway design and construction phases.
Dr. Lees noted that for design, all safeguards aspects are considered in weight, height, width and so forth to ensure that water flows are maintained or improved in this area of the island, which appeared to be a main priority from review of previous stakeholder engagement outcome documents reviewed.
Dr. Lees then discussed some of the design elements that had been reviewed and the presented some alternate designs that the consulting team had formerly proposed to FSM DTC&I and the World Bank and explained to the community group that due to the highly sensitive social and ecological receptors near the project site – namely the extremely unique giant clam aquaculture facility that were home to various highly endangered Tridacna Giga, the largest mollusk on Earth, amongst other rare giant clam species – that a design that reduced the need for a lot of heavy equipment use, as well as minimizing the level of extensive civil works for new fill materials, would be the ideal scenario.

Dr. Lees further stipulated that any construction works must not affect the highly sensitive Blue Hole along the project route, and must instead seek to assist and improve it, where previous works had collapsed some aspects of it. Likewise, any temporary removal of social or ecological infrastructures must ultimately also be replaced and improved.

Dr. Lees then stated that the output of this consultation would be the drafting and submission of an Environmental and Social Management Plan (ESMP), a document which would become part and parcel of the final designs, the tender documents, and part of the contractor's agreement, the safeguards elements of which would be binding. Dr. Lees made a point of saying that the ESMP is a

public document and that everyone would be provided a means to access it if they so wanted. Dr. Lees then discussed the portion of the presentation on grievance redress, and highlighted the existence and importance of the project Grievance Redress Mechanism (GRM). Dr. Less stated that the project contractors and supervisors should welcome complaints, and that there should never be any reason why anyone at anytime should not be able to file a complaint, with no fear of retribution. Dr. Lees highlighted further that the culturally appropriate means and system of redress to a complaint should be identified and implemented.

Ms. Rosemary Faletoese added that the GRM is an important tool and mechanism for any infrastructure project, particularly in a community as close-knit as U, and that this is a means by which any issues or complaints, including those from women and girls, should be expressed in the culturally appropriate manner. Ms. Faletoese added that the primary purpose of ESS is to ensure that no harm is done, either to the people or to the ecosystems on which they depend.

Dr. Lees closed the presentation with some of the safeguards aspects to be considered during the construction phase of the project. These included an estimate of approximately 24 months from start to finish, and the importance of building trust between contractors and the community in various ways in order to facilitate this. He said that it would be inappropriate for contractors to work at nights or on Sundays, and that if this were needed, that the contractor should seek permission from the local government officials to do so first, what he referred to as, “apologizing beforehand”.

In addition, Dr. Lees noted that it is most often a requirement for contractors to have a minimum of 30% of their workforce hired from the community itself. Dr. Lees indicated this not only builds a strong relationship between the contractor and the community, but also spreads direct economic benefits into the community from the project actions. Dr. Lees stated that the project would require monthly Corrective Action Reporting (CAR) that addresses any ESS shortfalls or omissions.

Lastly, both Dr. Lees Ms. Faletoese stated that this engagement was a final check in with the community to understand any issues, concerns or ideas so that they may be incorporated into the final project design and such would inform the ESS project implementation and construction aspects for the community.

There was a round of light, appreciative applause from all present.

There was an extended round of discussion points after the presentation:

- Governor of Kosrae, the Honorable Tulensa Palik, thanked the team for the presentation, stated that he would like to see the ESMP once finalized so that he could have his relevant staff review it. The Governor also noted some frustration with the multitude of consultations on the project with various consulting firms, and various designs presented.

The Governor also questioned the practicality of the road being raised by three feet, as presented to the State in the original design, with the inference that it seemed excessive, or unjustified, even in the realm of climate change projections. Finally, in terms of design, the Governor stated that the State would prefer a height on the Causeway be minimally raised, if anything, and conform to the current footprint as much as possible.

The Governor confirmed that the proposed alternative design of placing cast concrete over the top of the current causeway, along with some reinforcements on critical areas of erosion on either side, and with respect to the maintenance of the integrity of the Blue Hole just adjacent to the Causeway on the north end, was a satisfactory solution to the State.

- Lt. Governor of Kosrae, the Honorable Arthy Nena, asked if any changes to the design would slow the project timeline down, and reiterated the State’s desire to move the project forward expeditiously.

Lt. Governor Nena then provided an in-depth background of the project activities over the past several years in Kosraean to the community members present, including the proposed value of the project to

the state, that the State desired to ultimately have as a primary aim for the causeway to be opened up so that improved water flows from the Lelu Harbor on the western side of the Causeway could be achieved, and that the ESMP was important so that all contractors would be obligated to protect the social and environmental elements of the project.

- Acting General Manager for the Kosrae Utilities Authority, Mr. Casey Freddy, brought up some concerns around the utilities along the subproject site, both for water and power, and asked if there would be a need to move or replace them, and if so, would the project cover those costs? In addition, AGM Freddy asked if the utilities infrastructure could be climate-proofed as part of the project, namely, placed in conduit underground, and whether that would be advisable.

- Mr. Bruce Howell, head of the Kosrae Project Management Office (PMO), had a number of comments and concerns, including who would be responsible for construction supervision to ensure the mandates of the ESMP were followed and accountability, if the process for local regulatory environmental permitting would be followed based on the final design, that the State wanted to maintain the same or similar footprint of the causeway in order to minimize any social, cultural or environmental damage to surround communities, and if possible, to include some form of stairwells, or step-downs, for access to the community fishing grounds on the ocean side of the Causeway to the east.

- An Adjacent Landowner (ALO), [redacted], who lives on the southern end of the Causeway, on Lelu Island, raised a concern around potential increased water flows and degradation due to any potential design changes of the seawall along that community.

- [redacted], an Adjacent Business Owner (ABO), who runs the FSM Aquaculture Facility that spawns, raises, and exports six species of giant clams, and whose partner, [redacted], runs Dominque's Pizza, one of the most popular food takeout establishments on the island, both of which sit at the mid-point of the Causeway, was specifically concerned about a number of issues, including:

- Water quality. Would any testing be done to determine a baseline of water quality on both the Lelu Harbor and Ocean/Blue Hole sides of the causeway, noting the potential impact to the water that the Aquaculture facility pumps into its clam and coral tanks and potential negative consequences to these endangered and commercially prized species.

- ESMP. This should be made transparent and shared with all stakeholders, specifically related to the final construction design and that the environmental and social elements are paramount.

- Yen Yen Island. This is a critical ecological resource next to the Causeway and home to one of the only nesting colonies of the endemic Kosrae Flying Fox, and any construction activities or changes to water flows would need to be carefully considered and managed to avoid disruption to this cornerstone species, or the island that is their home.

- Water intake pipes. The two water intake pipes are PVC pipes and could be damaged by any heavy equipment, particularly for compacting aggregates, and mitigation measures should be a requirement for the project; any disruption to constant water that provides both aeration and temperature control would put the endangered clam species that he farms in imminent danger.

- Pedestrian footpaths. In regard to Domique's Pizza, any sidewalks would need designed to accommodate car parking on the shoulders of the road on top of the Causeway, or otherwise the project should provide alternate parking so that people can still safely access the popular establishment, while still allowing for traffic flow across the Causeway. Mr. Selch asked if a parking area to the south of the AF could be considered as part of the project, connected to a

small footpath/sidewalk to the food takeout establishment to ensure safety and smooth flow of business operations and traffic.

- Road height and parking. There needs to be consideration for the small parking area in front of the AF, particularly if the road is going to be raised, in order to ensure continued access to the facility, and to maintain normal commercial operations for loading and unloading of clams and corals and other associated materials at the site.
- The General Manager of the FSM Telecommunications (FSMTC) branch, Mr. Fores Abraham, asked about being able to run a conduit under or next to the footpath as part of the proposed project, its potential cost, and in addition, if speed bumps could be placed on certain points of the Causeway to control the speeds of traffic and improve safety.
- Director Steven Palik of the Kosrae Island Resource Management Authority (KIRMA) reiterated Kosrae State's desire to have improved water flows under the causeway in order to rehabilitate the Lelu Harbor sedimentation over the past decades and normalize water flows.
- Director of the Department of Transportation & Infrastructure (DTI) Osamu Nedlic noted the design change presented and confirmed assent with Governor Palik that it was a suitable solution for the state, particularly if it meant expeditious implementation and would yield a lower cost outcome.

There were no further questions or comments.

Survey Introduction and Facilitation (Annex A- Methodology of Perception Assessment)

Ms. Faletoese introduced the project perception survey, explained its purpose, and asked for some of the PCS support staff to hand them out for the community members present. Ms. Faletoese stated that the respondents were free to answer any questions they were comfortable to answer, and that if there were any that they found unnecessary or unusual, they could choose not to answer.
The facilitation team then assisted the completion and collection of the surveys.

Closing Remarks

NSS Wortel closed by thanking his safeguards team and other staff who supported coordination and logistics of this stakeholder meeting, including the outreach and public awareness activities, and especially the community members and government personnel present.

Governor Palik thanked the team and reiterated the State's desire to have the project move forward without delay and looked forward to supporting that effort. With that he formally closed the meeting.
End.





Appendix C: Determination of "Net Gain" Program for the Endangered Kosrae Flying Fox

Background

A section of the road and embankment works to upgrade the Leleu causeway lies adjacent to Yen Yen Island, in the Lelu Marine Protected Area. The endangered Kosrae flying fox roosts/feeds and breeds on Yen Yen Island. Noise and dust during the road and embankment works may impact the behavior and population of the flying fox.

Since baseline conditions, such as ambient noise and the scale of the roost and the behavioral patterns of the flying foxes was not fully assessed in the original site visits, a targeted pre construction study of the population and behavior of the Kosrae Flying Fox on Yen Yen will be undertaken. A noise and vibration specialist and flying Fox specialist will undertake these studies.

The effects of a 24-month construction program on the roosting and breeding behavior of the Flying Fox, are uncertain and may influence population numbers. Accordingly, it cannot be definitively stated that the impact will be negligible; a minor adverse effect remains possible, consistent with the precautionary principle.

To determine the level of works/disturbances on the Flying Fox population and behavior, data and analysis on the sightings of the flying fox over a 24-month period will be collected. The collection of this ongoing data will be compared with the 6-month pre-construction data to determine if impacts are occurring as a result of construction activities.

If monitoring identifies measurable impacts on the population or behavior of the Kosrae Flying Fox, an adaptive management strategy will be activated to mitigate these impacts throughout the construction phase.

These studies will confirm whether there has been an adverse impact or if so, confirmation of appropriate mitigation strategies to meet the ESS6 requirement of "net gain" are discussed below.

ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources require the borrower to consider the development of an offset as part of the mitigation strategy, stakeholders and qualified experts with demonstrated knowledge in offset design and implementation will be involved.

The Borrower will demonstrate the long-term technical and financial feasibility of undertaking the offset. When offsets are proposed for **residual adverse impacts on critical habitat,** the Borrower will engage one or more independent internationally recognized experts to advise as to whether the proposed offset is feasible and whether, in their professional opinion, it can be reasonably expected to result in a sustainable net gain of biodiversity values for which the critical habitat was designated.

The project's mitigation strategy will be designed:

- to **achieve net gains** of those biodiversity values for which the critical habitat was designated; and
- whereby a robust and appropriately designed, long-term biodiversity monitoring and evaluation program aimed at assessing the status of the critical habitat is integrated into the Borrower's management program.

Net Gain (Direct and Indirect Offsets) at the Causeway: A "net gain" for critical habitat, can be

achieved by direct or direct offsets. To be conservative, it is assumed" net gain" applies because of potential impacts on Kosrae's Flying Fox population and behavior at the causeway.

International Best Practice: In some jurisdictions e.g. the EPBC Act (199) In Australia indirect offsets can also be used to deliver "net gain".

Indirect offsets

- Indirect offsets are also known as other compensatory measures. These measures are activities that do not directly offset the impacts on the protected matter like direct offsets but are designed to deliver benefits for the impacted protected matter through other means. This might include funding for research to support better decision making and management.
- Other compensatory measures often include research and education programs identified as priority actions in recovery plans, threat abatement plans, conservation or listing advice, approved management plans or other relevant documents.
- For an indirect offset to be considered suitable, there must be a clear linkage to the benefit that the new research can provide for the protected matter.

To meet these criteria for "net gain", the outputs will from suitable research or education program provide an overall benefit to the protected matter i.e. the endangered Kosrae Flying Fox population, by

- Undertaking a program in a scientific manner and within a reasonable time frame;
- explaining how the research can and will be used to benefit the protected matter;
- be undertaken by a suitably qualified individual or organization; and
- apply the best and most up-to-date research standards available for protected matters.

To provide adequate data for conservation efforts aimed at achieving "net gain," studies will focus on key indicators or a subset of these such as status/abundance, feeding/roosting, exploitation levels, range connectivity, and resilience to habitat degradation for the Kosrae Flying Fox population.

Community awareness programs aimed at the conservation of the Kosrae flying fox will be undertaken in the Lelu Island communities where populations of Flying Fox are found.

These programs will be further developed after discussions with the PIU and scientific experts to confirm an approach delivering "net gain".

Proposed Study

The steps to establish whether "net gain" is required at the Causeway.

Step 1. Collect sufficient data (6 months) to confirm presence and location of roosts on Yen Yen Island baseline noise and vibration data and conclude sensitivity to the proposed work program and any new/additional mitigation required. .

a. Methodology - Flying Fox and noise monitoring specialist (local or international, with support from local NGO or university or KIRMA staff) uses scientific methodology for locating roosts and identifying flight paths around the site as per Annex 1.

b. Report - survey methodology, results, conclusions on potential impacts.

c. Publication of the study in an appropriate/reputable scientific / environmental management journal.

Step 2. If 'no/negligible impact' is confirmed, works can go ahead with the existing mitigation measures in place. Para 24 of ESS6 is not relevant to the Project. This also means no additional mitigation costs.

Step 3. If impact assessment is concluded at *minor or moderate adverse* impact, then the project will need to achieve net gain and adopt additional mitigation measures. Offsets are not proposed because net gain can be achieved through other means. Net gain may include publishing the scientific data collected in Step 1 to build the body of scientific knowledge on the species, longitudinal studies (18-24 month period) and publication to increase the body of knowledge, support for NGO or EPA advocacy, community awareness raising. (cost $88,000).

An example of a survey program to identify and examine trends in the abundance of Mariana fruit bats (Guam and the Northern Mariana Islands) fruit bats is shown in Annex A.

Survey Example - Fruit Bat Monitoring – Annex A - Survey Example - Fruit Bat Monitoring –

Overview

To monitor Fruit Bats

Objectives

- Identify and examine trends in the abundance of fruit bats

Personnel Requirements and Training

Observers conducting surveys must have the necessary skills to identify the endangered fruit bats and conduct counts at colony sites.

- The field crew of two people must have a basic knowledge of the natural history and identification of fruit bats. The team leader must be familiar with and can identify fruit bats by sight, has prior experience carrying out all three survey techniques, and has extensive knowledge of suitable fruit bat roosting and foraging habitat. The team leader must be knowledgeable of data collection methods, data management, and field reporting.
- Sufficient prior experience is defined as having conducted a minimum of 4 bat surveys of each survey technique (landscape counts for solitary bats, direct colony counts and dispersal colony counts) under the direct supervision of an experienced observer. At each of these counts, bats must have been observed.
- Training will consist of conducting 4 counts of each survey technique under the direct supervision of an experienced observer.

Methods

Frequency and timing

- To determine presence or absence of solitary fruit bats, at least five pre-dawn landscape counts are conducted within a one month period.
- Colony counts are conducted monthly at a minimum.

Observers per site

The physical characteristics of each study site (accessibility, size, and location of area) and the number of bats occupying the site determines the number of observers required to conduct a bat survey. The following guidelines are for the minimum number of observers required.

- Surveys are conducted as early as possible in the morning; hikers should start for the observation point when there is sufficient light to see. Cloudy days are also used for colony counts.

- Landscape counts for solitary bats are conducted by one or more observers. The size of the area being surveyed will dictate the number of observers required to adequately monitor.

Field Methods

Three survey techniques are utilized to assess fruit bat activity and abundance: solitary counts, colony exit counts, and colony direct counts (National Park 2009, Utzurrum *et al*. 2003). Solitary fruit bat counts are conducted to determine the presence or absence of fruit bats at a particular location (e.g. the proposed project site), as well as to evaluate flight paths, habitat use, and possibly reveal the location of a colony.

Equipment

- Binoculars
- Spotting scope and tripod
- Fruit bat data sheet
- Pencil
- Clipboard
- Cell phone
- Camera

Weather

Upon arriving at a site and before beginning the survey, observers will estimate and record percent cloud cover, precipitation, and wind speed on the Fruit Bat Count Data Form (Annex N).

- Cloud cover is the estimated percentage of sky obstructed by clouds and recorded in 25% intervals.
- Precipitation will be recorded on a numeric scale (0 – 4) increasing with level/amount of precipitation (Table 1).
- Wind speed is estimated and recorded using the Beaufort Scale (Table 2).
- Visibility is estimated as the distance (< 50 m, <100 m < 500m, ≥ 500 m) that an object can be viewed unimpeded by weather conditions (i.e. fog).

Table 1. Codes and descriptions of precipitation.

Code	Description
0	No precipitation
1	Mist or fog
2	Light drizzle
3	Light rain
4	Heavy rain

Table 2. Codes and descriptions for wind (Beaufort scale).

Code	Speed (kph)	Description
0	< 2	Calm: smoke rises vertically
1	2 - 5	Light air: smoke drifts
2	6 – 11	Slight breeze: wind felt on face, leaves rustle
3	12 – 20	Gentle breeze: leaves and small twigs in constant motion
4	21 – 32	Moderate breeze: small branches sway, loose paper rises
5	33 – 40	Fresh breeze: small trees sway, thin branches sway
6	41 - 50	Strong breeze: large branches in motion

Data sheets

- Site or colony name
- Date (mm/dd/yyyy): Write in the month (2 digits), day (2 digits) and year (4 digits). Example: 07/21/2008.
- Tree species used for roosting: Record the tree species that is being used as a roost by the fruit bat colony, if trees can be identified (assumes training in species identification is acquired by observers prior to collection of this information)
- Lunar phase: Write in the current moon phase (New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Third Quarter, and Waning Crescent). If the moon is not visible, check the US Navy website (http://aa.usno.navy.mil/data/docs/RS_OneDay.php) before going into the field. This website also provides information on sun and moon rise and set times.

Landscape counts for solitary bats

- The area should be observed from one or more vantage points with a clear and unobstructed view. Observers should be close enough to clearly see birds and animals without binoculars.
- Surveys are conducted over two-hour periods pre-dawn and dusk. Observers should be in place pre-dawn to take advantage of bat movements in low light. Surveys begin when there is sufficient pre-dawn light to see and continue for approximately 2 hours after full light. Dusk surveys should be conducted from the same location, starting 2 hours before sunset and continue until it is too dark to accurately see. The area should be scanned for movement of flying animals without binoculars
- Where possible, stations should be situated so the observer is looking up (e.g. toward a hill or ridgeline) and the survey area comprises a large amount of sky to facilitate silhouetting and better observation of fruit bats.
- When an animal in flight is seen, use binoculars to identify if bat or bird. If a bat, follow it until it flies from sight or roosts in the forest.
- Note the location of bats observed on a sketch map of the area viewed. Each bat should be noted on the map showing where first seen, flight direction, and where it was lost from sight. Mark the location for each time a bat roosts, flies into or out of the area. If several bats are using the area,

it may be difficult to determine the number of bats present. Each bat must be judged whether a new individual or if it has been seen earlier. If a bat flies into a tree to roost and a bat leaves from the same location assume it is the same bat. If a bat flies out from a very different part of a large tree, it may be a different individual. When it is not obvious whether the individuals are different, assume it is the same animal to avoid multiple counts of the same individual.

Colony direct count (All sites)

- Direct counts of roosting bats are made from a station that affords a clear view of the roosting bats. The observation point should be enough distance that the presence of people does not disturb the bats.

- Two observers are required for each count, viewing the same area and be positioned next to each other. Observers count simultaneously but independently of each other.

- As you approach a roost site, be aware of the potential disturbance that may be created by loud noises (e.g., snapping branches or rolling rocks) and sudden movements. Remain relatively quiet and well-hidden so as not to startle the bat colony into flight or otherwise agitate them.

- Once observers arrive at a roosting colony, locate the station or stations using the UTM coordinates that should have been previously downloaded onto the GPS unit.

- Once settled in at a station, the observers spend about five minutes before the count looking to the left and right of the perceived colony to assess if there is bat movement in other trees (e.g., wing-flapping behavior). Bats in other trees may not be obvious at first. Identify the spatial extent of the colony with other observers prior to counting, and perform counts within these established boundaries.

- Each observer should have a Fruit Bat Colony Count Data Form (Annex S7.b), and should fill in survey and weather information at the top of the form in the appropriate fields

- The observers should agree in advance to use the same counting method (i.e. from left to right). At least two counts should be conducted at each station by each observer (e.g., left to right, right to left). Observers will not share with the results with each other until all counts have been conducted and recorded. Repeat counts at additional locations if possible. If possible, more than one count station should be used to see the area from different vantage points.

- Results are recorded on the Fruit Bat Colony Count Data Form. Any observations about the count should be written in the “Notes” section corresponding to the station number.

- A spotting scope is used to examine the forest as it gives better accuracy than binoculars. Bats will move back into dense leaves as heat increases. Where the observation site is at a distance from the colony, heat haze can

make using a scope or binoculars impossible, early morning count times are best.

Colony dispersal count

Dispersal counts are used when bats can be silhouetted against the sky or the observation point is very close to the colony.

- Dispersal (exit or emergence) counts should be conducted the as same day as a direct count. The site for dispersal counts may be the same as for direct counts or different. Counts generally starts late in the afternoon and continues for about two hours until nightfall, or until observers can no longer see individual bats clearly.

- Observers station themselves at an observation point in clear view of the colony or flight path. A landscape feature should be used as a marker that delineates a bat leaving the area; bats are counted as they pass the marker. Animals that circle back should be noted so they are not counted twice.

- Dispersal counts depend on having a good view of the route taken by bats leaving the roost area as bats may leave in one direction or in several directions. A site evaluation is conducted prior to surveys to determine the possible flight paths used and number of observers required for the survey. Bats may not leave until dusk or after dark where there is active hunting and thermal imaging should be used to supplement dispersal count data.

Data management and Analysis

- All field data will be entered and maintained in a GIS database.

- The Pati Point colony graph will be updated after every field survey. Field data and the colony graph will be available to USFWS and GDAWR after each survey.

- An annual report summarizing the findings will be prepared.

Data sheets

- Site or colony name

- Date (mm/dd/yyyy): Write in the month (2 digits), day (2 digits) and year (4 digits). Example: 07/21/2008.

- Tree species used for roosting: Record the tree species that is being used as a roost by the fruit bat colony, if trees can be identified (assumes training in species identification is acquired by observers prior to collection of this information)

- Lunar phase: Write in the current moon phase (New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Third Quarter, and Waning Crescent). If the moon is not visible, check the US Navy website (http://aa.usno.navy.mil/data/docs/RS_OneDay.php) before going into the field. This website also provides information on sun and moon rise and set times.

Fruit Bat Count Data Sheet

Page#__of___

Colony or landscape site_____ Date____

Observer(s) ____

Tree Species Used for Roosting_____

Lunar Phase _____ Cloud Cover (%) __ Wind Speed ___ Precipitation Code ___

Temperature (□F) Start Time End Time Field QA (initials)

Station # 1	Roost Count #1 Observer #			Roost Count #2 Observer #		
	1	2	3	1	2	3
1						
2						
3						
4						
5						
6						

Station #	Notes
1	
2	
3	
4	
5	
6	

[1] The station number (1-6) refers to a point near the colony where observers perform counts. Up to three observers may perform counts at a roost station, and each person records their count number in the spaces provided. Up to six roost counts may be performed at any one station.

Dispersal Count

Colony _____ ***Date*** _____ ***Observer(s)*** _____

Lunar Phase _____ ***Cloud Cover (%)*** _____ ***Wind Speed*** _____ ***Precipitation Code*** _____

Temperature (° F) _____ ***Start Time*** _____ ***End Time*** _____ ***Field QA (initials)*** ☐

Entire Colony Count [1]	Observer #1	Observer #2	Observer #3	Total
Partial Colony Count [2]				

Notes

[1] The entire colony dispersing from a roost is counted by each observer. Record separate counts but do not average.

[2] A portion of the colony is counted by each observer. Two observers divide the sky and ground into equal sections. At the end of the count, the numbers derived by each

Annex 1: TERMS OF REFERENCE

Engagement of Qualified / Independent Biodiversity and Noise & Vibration Specialists - Support for World Bank ESS6 Compliance for PRIME Projects, Department of Transport, Communications and Infrastructure (DTC&I), Federated States of Micronesia

1. Background

The Government of the Federated States of Micronesia (FSM), through the Department of Transport, Communications and Infrastructure (DTC&I), is implementing the Prioritized Road Investment and Management Enhancements Project (PRIME) with financing from the World Bank.

The projects are subject to the World Bank Environmental and Social Framework (ESF) and must comply with:

- ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources, and
- ESS1 – Assessment and Management of Environmental and Social Risks and Impacts.

Project activities occur in areas where Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species may be present in Yap, Chuuk, Pohnpei, and Kosrae.
Previous ESMPs for PRIME have identified a limited set of priority species requiring further assessment:

- **Flying fox (IUCN EN)** species:
    - *Pteropus ualanus* (Kosrae flying fox)
    - *Pteropus molossinus* (Pohnpei flying fox)
    - *Pteropus pelagicus* (Chuuk flying fox)
    - *Pteropus pelewensis yapensis* (Yap flying fox)
- **Chuuk Monarch (IUCN EN)** – *Metabolus rugensis*
- **Pohnpei Kingfisher (IUCN VU)** – *Todiramphus reichenbachii*

These six species represent the full scope of biodiversity values relevant to this TOR. The assignment does not require assessment of additional IUCN CR/EN/VU species or broad habitat inventories.

Given the low to moderate biodiversity risk profile associated with upgrading existing roads, this TOR applies a proportionate ESS6 approach, focusing on:

- validation of existing ESMP findings,
- targeted field verification, and
- refinement of practical mitigation measures.

One site (Lelu Causeway) requires a Noise and Vibration Specialist to undertake baseline monitoring, impact identification, and mitigation development for an endangered flying fox species.

2. Purpose of the Assignment

The purpose of this assignment is to:

- Undertake species-specific, proportionate biodiversity assessments for the six identified species within the project areas of influence;
- Validate and update existing ESMP biodiversity findings; and
- Provide technical support to DTC&I for ESS6-compliant planning, screening, design, mitigation, management, and monitoring under PRIME.

At Lelu Caseway, a Noise and Vibration Specialist will conduct baseline monitoring and potential modelling to support identification and mitigation for an endangered flying fox species.

3. Scope of Services

Scope is restricted to project areas of influence for PRIME roads on the main islands of Yap, Chuuk, Pohnpei, and Kosrae.

(a) Establish a **current species-specific biodiversity baseline** for the six identified IUCN EN/VU species; validate and update existing ESMP biodiversity findings for the four flying fox species, Chuuk Monarch, and Pohnpei Kingfisher. Use rapid, defensible methods to confirm presence/absence and identify roosts or key habitat features.

(b) Determine **baseline noise and vibration** conditions at the flying fox habitat and surrounding areas, followed by ongoing monitoring during construction to inform adaptive

management strategies.

(c) Identify **critical habitat** relevant to the six species within the project areas of influence.

(d) **Hold point:** If baseline verification confirms no critical habitat at a site, **no further biodiversity studies are required**.

(e) The **primary output** is updated ESMP biodiversity sections and species-specific mitigation measures, forming part of an **adaptive management strategy**. Based upon critical habitat assessment, determine **proportionate biodiversity risks** and apply **proportionate mitigation,** aligned with the ESF mitigation hierarchy, in consultation with engineers and DTC&I for the existing roads upgrades.

Mitigation must be proportionate and developed with project engineers and DTC&I:

- **Avoid** impacts where possible
- **Minimise** unavoidable impacts
- **Restore** affected areas
- **Net gain** measures are required if critical habitat is confirmed

(f) Prepare a **Biodiversity Management Plan** for sites where significant risks or adverse impacts on biodiversity are identified for example:

- Critical habitat is affected
- Impacts cannot be fully managed within the ESMP
- Road footprint or ancillary works expand into sensitive areas

(g) Consider net gain measures where significant impacts on critical habitat are confirmed. Net gain may be achieved through publishing scientific field data to enhance the body of knowledge on the species, supporting NGO/EPA advocacy and community awareness.

4. Deliverables

1. **Inception Report**
2. **Species-Specific Baseline Verification Reports**, including noise and vibration inputs
3. **Critical Habitat Identification Notes**

4. **Hold Point Determination**
5. **Updated ESMP Biodiversity Sections**
6. **Biodiversity Management Plan** (only if ESS6 triggers require it)
7. **Final Consolidated Report**

Appendix D: Project Specific SEA/SH Prevention and Response (ESS2 & ESS4)

The Plan supports the LMP requirements and includes the following measures:

1. Code of Conduct (CoC)

- Adoption of a **Project-approved SEA/SH Code of Conduct** covering prohibited behaviours, expected conduct, sanctions, and reporting obligations.
- Mandatory **signature by all workers**, including subcontractors, before deployment.
- CoC displayed at worksites in **Kosraean and English**.

2. Induction and Refresher Training

- **SEA/SH induction training** for all workers prior to mobilisation, covering acceptable behaviour, consequences of violations, reporting channels, confidentiality, and survivor-centred principles.
- **Quarterly refresher sessions** and toolbox talks integrated into OH&S meetings.
- Attendance sheets maintained and submitted to the PIU team.

3. Worker and Community Awareness

- Community-facing awareness sessions (Kosraean language, accessible formats) explaining:
    - expected worker conduct
    - reporting options
    - confidentiality protections
    - available support services
- Distribution of simple, accessible information materials (posters, flyers, radio announcements).

4. Focal Points and Reporting Channels

- Appointment of **trained SEA/SH focal points** (one male, one female) within the Contractor's team.
- Before mobilization, the PIU will appoint a trained project-level SEA/SH focal point, and the Contractor will appoint trained female and male focal points. Their confidential contact details and a verified Kosrae-specific referral directory will be approved by the PIU, with CIU support, and shared through safe and accessible

channels. The focal points will receive, support and refer complaints; they will not investigate them.

- Establishment of **confidential reporting channels**, including:
    - phone/SMS line
    - in-person reporting to focal points
    - anonymous reporting box at site office
- Channels must be accessible to women, older persons, persons with disabilities, and youth.

5. Survivor-Centred Response

- All reports handled according to **survivor-centred principles**: safety, confidentiality, respect, non-discrimination.
- No requirement for survivors to provide evidence.
- Immediate referral to **mapped local support services**, including health, psychosocial, police, and protection services.
- PIU notified within 24 hours (non-identifying information only).

6. Referral Pathways

- Contractor to **map and maintain referral services** in Kosrae (health clinics, police, social services, NGOs).
- Display referral information at site offices and community noticeboards.

7. Sanctions and Disciplinary Measures

- Clear sanctions for SEA/SH violations, including:
    - removal from site
    - termination of employment
    - referral to authorities
- Sanctions applied consistently and documented.

8. Responsibilities

- **Contractor:** preparation and implementation of SEA/SH Plan, training, reporting channels, focal points, documentation.
- **PIU with the support of the CIU:** approval of CoC and SEA/SH Plan, oversight, verification of training, monitoring indicators, escalation of unresolved issues.
- **Supervision Consultant:** monitoring compliance, verifying attendance records, ensuring corrective actions.

9. Timing

- SEA/SH Plan and CoC submitted **before mobilisation**.
- Induction training completed **before any worker is deployed**.

- Refresher training **quarterly**.
- Community awareness **prior to works commencing** and repeated at key milestones.

10. Monitoring Indicators (Anonymized)

- Number of workers trained (induction and refresher).
- Percentage of workers who have signed the CoC.
- Number of community awareness sessions conducted.
- Number of SEA/SH focal points trained and active.
- Number of SEA/SH reports received (non-identifying).
- Time taken to respond to reports.
- Number of cases referred to services.
- Corrective actions implemented.

Appendix E: KIRMA Approval

Kosrae Island Resource Management Authority
Kosrae State Government
P.O. Box 480
Tofol, Kosrae State
Federated States of Micronesia 96944
Tel: (691) 370-3646

August 7, 2026

The Honorable Tulensa Palik
Governor
Kosrae State,
Federated States of Micronesia

Subject: FSM PRIME; Urgent Works for Kosrae Lelu Causeway,

Dear Governor Palik,

I am writing to confirm KIRMA's full support for the Causeway project as designed. We are also looking forward to receive and review the Environmental and Social Management Plan being prepared by the FSM National Government.

Sincerely,

Steve Palik,
Executive Director
Kosrae Island Resource Management Authority

Appendix F*:* SEAH Survivor-Centred Intake and Referral Pathway (FSM Context)

. Confidential Survivor-Centred Intake (FSM-specific)

- Survivors may disclose SEAH concerns through **any safe channel**, including:
    - In-person disclosure to a trained PIU or contractor focal point
    - Confidential hotline/SMS/WhatsApp (state-level numbers listed in referral directory)
    - Women's groups, church leaders, youth groups, or community health workers
    - Hospital/clinic staff (common first point of disclosure in FSM)
    - Anonymous reporting mechanisms
- Intake must occur in a **private, culturally safe environment**, recognizing FSM's close-knit communities and high risk of inadvertent disclosure.
- Staff must apply **psychological first aid**, avoid probing questions, and collect **only essential information**.
- Survivors may choose **female focal points** or **trusted community intermediaries**, reflecting cultural norms around gender and disclosure.

2. Trained SEAH Focal Points (PIU, Contractor, Supervision Consultant)

Focal Points must be trained in:

- Survivor-centred communication and trauma-informed practice
- Confidentiality in small-community contexts
- Consent-based reporting
- FSM-specific referral pathways (health, police, NGOs)
- Mandatory referral obligations
- Non-retaliation protocols
- World Bank SEAH requirements
- For SEAH: Focal Point Kosrae: 691 370-3012; Email:
- ltaulung@fsmhealth.fm
- Note: SEA/SH complaints are never entered with names or identifiable details in the general register

Focal Points **do not investigate**. Their role is **support, document, refer, and protect**.

3. Consent-Based Reporting and Information Management

- Survivor determines:
    - Whether to report
    - What information is shared

  - Whether the PIU or contractor may notify police
  - Whether to pursue legal action
- Consent may be **verbal or written** and can be withdrawn at any time.
- Information stored in **locked cabinets or encrypted digital files** accessible only to the SEAH Specialist.
- **Anonymous reports** accepted and still trigger mitigation actions.
- No identifying information is shared with the World Bank.

4. Non-Retaliation Guarantees (FSM Context)

- Zero tolerance for retaliation against survivors, witnesses, or reporters.
- Contractors must include **non-retaliation clauses** in Codes of Conduct and employment contracts.
- PIU monitors for retaliation indicators, especially in small communities where social pressure, gossip, or exclusion can occur.
- Any retaliation triggers **immediate corrective action**, including removal from site.

5. FSM Service-Provider Contacts and Referral Directory

A **Referral Directory** must be maintained and updated quarterly. Typical FSM service providers include:

Health Services

- **State Hospitals** (Yap State Hospital, Chuuk State Hospital, Pohnpei State Hospital, Kosrae State Hospital)
  - Emergency medical care
  - Sexual assault treatment
  - HIV/STI prophylaxis
  - Mental health support
- **Community Health Centres** (outer islands)
  - First point of contact for survivors in remote areas

Psychosocial Support

- **Women's Councils** (Yap Women's Association, Chuuk Women's Council, Pohnpei Women's Council, Kosrae Women's Council)
- **FSM Department of Health and Social Affairs – Social Services Unit**
- **Local counsellors and church-based support groups**

Protection Services

- **FSM National Police** and **State Police Departments**
  - Domestic violence/GBV units where available

- **Child Protection Services** (state-level social workers)
- **Safe houses** (limited availability; identify state-specific options)

Legal Assistance

- **Micronesian Legal Services Corporation (MLSC)**
- **State Attorney General Offices** (for criminal matters)

Community-Based Support

- NGOs, faith-based organisations, youth groups, and traditional leaders
- Village councils and municipal offices (important for outer islands)

Each directory entry must include: contact person, 24/7 number (if available), location, languages, confidentiality protocols, and cost (if any).

6. Disclosure Methods (FSM Context)

Survivors may disclose SEAH incidents through:

- Direct disclosure to a trained focal point
- Women's Councils or church leaders
- Health workers (common in FSM)
- Anonymous hotline/SMS
- Written or digital communication
- Third-party report (friend, colleague, community leader)

All disclosures trigger **immediate survivor support**, regardless of whether the alleged perpetrator is project-related.

7. Response and Escalation Timelines

Immediate (0–24 hours)

- Ensure survivor safety and urgent medical needs
- Provide psychological first aid
- Obtain consent for referral
- Initiate referral to state hospital or nearest clinic
- Securely document the incident
- Remove alleged perpetrator from contact with community or staff (if project-related)

Short-Term (1–7 days)

- Confirm survivor accessed services
- Implement protection measures (relocation, schedule changes, security adjustments)
- Notify PIU SEAH Specialist (non-identifying information unless consent provided)
- Contractor initiates disciplinary action if perpetrator is project-related

- Engage Women's Councils or social workers if survivor requests support

Medium-Term (1–30 days)

- Ongoing monitoring of survivor wellbeing
- Continued access to counselling and support
- Track case progress (non-investigative)
- Implement site-level corrective actions (lighting, supervision, worker training)
- Strengthen community awareness in affected areas

Escalation

- **Immediate danger** → escalate to police or protection services within **2 hours**
- **Project-related perpetrator** → removal from site within **24 hours**
- **Systemic SEAH risks** → PIU escalates to World Bank within **48 hours** (non-identifying information)

8. Core Principles

- **Safety** — physical and emotional protection
- **Confidentiality** — critical in small communities
- **Respect and dignity** — culturally sensitive engagement
- **Non-discrimination** — inclusive of all genders, ages, disabilities
- **Autonomy** — survivor controls decisions

Appendix G:ESS2 – Labor and Working Conditions

This section sets out the Contractor's obligations for labor management, working conditions, and worker protection in accordance with **ESS2**, FSM labor law, and PIU requirements. It applies to all Contractor and subcontractor personnel, including migrant workers, temporary workers, and primary-supplier workers.

1. Written Terms and Conditions of Employment

The Contractor shall provide all workers with **written employment contracts** in a language they understand, issued prior to commencement of work. Contracts shall specify:

- Job description and duties
- Duration and conditions of employment
- Wages, overtime rates, and payment frequency
- Working hours, rest periods, and leave entitlements
- Benefits and deductions
- Conditions for termination and notice
- Grievance redress mechanisms available to workers

Copies shall be retained in personnel files and made available to the PIU upon request.

2. Wages, Working Hours, and Leave

The Contractor shall comply with national labor standards and ESS2 requirements for:

- **Payment of wages** at or above the legal minimum, paid regularly and transparently
- **Prohibition of unlawful deductions**
- **Working hours** consistent with national law and industry norms
- **Overtime** paid at legally compliant rates and undertaken voluntarily
- **Rest periods**, weekly days off, and public holidays
- **Paid and unpaid leave**, including sick leave and parental leave where applicable

Payroll records shall be maintained and submitted monthly to the PIU.

3. Non-Discrimination and Equal Opportunity

The Contractor shall ensure **fair and equal treatment** of all workers, including:

- No discrimination based on gender, ethnicity, religion, disability, age, sexual orientation, or political affiliation
- Equal opportunity in recruitment, training, promotion, and remuneration
- Reasonable accommodation for workers with disabilities
- Transparent recruitment processes

Policies shall be communicated during induction and reinforced through supervision.

4. Freedom from Harassment, Abuse, and Retaliation

The Contractor shall enforce a **zero-tolerance policy** for:

- Sexual harassment
- Bullying, intimidation, or verbal abuse
- Physical punishment or coercion
- Retaliation against workers who raise concerns or use the worker GRM

Supervisors shall receive specific training on maintaining respectful workplaces.

5. Prohibition of Forced Labor and Recruitment Fees

The Contractor shall ensure:

- **No forced labor**, bonded labor, or involuntary work
- **No recruitment fees** charged to workers by the Contractor or subcontractors
- **No retention of passports, IDs, or personal documents**
- **Voluntary employment** with freedom to leave after reasonable notice

Recruitment practices shall be audited periodically.

6. Worker Accommodation Standards
Where worker accommodation is provided, the Contractor shall comply with IFC/World Bank

Worker Accommodation Guidelines, including:

- Adequate space, ventilation, lighting, and sanitation
- Safe drinking water and hygienic food preparation areas
- Gender-segregated facilities where appropriate
- Fire safety, emergency exits, and first-aid provisions
- Cleanliness and regular maintenance

Accommodation conditions shall be inspected monthly by the Contractor and PIU.

7. Worker Grievance Redress Mechanism (GRM)
The Contractor shall establish a **separate, confidential Worker GRM**, distinct from the community GRM, with:

- Multiple safe reporting channels (verbal, written, anonymous)
- Protection against retaliation
- Clear procedures for intake, investigation, resolution, and feedback
- Logging and tracking of grievances
- Monthly reporting to the PIU

Serious grievances (e.g., SEA/SH, discrimination, harassment) shall be escalated immediately to the PIU.

8. Subcontractor and Primary-Supplier Oversight
The Contractor shall ensure all subcontractors and primary suppliers comply with ESS2 by:

- Including ESS2 obligations in contracts
- Conducting pre-qualification screening for labor risks
- Monitoring subcontractor performance through inspections and interviews
- Requiring corrective actions for non-compliance
- Reporting subcontractor labor performance monthly to the PIU

Primary suppliers shall be assessed for risks of child labor, forced labor, and unsafe working conditions.

9. Record Keeping and Reporting
The Contractor shall maintain accurate labor records, including:

- Worker roster and employment contracts
- Payroll and timesheets
- Induction and training records
- GRM logs and resolutions
- OHS incidents and corrective actions
- Subcontractor labor compliance records

Records shall be available for PIU review at any time.

10. Monthly Labor Indicators
The Contractor shall submit a **Monthly Labor Report** to the PIU including:

- Total workforce numbers (by gender, type, subcontractor)
- New hires and terminations
- Hours worked and overtime
- Wages paid and deductions
- Worker GRM statistics
- Training delivered (OHS, SEA/SH, induction)
- Accommodation inspections
- Any non-compliance and corrective actions

These indicators support ongoing ESS2 monitoring and compliance

.

Appendix H: Cultural Heritage Protocol (CHP)

Purpose and Scope

This Cultural Heritage Protocol (CHP) establishes mandatory procedures for the identification, protection, and management of tangible and intangible cultural heritage potentially affected by project activities. It supplements, and in areas of known heritage supersedes, the generic Chance-Find Procedure.

The CHP applies to all Contractor and subcontractor personnel and covers all phases of work, including pre-construction, mobilisation, construction, and demobilisation.

2.Cultural Heritage Context

The project area contains sites associated with the **Alokoa family** and potentially and other culturally significant locations identified by traditional authorities **and the National Historic Preservation Office (NHPO).** These values require project-specific protection measures, culturally appropriate engagement, and strict access controls.

3. Roles and Responsibilities

- **Contractor:** Prepare, implement, and enforce the CHP; ensure all workers and subcontractors comply.
- **PIU:** Review and clear the CHP; monitor implementation.
- **NHPO:** Provide technical guidance, verification, and authorization for recommencement following any heritage-related stoppage.
- **Alokoa Family and Cultural Authorities:** Provide cultural direction, confirm exclusion zones, participate in verification, and advise on treatment of cultural materials or human remains.
- **Cultural Monitors:** Individuals designated by cultural authorities to observe works in high-risk areas.

5. Pre-Construction Requirements

4.1 Verification of Cultural Heritage Locations

Before mobilisation, the Contractor shall undertake a **joint field verification** with NHPO, the Alokoa family, and cultural authorities to confirm:

- Locations of cultural heritage sites;
- Boundaries of exclusion zones;
- Areas requiring cultural monitors;
- Activity-specific constraints (vibration, dust, access, noise).

4.2 Mapping and Documentation

The Contractor shall prepare:

- GIS-based cultural heritage maps;
- Construction drawings showing exclusion zones;
- Site plans with restricted areas and access routes;
- Photographic records of verified locations.

All documents must be cleared by the PIU and NHPO.

6. Exclusion Zones and Access Controls

5.1 Establishment of Exclusion Zones

The Contractor shall install physical barriers (fencing, flagging, signage) around all exclusion zones prior to mobilisation. Exclusion zones shall be:

- Clearly marked on all site plans;
- Communicated during induction;
- Inspected daily by the Site Supervisor.

5.2 Access Restrictions

No worker, subcontractor, or visitor may enter an exclusion zone unless authorized by NHPO and cultural authorities. Unauthorized entry constitutes a breach of contract.

6. Engagement Protocols

6.1 Consultation and Notification

The Contractor shall maintain ongoing engagement with the Alokoa family and cultural authorities, including:

- Pre-construction consultation;
- Notification prior to works in sensitive areas;
- Immediate notification of any cultural material encountered.

6.2 Cultural Monitors

Cultural monitors shall be present during:

- Excavation near known heritage;
- Vegetation clearing in sensitive areas;
- Any activity identified during verification as high-risk.

7. Construction Controls

7.1 Vibration, Dust, Noise, and Machinery Controls

The Contractor shall implement controls to prevent indirect impacts on cultural heritage, including:

- Low-vibration equipment;
- Dust suppression;
- Noise minimisation;
- Restricted machinery operation near heritage sites;
- Controlled access routes.

7.2 Worker Induction

All personnel shall receive induction covering:

- Cultural sensitivities;
- Behavioural expectations;
- Restricted areas;
- Reporting obligations;
- Stop-work procedures.

7.3 Daily Supervision

Site Supervisors shall conduct daily inspections to ensure:

- Exclusion zones remain intact;
- Workers comply with restrictions;
- Cultural monitors are present where required.
-

8. Stop-Work Procedures

8.1 Trigger Conditions

Stop-work is mandatory when:

- Cultural material is encountered;
- Human remains are discovered;
- Exclusion zones are breached;
- Cultural monitors request cessation.

8.2 Immediate Actions

Upon a stop-work trigger:

- Cease all activity within 20 m of the find;
- Secure the area;
- Notify the Site Supervisor, PIU, NHPO, and cultural authorities;
- Record the incident.

8.3 Treatment of Human Remains

If human remains are encountered:

- Stop work immediately;
- Protect the area from disturbance;
- Follow NHPO direction;
- Follow cultural authority guidance for respectful handling;
- Comply with national legal requirements.

9. Documentation and Reporting

The Contractor shall maintain:

- Daily logs of cultural heritage compliance;
- Records of cultural monitor attendance;
- Incident reports;
- Photographic documentation;
- Consultation records with the Alokoa family and cultural authorities.

All documentation shall be available for PIU and NHPO inspection.

10. Authorization to Recommence Work

Work may only recommence after:

- NHPO issues written clearance;
- Cultural authorities (including the Alokoa family) confirm cultural acceptability;
- PIU authorizes recommencement.

No verbal authorization is permitted.

11. Non-Compliance and Corrective Actions

Non-compliance with the CHP shall result in:

- Immediate corrective action;
- Re-induction of workers;
- Potential removal of personnel;
- Contractual penalties as applicable.

12. Review and Update

The CHP shall be reviewed:

- Prior to mobilisation;
- After any heritage-related incident;
- At least once every six months during construction.

Updates require PIU and NHPO approval.

Appendix I Stakeholder Consultations

Public Consultation in Colonia, Kosrae

Stakeholder Consultations

Public Consultation in Tofol, Kosrae

A Community Stakeholder Consultation took place on November 18, 2024, in the Governor's Conference Room, in Tofol, Kosrae, from 9:00 am to 12:00 pm. Flyers were posted in English and local state language (see Figure 10-1).

Figure 9-1: Lelu Causeway Community Consultation Flyer



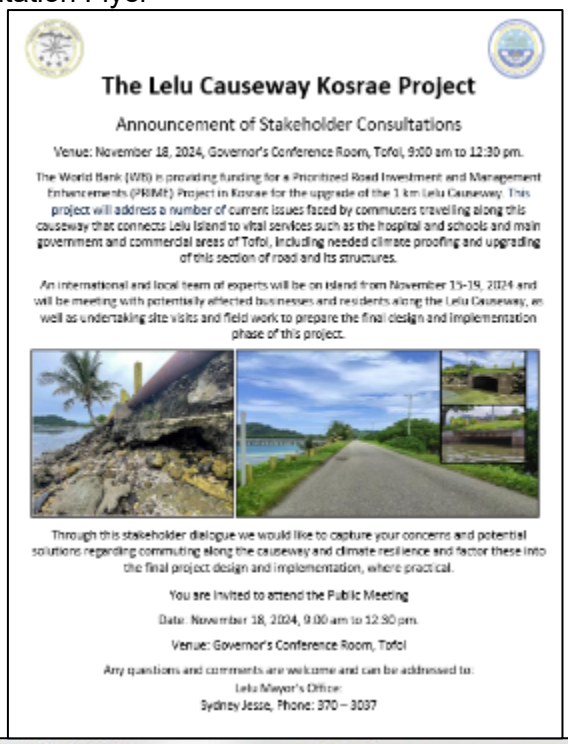
The Lelu Causeway Kosrae Project

MEETING NUH SIN MWET KOSRAE

WORLD BANK (WB) AHKFAHSRYE KASRUH LALOS KE OREKMA YOHK SE PAINGPAING PRIORTIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMNT (PRIME). WB KASRUH KE IP LUHN MANI IN NAWUH LELU CAUSEWAY. NAWEYUK INGE AC KASRUH FIYAH SE LUO MWET OREKMAKIN INEEK UH PULA KE PACL ELOS OREKMAKIN IN SOM NUH KE NIEN ONO, BANK, LUTLUT, OREKMA, NIEN KUKA, AC MWE ENENU PUKANTEN LUHN MWET UH.

AC TUFAH OASR UN MWET OREKMA LUHN WB AC FSM GOVERNMENT AC OASR FIN ACN UH KE NOVEMBER 18, 2024 AC ELOS SULI MWET NUKEWA KOSRAE IN WELULOS KE MWE AHKAHLEMYE AC KE MWE LOLNGOK LOWOS KE KASRUH LALOS NUH SIN MWET KSORAE.

TUKENI LALOS UH AC AHKFAHSRYEYUK KE CONFRENCE ROOM LAL KAFUNAH FIN ACN TOFOL.



The Lelu Causeway Kosrae Project

Announcement of Stakeholder Consultations

Venue: November 18, 2024, Governor's Conference Room, Tofol, 9:00 am to 12:30 pm.

The World Bank (WB) is providing funding for a Prioritized Road Investment and Management Enhancements (PRIME) Project in Kosrae for the upgrade of the 1 km Lelu Causeway. This project will address a number of current issues faced by commuters travelling along this causeway that connects Lelu Island to vital services such as the hospital and schools and main government and commercial areas of Tofol, including needed climate proofing and upgrading of this section of road and its structures.

An international and local team of experts will be on island from November 15-19, 2024 and will be meeting with potentially affected businesses and residents along the Lelu Causeway, as well as undertaking site visits and field work to prepare the final design and implementation phase of this project.

Through this stakeholder dialogue we would like to capture your concerns and potential solutions regarding commuting along the causeway and climate resilience and factor these into the final project design and implementation, where practical.

You are invited to attend the Public Meeting

Date: November 18, 2024, 9:00 am to 12:30 pm.

Venue: Governor's Conference Room, Tofol

Any questions and comments are welcome and can be addressed to:

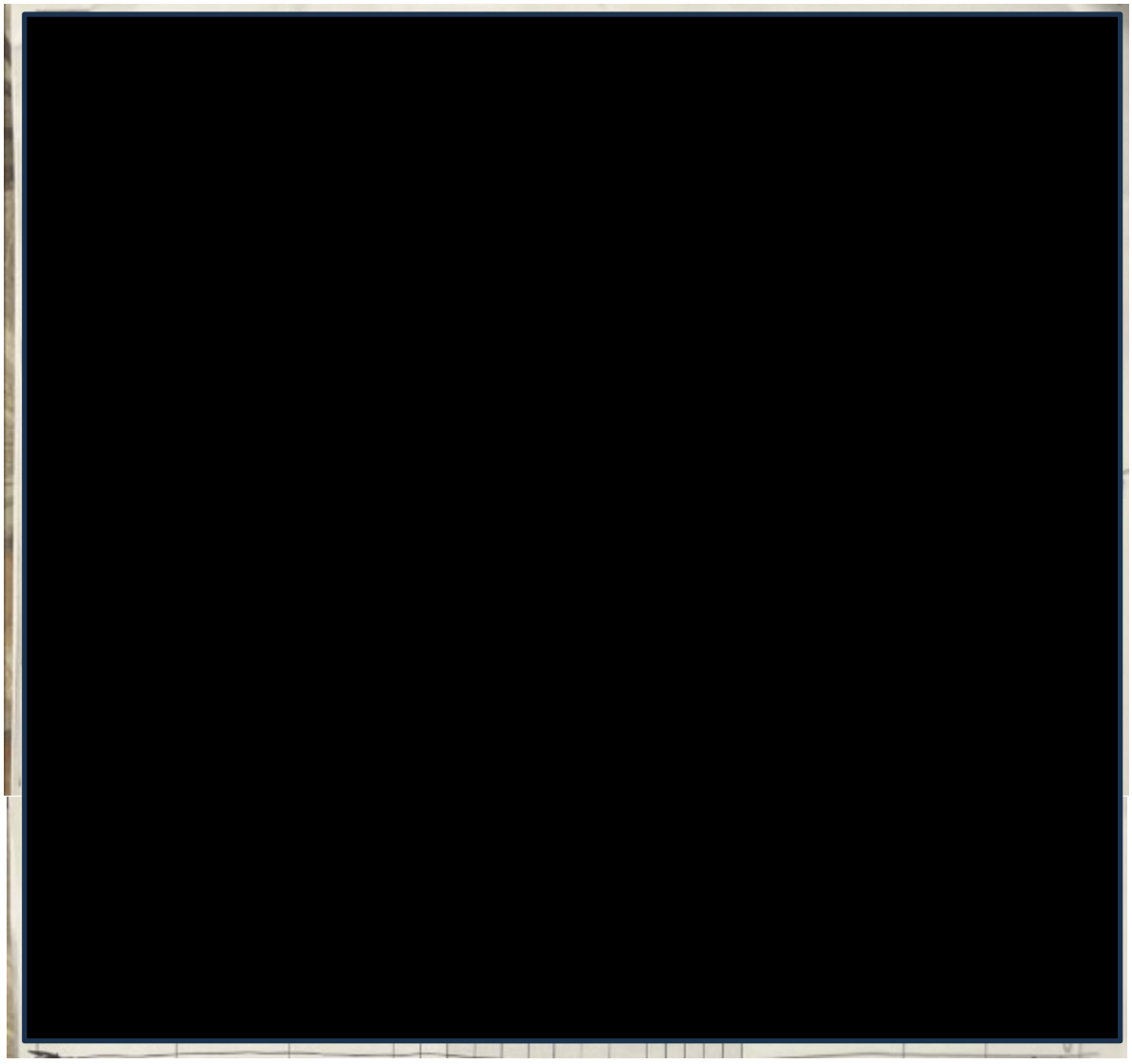
Lelu Mayor's Office:

Sydney Jesse, Phone: 370 – 3037



Participation was very good with a number of key state and municipal government representatives present, along with community representatives, as well as an Adjacent Landowner representative who attended the meeting, (see Figure 10-2 below).

Figure 9-2: Lelu Causeway Community Consultation Attendance Sheets



Community Meeting and Stakeholder Perception Survey
Governor's Conference Room, Tofol, Kosrae

MEETING MINUTES

Meeting Note Taker: Olivier Wortel, National Safeguards Consultant, PCS

Date/Time: November 18, 2024, 9:30 am to 12:30 pm

Welcoming and Overview
National Safeguards Consultant Wortel opened the meeting at 9:30 am, Kosrae time, and welcomed the participants and thanked them for their time. Wortel briefly explained the purpose of the meeting: to gain community feedback and input to the impending Lelu Causeway improvement project, including any concerns and issues that exist. Mr. Wortel invited a local Deacon to give an opening prayer to bless the meeting and the food.

Deacon then delivered a prayer in the local language, and the meeting was formally started.

Introductions

Wortel started by introducing himself as the lead National Safeguards Consultant on the project, representing Palikir Consulting Services (PCS), and that the team present were well-versed in social and environmental safeguards and that such sociological and ecological factors needed to be more fully integrated into the final project design for the Lelu Causeway. Wortel then asked the International Consultants sitting at the presentation table to introduce themselves.

Beyond that, no further introductions were made and the consulting team went into the presentation.

Lelu Causeway Perception Survey Presentation

Dr. Lees thanked the community members for their time and for allowing the consulting team to provide their inputs to the subject at hand. Dr. Lees provided general background and context of the project first, and highlighted the fact that the sociological and ecological receptors of the project were of paramount importance, before launching his presentation, which was themed on the Environmental and Social Standards (ESS) lens for all aspects of the Lelu Causeway design and construction phases.

Dr. Lees noted that for design, all safeguards aspects are considered in weight, height, width and so forth to ensure that water flows are maintained or improved in this area of the island, which appeared to be a main priority from review of previous stakeholder engagement outcome documents reviewed.

Dr. Lees then discussed some of the design elements that had been reviewed and the presented some alternate designs that the consulting team had formerly proposed to FSM DTC&I and the World Bank and explained to the community group that due to the highly sensitive social and ecological receptors near the project site – namely the extremely unique giant clam aquaculture facility that were home to various highly endangered Tridacna Giga, the largest molluscs on Earth, amongst other rare giant clam species – that a design that reduced the need for a lot of heavy equipment use, as well as minimizing the level of extensive civil works for new fill materials, would be the ideal scenario. Dr. Lees further stipulated that any construction works must not affect the highly sensitive Blue Hole along the project route, and must instead seek to assist and improve it, where previous works had collapsed some aspects of it. Likewise, any temporary removal of social or ecological infrastructures must ultimately also be replaced and improved.

Dr. Lees then stated that the output of this consultation would be the drafting and submission of an Environmental and Social Management Plan (ESMP), a document which would become part and

parcel of the final designs, the tender documents, and part of the contractor's agreement, the safeguards elements of which would be binding.

Dr. Lees made a point of saying that the ESMP is a public document and that everyone would be provided a means to access it if they so wanted.

Dr. Lees then discussed the portion of the presentation on grievance redress, and highlighted the existence and importance of the project Grievance Redress Mechanism (GRM). Dr. Less stated that the project contractors and supervisors should welcome complaints, and that there should never be any reason why anyone at any time should not be able to file a complaint, with no fear of retribution. Dr. Lees highlighted further that the culturally appropriate means and system of redress to a complaint should be identified and implemented.

Ms. Rosemary Faletoese added that the GRM is an important tool and mechanism for any infrastructure project, particularly in a community as close-knit as U, and that this is a means by which any issues or complaints, including those from women and girls, should be expressed in the culturally appropriate manner. Ms. Faletoese added that the primary purpose of ESS is to ensure that no harm is done, either to the people or to the ecosystems on which they depend.

Dr. Lees closed the presentation with some of the safeguards aspects to be considered during the construction phase of the project. These included an estimate of approximately 24 months from start to finish, and the importance of building trust between contractors and the community in various ways in order to facilitate this. He said that it would be inappropriate for contractors to work at nights or on Sundays, and that if this were needed, that the contractor should seek permission from the local government officials to do so first, what he referred to as, "apologizing beforehand".

In addition, Dr. Lees noted that it is most often a requirement for contractors to have a minimum of 30% of their workforce hired from the community itself. Dr. Lees indicated this not only builds a strong relationship between the contractor and the community, but also spreads direct economic benefits into the community from the project actions. Dr. Lees stated that the project would require monthly Corrective Action Reporting (CAR) that addresses any ESS shortfalls or omissions.

Lastly, both Dr. Lees Ms. Faletoese stated that this engagement was a final check in with the community to understand any issues, concerns or ideas so that they may be incorporated into the final project design and such would inform the ESS project implementation and construction aspects for the community.

There was a round of light, appreciative applause from all present.

There was an extended round of discussion points after the presentation:

- Governor of Kosrae, the Honorable Tulensa Palik, thanked the team for the presentation, stated that he would like to see the ESMP once finalized so that he could have his relevant staff review it. The Governor also noted some frustration with the multitude of consultations on the project with various consulting firms, and various designs presented.

The Governor also questioned the practicality of the road being raised by three ft, as presented to the State in the original design, with the inference that it seemed excessive, or unjustified, even in the realm of climate change projections. Finally, in terms of design, the Governor stated that the State would prefer a height on the Causeway be minimally raised, if anything, and conform to the current footprint as much as possible.

The Governor confirmed that the proposed alternative design of placing cast concrete over the top of the current causeway, along with some reinforcements on critical areas of erosion on either side, and with respect to the maintenance of the integrity of the Blue Hole just adjacent to the Causeway on the north end, was a satisfactory solution to the State (see Figure 10-3).

Figure 10-3: Kosrae Governor participating in the community consultation process



- Lt. Governor of Kosrae, the Honorable Arthy Nena, asked if any changes to the design would slow the project timeline down, and reiterated the State's desire to move the project forward expeditiously.

  Lt. Governor Nena then provided an in-depth background of the project activities over the past several years in Kosraean to the community members present, including the proposed value of the project to the state, that the State desired to ultimately have as a primary aim for the causeway to be opened up so that improved water flows from the Lelu Harbor on the western side of the Causeway could be achieved, and that the ESMP was important so that all contractors would be obligated to protect the social and environmental elements of the project.

- Acting General Manager for the Kosrae Utilities Authority, Mr. Casey Freddy, brought up some concerns around the utilities along the subproject site, both for water and power, and asked if there would be a need to move or replace them, and if so, would the project cover those costs? In addition, AGM Freddy asked if the utilities infrastructure could be climate-proofed as part of the project, namely, placed in conduit underground, and whether that would be advisable.

- Mr. Bruce Howell, head of the Kosrae Project Management Office (PMO), had a number of comments and concerns, including who would be responsible for construction supervision to ensure the mandates of the ESMP were followed and accountability, if the process for local regulatory environmental permitting would be followed based on the final design, that the State wanted to maintain the same or similar footprint of the causeway in order to minimize any social, cultural or environmental damage to surround communities, and if possible, to include some form of stairwells, or step-downs, for access to the community fishing grounds on the ocean side of the Causeway to the east.

- An Adjacent Landowner (ALO), Mr. Elwel Palik, who lives on the southern end of the Causeway, on Lelu Island, raised a concern around potential increased water flows and degradation due to any potential design changes of the seawall along that community (see Figure 10-4).

- Mr. Martin Selch, an Adjacent Business Owner (ABO), who runs the FSM Aquaculture Facility that spawns, raises, and exports six species of giant clams, and whose partner, Mrs. Delphia Selch, runs Dominque's Pizza, one of the most popular food takeout establishments on the island, both of which sit at the mid-point of the Causeway, was specifically concerned about a number of issues, including:
- Water quality. Would any testing be done to determine a baseline of water quality on both the Lelu Harbor and Ocean/Blue Hole sides of the causeway, noting the potential impact to the water that the Aquaculture facility pumps into its clam and coral tanks and potential negative consequences to these endangered and commercially prized species.
- ESMP. This should be made transparent and shared with all stakeholders, specifically related to the final construction design and that the environmental and social elements are paramount.
- Yen-Yen Island. This is a critical ecological resource next to the Causeway and home to one of the only nesting colonies of the endemic Kosrae Flying Fox, and any construction activities or changes to water flows would need to be carefully considered and managed to avoid disruption to this cornerstone species, or the island that is their home.
- 

Figure 10-4: Adjacent Landowner Mr. Elwel Palik participation in the consultation

- Water intake pipes. The two water intake pipes are PVC pipes and could be damaged by any heavy equipment, particularly for compacting aggregates, and mitigation measures should be a requirement for the project; any disruption to constant water that provides both aeration and temperature control would put the endangered clam species that he farms in imminent danger.
- Pedestrian footpaths. In regard to Domique's Pizza, any sidewalks would need designed to accommodate car parking on the shoulders of the road on top of the Causeway, or otherwise the project should provide alternate parking so that people can still safely access the popular establishment, while still allowing for traffic flow across the Causeway. Mr. Selch asked if a parking area to the south of the AF could be considered as part of the project, connected to a small footpath/sidewalk to the food takeout establishment to ensure safety and smooth flow of business operations and traffic.

- Road height and parking. There needs to be consideration for the small parking area in front of the AF, particularly if the road is going to be raised, in order to ensure continued access to the facility, and to maintain normal commercial operations for loading and unloading of clams and corals and other associated materials at the site.
- The General Manager of the FSM Telecommunications (FSMTC) branch, Mr. Fores Abraham, asked about being able to run a conduit under or next to the footpath as part of the proposed project, its potential cost, and in addition, if speed bumps could be placed on certain points of the Causeway to control the speeds of traffic and improve safety.
- Director Steven Palik of the Kosrae Island Resource Management Authority (KIRMA) reiterated Kosrae State's desire to have improved water flows under the causeway in order to rehabilitate the Lelu Harbor sedimentation over the past decades, and normalize water flows.
- Director of the Department of Transportation & Infrastructure (DTI) Osamu Nedlic noted the design change presented and confirmed assent with Governor Palik that it was a suitable solution for the state, particularly if it meant expeditious implementation and would yield a lower cost outcome.

There were no further questions or comments.

Survey Introduction and Facilitation (Annex A- Methodology of Perception Assessment

Ms. Faletoese introduced the project perception survey, explained its purpose, and asked for some of the PCS support staff to hand them out for the community members present. Ms. Faletoese stated that the respondents were free to answer any questions they were comfortable to answer, and that if there were any that they found unnecessary or unusual, they could choose not to answer.
The facilitation team then assisted the completion and collection of the surveys.

Closing Remarks

NSS Wortel closed by thanking his safeguards team and other staff who supported coordination and logistics of this stakeholder meeting, including the outreach and public awareness activities, and especially the community members and government personnel present.
Governor Palik thanked the team and reiterated the State's desire to have the project move forward without delay and looked forward to supporting that effort. With that he formally closed the meeting.
End.

Annex A- Methodology of Perception Assessment

The Survey Team which included National and International Consultants, and government representatives carried out the survey over two and a half weeks in November 2024.

A social research methodology was utilised to derive this baseline of the social aspects of the project. This involved gathering both quantitative and qualitative information through a focus group overview followed by survey of attendees. Focus group discussions offer an efficient way to gather local residents, collate different responses and provide a broader translation of people's concerns, perceptions and expectations. To add rigor to the process the data was strengthened through observation by the research team, as well as through public domain secondary information.

Data sources

A combination of primary and secondary data was used to develop this present baseline.

- **Secondary Information** – This included:
  - the 2010 FSM Population and Housing Census;

- 2013 HIES and Poverty Profile of FSM
- Other relevant public domain information.

- **Primary information** – Two focus groups were held in Kosrae, whereby a short presentation was provided covering the proposed project for the Causeway upgrade, followed by a survey filled by the respondents regarding their daily lives and challenges in terms of the current causeway, project expectations and any potential concerns.
- **Select KIIs** were carried out including with the owner of the Clam and Pizza business along the causeway. The Governor of Kosrae was also met and was provided with a current overview of the proposed road upgrade.

Survey

The survey was translated and presented in Kosrae dialect where necessary for the ease of the participants attending and responding. Content included:

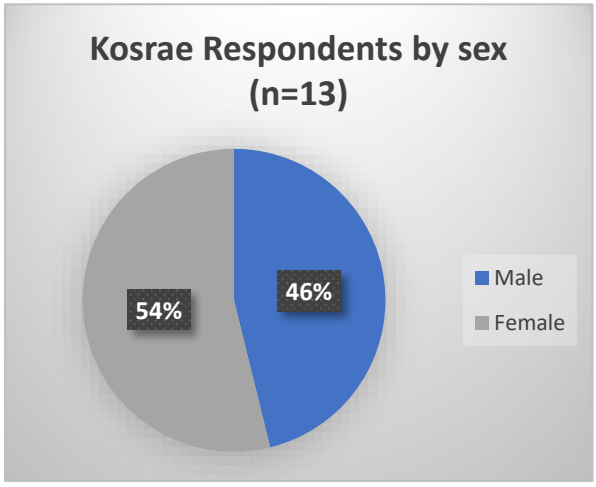
1) **Information provision** – presentation materials including Powerpoint were used to describe key aspects of the proposed project.
2) **Questionnaire** – A number of specific questions with responses formed the basis of the survey These questions applied an ordinal scale to responses whereby there was a limited number of responses available. Other questions were open to draw out succinct yet valuable nuances pertinent to the social and economic characteristics of Kosrae.
3) **Local ownership:** The consultations encouraged survey respondents and their community with an initial sense ownership of the proposed causeway upgrade – considering their concerns and inputs, such as sidewalk location, signage, safety etc.
4) **Privacy** – all respondents were informed that they did not have to answer any question that they were not comfortable with and that the survey or focus groups were not collecting personal details.

Sample size

A total of 13 local respondents were surveyed. Participants were included based on both convenience sampling and purposeful sampling. This included those respondents who lived near or along the proposed causeway upgrade and who were also available at the time of the survey.

Social demographics

A total of 6 men and 7 women were surveyed. These respondents were aged between 18 to over 65 years and lived close to and will be affected by the causeway upgrade.

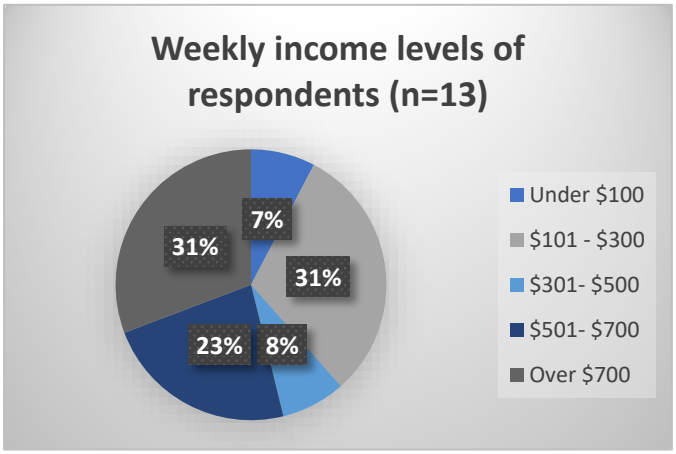


Head of households are recorded as 10 male respondents. No female HOH was recorded among the respondents.

The number of respondent household members varied significantly between 2 to 12 people.

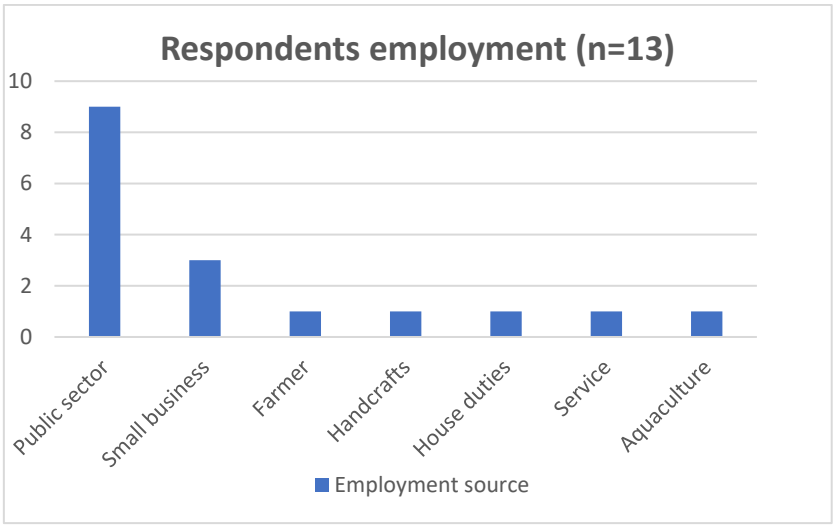
Incomes and Poverty

Respondent weekly income ranged between less than $100 for 7.5% of respondents through to 54% earning over $500 a week.



Putting this into the Kosrae context, the HIES 2013 suggest that no Kosrae household lives below the food poverty line. This pattern can also link with education levels. The respondents were largely on the upper quadrant of the income scale.

The significant number (69%) of public sector employees can offset the poverty level, particularly as a result of education levels. Over 60% of public sector workers have a tertiary level education compared to only 12.6% among workers producing for their own consumption.



Respondents worked in different roles. The aquaculture business is situated on the edge of the road and will be directly affected by the causeway upgrade in a number of ways. As indicated the public sector employment is the dominant employer in Kosrae for men and women.

Transport

The causeway is situated on government land and respondents (86%) indicated were aware of this.

A number of buses use the road to transport children to school. Children either travel on buses, in cars or walk to school.

Respondents (38.5%) indicated that they help to maintain the causeway, such as filling in potholes. All respondents indicated they were happy to continue to help maintain the upgraded causeway in terms of:

- Clearing gutters and culverts
- Mowing edges
- Keeping rubbish from roadside.

While respondents considered that the causeway upgrade will increase traffic (77%) it will also be more beneficial for travelling along (92% respondents). However, there were also a number of concerns voiced.

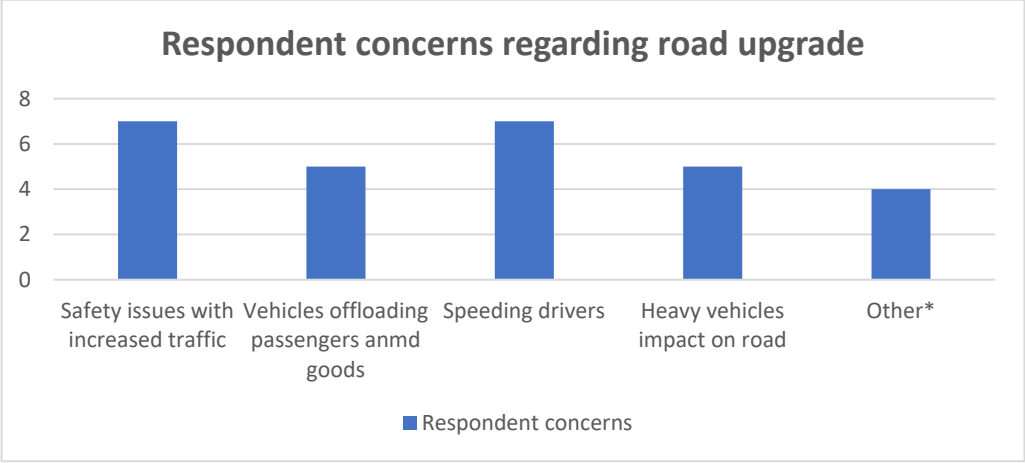
Upgraded Road related benefits

Respondents indicated a number of perceived benefits from the road upgrade, which included the following:

- Increased safety and comfort to drive on especially in terms of access during an emergency, such as climatic event or medical issue
- Decreased travel time
- Less wear and tear on cars
- Can take children to school on time
- Increase in business along the road
- More space to walk.

Upgraded road concerns

However, a number of concerns were also voiced by respondents. Safety particularly of children was noted to be the prime concern once the road is updated. This is highlighted in the following table.



**Other includes lighting, signage, parking, drainage and lacking a walkway*

Three respondents also noted cultural concerns which they defined as the following:

- Graveyards on the end of Lelu Island
- Concern that the contractor will work on Sunday.

Implementation related concerns

During the upgrade process a number of specific concerns were identified:

- Safety concerns the machinery and trucks coming in. This was the top concern among respondents with 61.5% noting safety concerns.
- Time constraints in travel
- May disrupt businesses along the road while the upgrade is being implemented

Implementation related opportunities

Local procurement opportunities - All respondents indicated that local youth would be interested in laborer roles during implementation.

Climatic Events

All respondents noted that the current causeway can flood and get blocked by debris and trees during severe weather events. Further dependent on the severity of the event and the damage done, the causeway can be blocked for various times, minor damage for shorter periods and more extensive damage for longer periods.

Only 30% of respondents indicated that there is a village disaster management plan.

The most common means to be alerted about a pending climatic emergency is through radio, mobile phones, television or internet. While the community is reliant on technology for event warnings, one respondent indicated that they also used traditional methods to alert them to climatic events.

Focus Group Discussions Community Women's Representatives, Kosrae

Participants

1. Betty Phillip – Chair of Lelu Seniors Organization
2. Yosmin Jesse – Member of Lelu Seniors Organization
3. Martha Tilfas – Community Youth Representative
4. Verna Mackwelung – Community Representative and ALO
5. Kimie Sigrah – Community Youth Representative
6. Clara Palik – Lelu Town Government
7. Nuterso Thomson – Community Resident and ALO
8. Yolanda Jesse – Lelu Town Government First Lady
9. Luumine Esau – Community Resident and ALO
10. Ione Siba – Lelu Women's Organization Member
11. Eileen Tilfas – Lelu Town Government
12. Mary Eran – Kosrae Nautilus Resort Manager
13. Isao Mike – PCS National Safeguards Specialist
14. Olivier Wortel – PCS Team Lead and FGD Facilitator

Although there were a number of female representatives present at the broader community consultation, National Team Leader Wortel asked for a separate meeting with key women representatives within the subproject communities, and others from Lelu Island who have an interest in the project, so that those voices could be heard in a comfortable and culturally appropriate forum. Following is some of the key feedback received:

- Will beautification (planting of flowers and other ornamental plants) be allowed as part of the project and will there be project-related activities for women including preparation and selling of food to contractors?
- Safety is of paramount importance, particularly for children going to and from school. Most of the participants have school children, or grandchildren, who

have to cross the street to get to school, so sidewalks, crosswalks, signage and protective railing are important features.

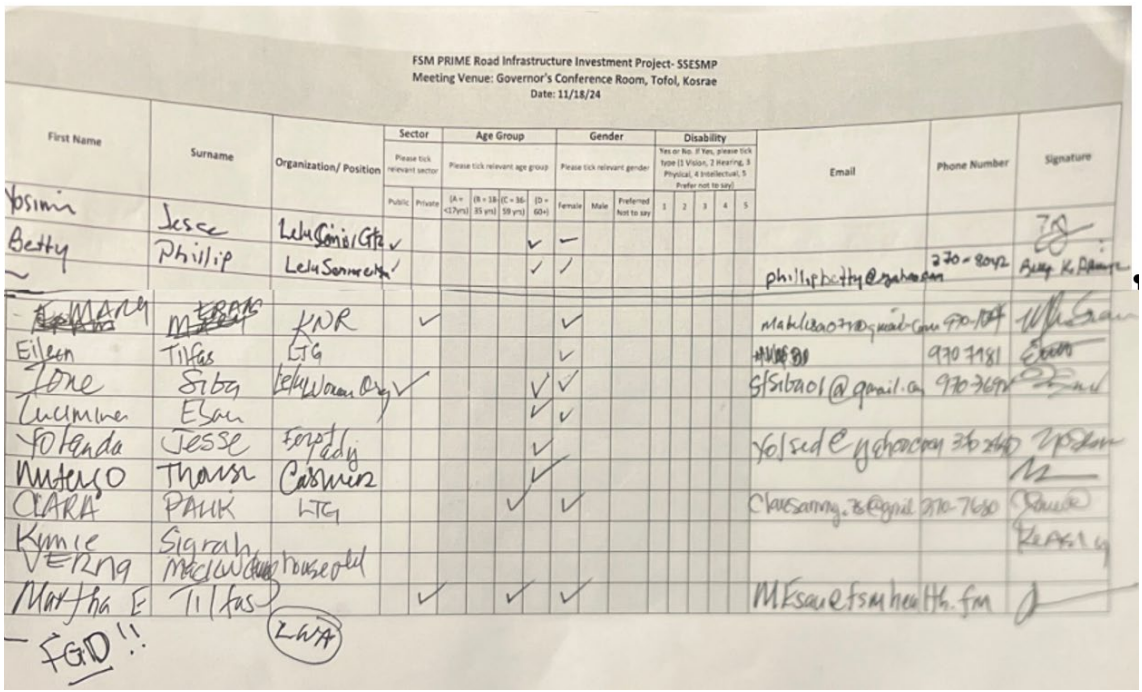
- Solar street lights should be included in the project designs.
- Will there be further awareness and consultations?
- Will there be areas set aside along the Causeway where local huts or seating areas can be erected for small businesses and womens groups?
- Water, power, lighting are all important and these should not be disrupted and should be improved wherever possible. The consideration and welfare of children should be a priority during construction and after construction.
- Will people from the local community be hired when construction starts?
- There is a Senior Citizen Center along the project route – will access be restricted and can it be improved as part of the project construction process?
- A Cultural Sensitivity Training should be mandatory for all foreign contractors and workers, so that they are aware of appropriate and inappropriate behaviors within the community, especially when it comes to interacting with girls and women in the community.
- How will traffic be managed to ensure continued flow of traffic; and will access to the Marina and other important community places be affected (which sit at a major junction along the project route).

Table 1 below addresses these issues raised by the Female participants.

At the close of the FGD session, PCS Safeguards Specialist, Isao Mike thanked the participants once again for their time and participation, that it was a meaningful and necessary part of the process, and that future engagements would be sought so that there continues to be a two-way communication with the community on the project. And with that there were no further comments or questions and the meeting was adjourned.



Lelu Causeway Women's Focus Group Discussion Attendance Sheet



FSM PRIME Road Infrastructure Investment Project- SSESMP
Meeting Venue: Governor's Conference Room, Tofol, Kosrae
Date: 11/18/24

First Name	Surname	Organization/ Position	Sector		Age Group				Gender			Disability					Email	Phone Number	Signature
			Please tick relevant sector		Please tick relevant age group				Please tick relevant gender			Yes or No. If Yes, please tick type (1 Vision, 2 Hearing, 3 Physical, 4 Intellectual, 5 Prefer not to say)							
			Public	Private	(A = <17yrs)	(B = 18-35 yrs)	(C = 36-59 yrs)	(D = 60+)	Female	Male	Prefered not to say	1	2	3	4	5			
Josima	Jesse	Lelu Comm/GTA					✓		—										
Betty	Phillip	Lelu Comm					✓		✓								phillipbetty@yahoo.com	370-8042	
[redacted]	[redacted]	KNR		✓					✓										
Eileen	Tilfas	LTG							✓										
Jone	Siba	Lelu Women Org	✓				✓		✓								s/sibaol@gmail.com	970-3691	
Lucmine	Esau						✓		✓										
Yolanda	Jesse	Forest Ranger					✓												
Nuteno	Thomas	Caswen					✓												
CIARA	PAUL	LTG						✓	✓										
Kymie	Sigrah																		
Verlyn	Mackwelung	Household																	
Martha E	Tilfas			✓				✓	✓								MEsau@fsmhealth.fm		
FGD!!		LWA																	

Key Informant Interview (KII) with Mr. Martin Selch and Mrs. Delphia Selch

On 16 November 2024, a KII and site visit to Micronesia Marketing and Management Enterprises (MMME) and Dominique's Pizza were arranged with the owners, Mr. Martin Selch and Mrs. Delphia Selch. Present for the engagement were International Social Safeguards Expert, Ms. Rosemary Faletoese, International Environment Safeguards Expert,



DR. Dave Lees with Mr. and Mrs. Martin and Delphia Selch.

Mr. Dave Lees, and National Team Leader and Safeguards Expert, Mr. Olivier Wortel. The purpose of the meeting was meant to address key concerns that had been voiced by Mr. Selch on some of the social and environmental impacts of any road works near their respective giant clam aquaculturing and pizza takeout operations.

Mr. Selch noted that he was keenly aware of the project, largely through his interactions with the design consultants for the project, ICT, and more specifically, his close relationship with the CIU Environmental Safeguards Specialist, Mr. Steven Lindsey, who is related through marriage to Mrs. Delphia Selch's older sister (his brother in-law).



Mr. Selch with Dr. Lees.

Mr. Selch had indicated a grave concern over the potential widening of culverts as part of the project design that had been presented in previous interactions with other project consultants, thereby changing the flow of water from the Lelu Harbor side (to the west of the Causeway) into the Blue Hole where his clam operations intake pipes are located (to the east of the Causeway), and potential contamination of his water supply.

In addition, Mr. Selch felt that neither previous consultants, nor various State government agencies, particularly the Kosrae Island Resource Management Authority (KIRMA – the State EPA), had not effectively taken his concerns onboard. He stated that baseline water testing and a hydrological profile should be instigated prior to any civil works. [Please see, Email from Mr. Martin Selch Regarding KII and His 'Talking Points' below].



Mr. Selch provided the team with a brief history of his work at the aquaculture facility, stating that he now has all six species of giant clams at his facility, through many years of effort and work. Of note, stated Selch, was the transport and ultimate safe-keeping and after more than five years, the spawning of the great Tridacna Gigas, the largest mollusk on planet earth, and largely extinct from most of the world's equatorial oceans. Selch has gone to great lengths to procure and transport the Giga's from Palau and has since reintroduced them in in-situ sites that are monitored in specific locations in Kosrae and has even provided a number of second-generation Giga's to the Honolulu Aquarium in Hawaii (for additional details, see, Kosrae National Aquaculture Center News Feature on the Reintroduction of the Tridacna Gigas at the end of this report).
Beyond this, and further to this concern of increased water flow,

Mr. Selch noted that the potential harm to Yen Yen Island – one of just three known endemic Kosrae Flying Fox nesting sites on Kosrae – would be disastrous to the habitat should an additional culvert be constructed in front of the island, and that great care should be taken in any new design on the causeway for this ecologically vital and highly sensitive area.



Ms. Rosemary Faletoese with Mrs. Delphia Selch.

Mrs. Delphia Selch engaged in a broad discussion with Ms. Faletoese on her new-found successful food establishment, Dominique's Pizza, which has become something of a phenomenon in Kosrae and around FSM in a very short amount of time. Dominique's Pizza creates quite a lot of business traffic around the Aquaculture Center, particularly at nights and on weekends, as the trend for families looking for quality fast food at a reasonable price is going up.

This is a solid woman-owned business in Kosrae, and employs seven (7) all-female staff, mostly from nearby Lelu Island, so it is a strong contributor to the local economy.

Mrs. Selch is proud of the success of her business and expressed some concerns for traffic management, safety of customers walking across the road and to the takeout stand, as well as the potential for some additional parking to be created on the south side of the Aquaculture Center and a sidewalk so that customers would not disrupt the flow of traffic during construction, and also feel safe. Mrs. Selch also expressed concern over the effect that the project might have on her business, both in terms of loss of revenue, as well as the opportunity to possibly provide food to on-site supervisors and contractors during construction.

Table 1 – Consultation Project Design Issues Matrix

Site: Lelu Causeway, Kosrae					
Project Design Issues					
		Problem Description	**Solution Description**	**Relevant Output document**	**Design Action**
1	Public Consultation, women's group consultation	Safety is of paramount importance, particularly for children going to and from school. Most of the participants have school age children, or grandchildren, who have to cross the street to get to school, so sidewalks, crosswalks, signage and protective railing are important features, along with accessibility features	Provision of road safety features to increase the safety of the road, particularly for crossing children	Design document and TMP	Sidewalks, crosswalks, road tables and signage introduced in accordance with AASHTO standards
2	Public Consultation, women's group consultation	Solar Lighting should be included to line the road	Provision for lighting along the road, solar lighting specified	Design document and TMP	Provision for these Works made in Drawing details

3	Public Consultation, Business Owner	Raising the roadway will result in additional flooding and create access to property issues	Final Road FRL to be increased by 1 foot instead of originally planned 3 feet	Design document and TMP	Provision under drawing details
4	Public Consultation, Business Owner	Inserting sidewalks will block access to property	Provision for shoulder lanes on seaward side for pedestrian traffic with crosswalks where necessary	Design document and TMP	Provision under drawing details
5	Public Consultation, Business Owner	Concerns over drainage improvement work disrupting the piping from the Blue Hole to the Oyster Clam setup	All cross-drainage work removed from scope	Design document and TMP	Provision under drawing details
6	Public Consultation, Landowner	Potential for increased water flows and degradation due to any potential design changes of the seawall along that causeway	The designers changed the original retaining wall design to a coastal revetment structure for this reason as it is porous and permeable, thus minimizing disruption to the current morpho dynamics of the lagoon minimizing any chances for upstream or downstream erosion	Design document and TMP	Provision under drawing details
7	Public Consultation, women's group consultation	Will there be further awareness and consultations?	There are a series of consultations as outlined in the Stakeholder Engagement plan	ESMP	Nil

8	Public Consultation, women's group consultation	How will traffic be managed to ensure continued flow of traffic; and will access to the Marina and other important community places be affected (which sit at a major junction a the project route)	One lane will always be open on the causeway during the upgrade, so that access across the causeway is ongoing. This also provides access to the businesses and recreational areas also associated with the causeway. A TRSMP written by the contractor will detail these arrangements.	Outline in this ESMP	Nil
9	Public Consultation, women's group consultation	Will beautification (planting of flowers and other ornamental plants) be allowed as part of the project and will there be project-related activities for women including preparation and selling of food to contractors?	Seling of food to contractors will be supported. Beautification will need to be discussed with the Project Manager, Major, and the contractor as works progress.		
10	Public Consultation, women's group consultation	Cultural Sensitivity Training should be mandatory for all foreign contractors and workers, so that they are aware of appropriate and inappropriate behaviors within the community, especially when it comes to interacting with girls and women in the community.	Cultural Sensitivity Training will be mandatory for all employees from off island.	Outline in this ESMP	
11	Public Consultation, women's group consultation	Will there be areas set aside along the Causeway where local huts or seating areas can be erected for small businesses and women's groups?	The causeway area is small, however seating and other supported recreational activities need to be discussed with the Project Manager, Major, and the contractor as works progress		

12	Public Consultation, women's group consultation	Will people from the local community be hired when construction starts?	Local hire will be encouraged and will need to be reviewed by the Project Manager, Major, and the contractor as works progress.	ESMP	
13	Public Consultation, women's group consultation	Water, power, lighting are all important and these should not be disrupted and should be improved wherever possible. The consideration and welfare of children should be a priority during construction and after construction.	Solar lighting will be provided along the causeway.	Design document and TMP	Provision under drawing details
14	Public Consultation, women's group consultation	There is a Senior Citizen Center along the project route – will access be restricted and can it be improved as part of the project construction process?	It is planned to not restrict access to business and the Senior Citizen's building as roadworks progress. Roadworks may improve access to this building.	ESMP	

Appendix J: An Indicative Outline For[33] Contractor's Environmental & Social Management Plan (CESMP)

1. INTRODUCTION

The Contractor shall prepare and implement this Contractor Environmental and Social Management Plan (CESMP) in accordance with:

- ESMP
- SCORE/PRIME Environmental and Social Management Framework (ESMF),
- WB ESS6 Requirements
- Environmental and Social Commitment Plan (ESCP),
- Labour Management Procedures (LMP),
- Stakeholder Engagement Plan (SEP),
- World Bank Environmental & Social Standards (ESS1–ESS10), and
- Relevant national and State laws.

This CESMP sets out the minimum ESHS (Environmental, Social, Health & Safety) requirements that the Contractor must follow during **construction only**. No works may commence until the CESMP is approved by PIU/CIU.

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2. LEGAL & POLICY REQUIREMENTS

The Contractor must comply with the following and review his scope of work if additional acts or regulations applicable to the subproject and construction site:

- FSM EIA Regulations (1989)
- FSM EPA Earthmoving Regulations (1988)
- Applicable World Bank EHS Guidelines (General Guidelines)

Where national law differs from WB requirements, the **more stringent requirement applies**.

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3. CONTRACTOR ROLES & RESPONSIBILITIES

Contractor ESHS staffing

- Implement all mitigation measures specified in this CESMP.
- Ensure subcontractors follow the same standards.
- Maintain ESHS documentation and incident logs.
- Provide weekly and monthly ESHS reports to PIU.Ensure safe working conditions and access for community members.

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4. KEY MANAGEMENT PLANS (MINIMUM REQUIREMENTS)

The Contractor must prepare the ESMP recommended sub-plans eg

[33] This is an indicative outline for CESMP provides a structured framework, ensuring logical flow and comprehensive coverage of the ESMP, ESMF, SEP, LMP etc. The outline is flexible and proportionate. The CESMP will cover all the subplans recommended by this ESMP and if additional subplans required during the CESMP preparation stage.

The Contractor must prepare **project-specific sub-plans**, each meeting the minimum content below:

4.1 Traffic and Access Management Plan

- Approved access routes
- Speed limits and signage
- Pedestrian protection
- School and community facility safety
- Driver licensing and vehicle maintenance
- Community notification procedures

4.2 Waste and Pollution Prevention Plan

- Waste segregation and storage
- Hazardous materials handling
- Spill prevention and response
- Waste transport and disposal arrangements

4.3 Erosion, Sediment and Stormwater Control Plan

- Site drainage
- Silt fencing, bunding, sediment traps
- Wet-weather protocols

4.4 Worker Management & OHS Plan (ESS2)

- Worker induction
- Written terms and conditions
- Wages, hours, leave, deductions
- Non-discrimination and equal opportunity
- Worker accommodation standards
- OHS risk assessment and controls
- PPE requirements
- Incident reporting

4.5 Worker Grievance Mechanism (Separate from Community GRM)

- Confidential reporting channels
- Anonymous reporting
- SEA/SH survivor-centred procedures
- Investigation and resolution timelines

4.6 Community Health, Safety & Engagement Plan (ESS4/ESS10)

- Dust, noise, vibration controls
- Community access restrictions
- Community GRM

- Engagement schedule

4.7 SEA/SH and VAC Prevention Plan

- Code of Conduct
- Training
- Worker behaviour rules
- Reporting pathways

4.8 Cultural Heritage and Grave Protection Plan (ESS8)

- Exclusion zones
- Cultural monitors
- Stop-work procedures
- Human remains protocol
- NHPO approval requirements

4.9 Emergency Response Plan

- Fire, medical, spill, cyclone/typhoon response
- Muster points
- Communication protocols
- Training and drills

4.10 Demobilisation and Reinstatement Plan

- Removal of temporary facilities
- Waste removal
- Land reinstatement
- Final inspections with landowners and PIU

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5. SPECIFIC MITIGATION MEASURES

5.1 Pre-Construction

- Site verification
- Cultural heritage walk-through
- Installation of exclusion zones
- Temporary site establishment
- Worker induction and CoC signing
- Traffic signage installation

a. 5.2 Mobilisation

- Delivery of materials
- Establishment of laydown areas
- Worker accommodation setup
- Emergency equipment installation

b. 5.3 Construction

- Activity-specific environmental controls
- Daily OHS supervision
- Community safety measures
- Cultural monitor attendance
- Waste management

c. 5.4 Demobilisation

- Removal of equipment, materials, and temporary structures
- Site cleaning
- Final inspections

d. 5.5 Reinstatement

- Land contouring
- Drainage reinstatement
- Vegetation restoration
- Landowner sign-off

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6. WORKER MANAGEMENT & OHS

e. Minimum Content

- Worker induction
- Written contracts
- Wages, hours, leave
- Non-discrimination
- SEA/SH and VAC training
- Worker accommodation standards
- PPE requirements
- OHS risk assessment Incident reporting and investigation
- Subcontractor labor compliance
- Worker GRM (Separate Mechanism)
- Multiple reporting channels
- Anonymous reporting
- Non-retaliation
- SEA/SH survivor-centred procedures
- Monthly reporting to PIU

Hold Points:

- Worker GRM operational before mobilization
- CoC signed by all workers

7.COMMUNITY HEALTH, SAFETY & ENGAGEMENT

- Dust, noise, vibration controls
- Public access restrictions
- Traffic safety
- Community GRM
- Community notification schedule

- Engagement with vulnerable groups
- SEA/SH and VAC safeguards

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8. EMERGENCY RESPONSE PROCEDURES
Minimum Content

- Fire, medical, spill, cyclone/typhoon response
- Roles and responsibilities
- Communication protocols
- Evacuation routes
- First-aid and medical arrangements
- Training and drills

Hold Points:

- ERP approved before mobilisation
- First emergency drill within first month

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9. MONITORING & REPORTING
Minimum Content

- Daily site inspections
- Weekly ESHS reports
- Monthly ESHS performance reports
- Monitoring indicators for each plan
- Incident reporting and corrective actions
- Subcontractor monitoring

Required Records:

- Inspection logs
- Monitoring data
- Incident reports
- GRM registers
- Training records

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10. COMPLETION & SITE REINSTATEMENT

- Demobilization plan
- Removal of temporary facilities
- Waste removal
- Land reinstatement
- Final inspections with landowners and PIU
- close-out report including all ESHS records

Hold Points:

- PIU approval of reinstatement
- Landowner sign-off

Appendix K: Worker Grievance Redress Mechanism (Worker GRM)

1. Purpose and Scope

This Worker Grievance Redress Mechanism (Worker GRM) provides a **confidential, accessible, and non-retaliatory process** for all workers—including Contractor, subcontractor, migrant, temporary, and primary-supplier workers—to raise concerns related to labor and working conditions.

It is **separate from the Community GRM** and tailored to ESS2 requirements.

2. Principles

The Worker GRM is based on the following principles:

- **Accessibility:** Multiple safe channels for raising grievances.
- **Confidentiality:** Identities protected; anonymous reporting permitted.
- **Non-retaliation:** Workers protected from any adverse action.
- **Transparency:** Clear procedures, timelines, and communication.
- **Fairness:** Impartial investigation and resolution.
- **Documentation:** Accurate record keeping and reporting to the PIU.
-

3. Types of Grievances Covered

The Worker GRM covers concerns related to:

- Terms and conditions of employment
- Wages, overtime, deductions, and working hours
- Discrimination, harassment, bullying, SEA/SH
- Occupational health and safety
- Worker accommodation conditions
- Supervisor behaviour
- Retaliation or intimidation
- Subcontractor labour practices
- Any breach of ESS2 or national labour law

Criminal matters (e.g., assault, SEA/SH) must be escalated immediately to the PIU and relevant authorities.

4. Reporting Channels

Workers may lodge grievances through any of the following channels:

- **Direct verbal report** to the Site Supervisor or HR Officer

- **Written grievance form** submitted to the Contractor's HR Officer
- **Dedicated Worker GRM phone number**
- **Worker GRM email address**
- **Anonymous drop-box** located in worker accommodation or site office
- **Cultural or gender-specific focal points**, where appropriate

All channels must be communicated during induction and displayed on noticeboards.

5. Grievance Intake and Registration

Upon receiving a grievance:

1. The HR Officer logs the grievance in the **Worker GRM Register** within 24 hours.
2. The grievance is assigned a unique case number.
3. The worker receives confirmation of receipt (unless anonymous).
4. Serious grievances (e.g., SEA/SH, violence, discrimination) are immediately escalated to the PIU.
5.

6. Assessment and Investigation

The HR Officer conducts an initial assessment within **3 working days**, determining:

- Nature of the grievance
- Required investigation steps
- Whether subcontractor involvement is required
- Whether immediate protective measures are needed

Investigations shall be:

- Impartial and evidence-based
- Conducted by trained personnel
- Completed within **10 working days**, unless complexity requires extension

Workers shall not be required to confront supervisors or alleged perpetrators.

7. Resolution and Feedback

Following investigation:

- A resolution is proposed and reviewed by the Contractor's Project Manager.
- The worker is informed of the outcome in writing (unless anonymous).
- Corrective actions are implemented promptly.
- If the worker is unsatisfied, the grievance may be escalated to the PIU.

All resolutions must be documented in the Worker GRM Register.

8. Protection Against Retaliation

The Contractor shall enforce strict non-retaliation measures:

- No dismissal, demotion, reduction in pay, or change in duties
- No intimidation, threats, or harassment
- Immediate disciplinary action for any retaliation attempt

Workers shall be informed of these protections during induction.

9. Special Procedures for SEA/SH-Related Grievances

SEA/SH grievances require **survivor-centred handling**, including:

- Immediate referral to the PIU
- Confidentiality and restricted information sharing
- No requirement for the survivor to provide detailed statements
- Access to support services where available
- Removal of alleged perpetrator from contact with workers pending investigation

10. Subcontractor and Primary-Supplier Compliance

Subcontractors and primary suppliers must:

- Adopt the same Worker GRM
- Train their workers on its use
- Report grievances monthly to the Contractor
- Cooperate fully with investigations

Non-compliance may result in suspension or termination of subcontractor agreements.

11. Record Keeping

The Contractor shall maintain a **Worker GRM Register** containing:

- Case number
- Date received
- Worker category (contractor, subcontractor, migrant, etc.)
- Nature of grievance
- Investigation steps
- Resolution and date closed
- Any corrective actions
- Any escalation to PIU

Records must be retained for the duration of the contract.

12. Monthly Reporting to PIU

The Contractor shall submit a **Monthly Worker GRM Report** including:

- Number of grievances received (by type and severity)
- Number resolved and pending

- Average resolution time
- Any SEA/SH-related grievances (reported in anonymised form)
- Subcontractor grievance statistics
- Corrective actions implemented
- Any systemic issues requiring PIU attention

13. Communication and Training

The Worker GRM shall be communicated through:

- Worker induction
- Toolbox talks
- Noticeboards in work areas and accommodation
- Subcontractor briefings

Training shall emphasise confidentiality, non-retaliation, and available reporting channels.

14. Review and Improvement

The Worker GRM shall be reviewed:

- Quarterly by the Contractor
- Annually by the PIU
- After any serious incident
- Whenever systemic issues are identified
- Updates require PIU approval.

Appendix L: Social Monitoring Checklist

1. Project Details

- **Project Name:** _____
- **Contract Package:** _____
- **Reporting Month:** _____
- **Contractor:** _____
- **Supervision Consultant:** _____
- **Completed By:** _____
- **Date:** _____

2. Consultations & Participation

Item	Details / Evidence	Responsible Party	Status	Closure Evidence
Stakeholder groups consulted (incl. vulnerable groups)				
Issues raised				
Project responses / commitments				
Outstanding actions				
Accessibility of consultation formats				

3. Vulnerable Groups

Item	Details / Evidence	Corrective Action	Status
Participation of vulnerable persons			
Barriers identified			
Actions implemented			

4. Community & Worker Grievances

Item	Number / Details	Response Time	Actions Taken	Closure Evidence
Community grievances				
Worker grievances				
SEA/SH grievances (non-identifying only)				

5. SEA/SH (Non-Identifying Indicators Only)

Item	Details / Evidence	Status
SEA/SH training delivered		
Codes of Conduct signed		
Awareness materials displayed		
SEA/SH concerns reported (non-identifying)		
Referral pathways functioning		

6. Worker Management

Item	Details / Evidence	Status	Corrective Action
Worker induction completed			
Codes of Conduct issued			
Local recruitment numbers			
Wages paid on time			
Worker GRM functioning			
Accommodation conditions (if applicable)			
Monthly accommodation inspection			

7. Temporary Land Access & Restoration

Item	Details / Evidence	Status	Closure Evidence
Temporary land access agreements signed			
Landholder permissions documented			

Restoration completed / pending			
Corrective actions required			

8. Access to Key Locations

Location	Access Maintained?	Disruptions	Corrective Actions	Evidence
Businesses	Yes / No			
Blue Hole	Yes / No			
Senior Citizen Center	Yes / No			
Emergency services	Yes / No			

9. Livelihood Disruption

Item	Details / Evidence	Mitigation	Compensation / Support	Closure Evidence
Livelihoods affected				
Mitigation measures implemented				
Compensation or support provided				

10. Cultural Heritage Protection

Item	Details / Evidence	Status	Corrective Action
Alokoa grave protection measures			
Other cultural heritage sites protected			
Monitoring undertaken			
Incidents or risks			

11. Monthly Reporting

Item	Submitted?	Verified?	Follow-Up Required	Notes
Contractor monthly report	Yes / No			
Supervision Consultant verification	Yes / No			
PIU/CIU review	Yes / No			

12. Evidence Register

Attach or reference all supporting evidence:

- Photographs
- Consultation minutes
- GRM logs
- Land access agreements
- Restoration verification
- Cultural heritage monitoring records
- Worker induction records
- Codes of Conduct
- SEA/SH training records

Evidence List:

13. Non-Compliance & Corrective Action Log

Issue	Date Identified	Risk Level	Responsible Party	Required Action	Deadline	Closure Evidence
		Low / Med / High				

Appendix M: - Initial Environmental and Social Screening – July 2021

Initial Screening PRIME Priority Site – Kosrae State, Improving the Lelu Causeway, Lelu Municipality.

The Project:

The communities living on the lagoonal island of Lelu, which possess the most populated area within Kosrae state is connected to the mainland only via a causeway. This community is vulnerable to any break in access to the causeway as there is no alternative route (Figure 1). Maintaining a climate resistant causeway and associated road network is essential to the island community and the greater community. The Lelu community reside on land either side of the exit/entry to the causeway (Figure 2).

Figure 1: Location of Kosrae island and Lelu Causeway.



Figure 2: Location of the Lelu causeway in relation to Lelu island and the mainland.



The Lelu causeways is located on eastern side of the island of Kosrae (northern end - $5^0$20'24.80"N and $163^0$01'10.26"E and southern end - $5^0$20'05.49"N and $163^0$01'18.37"E) is approximately 650 meter-long coral and basalt rock sealed causeway constructed directly onto the intertidal reef platform that dissects the intertidal reef between Lelu Island and the main island of Kosrae.

The causeway is bordered on both sides (east and west) by an extensive coastal intertidal reef flat, small volcanic islands and extensive sheltered tidal bay that possesses mangroves along its western, eastern and southern sides and an extensive intertidal reef flat which includes two natural reef "blue holes" that terminates to open ocean approximately 1km offshore.

The intertidal shoreline is in close proximity to both sides of the causeway and has been supported by a rock revetment along its entirety to manage erosion from wave and tidal water movement. The causeway itself is constructed on reclaimed reef flat and approximately halfway along the causeway, a significant parcel of land to the east has been reclaimed creating two small channels on the either side for government use (Figure 2). This includes a marine aquaculture (giant clams) production facility currently leased to the private sector, state marine resources office and buildings, a small boat marina and dock and a recreational area. In addition, an above water concrete platform has been constructed on the ocean side of the causeway at the northern end to allow access to the small natural blue hole for recreational purposes. This structure is directly attached to the causeway.

Material used to construct the causeway and reclaimed areas have been derived from dredged material associated with the intertidal reef flat and land parcels in close proximity to the site. Kosrae state government (Department of Transport and Infrastructure) have indicated that the reclaimed parcel of land directly adjacent to the causeway can be allocated to be used as a lay down and storage area for any work required on the causeway.

The causeway was constructed 50 years ago directly onto the reef flat, is very narrow, is low level, has insufficient drainage, and is suffering from erosion and scouring from tidal and wave action. It should also be noted that the causeway has had a long term significant negative

impact on the environment in this area, and improvement works should consider significant increased natural water flow dynamics – appropriately sized culverts or bridges will need to be included.

The Lelu causeway and associated entry/exit roads are located within a gazetted Kosrae state road easement, whilst all reclaimed land associated with the causeway and the intertidal reef flat and marine estuarine ecosystems either side of the causeway are owned by the state and as such falls under the management of the state. Land parcels located directly landwards of the causeway on Lelu island and the mainland outside of the road easement are privately owned.

Figure 3: Lelu causeway and surrounding environment.



The intertidal reef flat including the natural “blue holes” receives daily oceanic water tidally (diurnal) across the entire intertidal reef flat adjacent to the causeway, however due to the progressive construction of the causeway since the early 1960’s through to the late 1970’s possessing very limited water exchange outlets within the causeway, which has further decreased due to subsequent backfilling of the major causeway drainage (the land of which the aquaculture center is located on) the natural water movement across this reef flat into the Lelu harbor has been significantly reduced. Resulting in a significant decreased water flow, increased sedimentation)both sides of the causeway), changes to natural wave and water flow circulation patterns, elevated sea water temperature (data provided from the aquaculture center) and considerable decrease in water depth and quality on both sides of the causeway. This has directly negatively affected the intertidal marine ecosystem located within this area including Lelu harbor and bay (Figure 3).

All terrestrial flora and fauna located along the causeway - road easement have either been planted by the state/community or naturally grown and have established since the causeway construction and a such the causeway (terrestrial) has no significant biodiversity or resource ecological importance to the state. The causeway’s adjacent land reclamation land parcels have not been suitably elevated above high spring tides resulting in water levels less than 0.5

m below land level affecting natural rain water drainage and dispersal resulting in direct impacts on all infrastructure and drainage systems. During periods of high rainfall (frequent) and high tidal heights pooling of water occurs in several locations within the site (mosquito breeding areas).

During high levels of precipitation extensive discharge of terrigenous sediments derived from the main land entering the bay through a number of rivers and streams create large sediment plumes within the Lelu harbor and bay directly affecting water quality, clarity (high levels of suspended sediments) and dictates the substrate in and around the causeway. There are no commercial industries associated with the causeway and/or adjoining water systems, however land use clearing of land parcel for houses, subsistence and small scale commercial agriculture purposes and piggeries on Lelu island and the mainland are prevalent. Waste water discharge (household, piggeries etc) discharge into the ground and directly into the bay which have contributed to the degraded water quality and altered the natural ecosystems within this area.

Figure 4: Photos of the Lelu causeway and intertidal reef flat.





Current Design Status:

Limited information is currently available on the proposed design relating to the upgrade and/or replacement of the Lelu causeway and associated road infrastructure (e.g., entry/exit approaches, water managements, erosion control, pedestrian access, lay down areas, waste disposal, alternative traffic route etc). As such the below environmental and social safeguards screening process is limited to a general assessment of the existing causeway and road works being replaced.

As the projects design is developed and in time finalized, the resulting safeguard instruments recommended by this screening will be developed to manage and mitigate all design activities. It is however essential that all project stakeholders, including residents and land owners within the direct and indirect area of influence of the causeway are consulted throughout the design phase and resulting concerns and issues raised are incorporated into the causeway upgrade and/or replacement design.

Form 1: Initial Environmental and Social Risk Screening

Name of Works:	Improving the Lelu Causeway
Location of Works:	Lelu Municipality, Kosrae State FSM.
Description of Works:	Upgrading and/or removal of the existing causeway and replacement including improved water exchange options (bridges, extended channels) including associated enter/exit road surfaces and temporary passage.
Date of Form Completion:	July 2021.
Name/Position of Person Completing Form:	DoFA CIU Safeguard Team – International Safeguard Advisor (Mr. Lindsay) and National Safeguard Coordinator (Mr. Kilmete).
Date of Site Visit:	N/A
People consulted to date (to inform completion of form):	CIU Safeguard team.
Attached concept description Yes/No:	No. Still under development.

Activity		**Impact Screening - without mitigation**[34]					**Justification (nature, scale, duration of impact/s or sensitivity of receptors**	**Recommended Actions**
		Yes No?	**No Impact**	**Low - Minor Impacts**	**Moderate Impacts**	**High – extreme Impacts**		
1.0	**Environment**							
1.1	Any vegetation clearance or works within a forest or native terrestrial or wet lands area of biological significance?	No					All land adjacent and surrounding the causeway site is very limited are highly modified, including predominantly reclaimed land and extensively cleared for use (e.g., buildings, aquaculture facility and general community activities) resulting in significant physical ecosystem alteration/modification.	No specific action required.
1.2	Any vegetation clearance or works within a river/stream (riparian) adjacent to/or within areas of biological significance?	No					There are no rivers , streams within the direct and/or non direct impacts areas of the project.	No specific action required.
1.3	Any coastal vegetation – habitat clearance (e.g.,	Yes					Very limited vegetation associated with the causeway and entry/exit road areas,	Ensure site specific ESMP is developed

[34] Use Risk Rating tables in project ESMF to determine level of potential impact.

Activity		Impact Screening - without mitigation[34]					Justification (nature, scale, duration of impact/s or sensitivity of receptors	Recommended Actions
		Yes No?	No Impact	Low - Minor Impacts	Moderate Impacts	High – extreme Impacts		
	mangroves, shoreline, estuary) of biological significance?			✔			however small patches of mangroves are within the project area of potential impact. Shoreline flora ecosystems, habitat and associated vegetation directly associated with the causeway has been previously altered/modified resulting in minor disturbance and alteration of the nearby coastal ecosystem – includes mangrove trees. All work expected to have minor if any impact on surrounding habitat.	& mitigation measures are implemented. If mangrove seedlings/juvenile trees to be removed – replanted along adjacent coastal area.
1.4	Is the project area identified as possessing a high ecological significance, protected, managed or conservation areas.	No			✔		All land and coastal areas adjacent and surrounding the proposed causeway site have been altered and modified and as such do not have nor have they been identified as significant ecological areas nor have they been provided any state conservation/protection/management. However, the causeway itself has had significant impacts to the natural circulation patterns within the Lelu harbor and bay which has resulted in significant long term sedimentation, water flow pattern changes and degradation of offshore coral reefs, mangrove areas and the ecology of this area. As such this area needs to ensure ecosystem function are included into the project to rehabilitate past negative impacts to the environment are addressed.	Ensure site specific ESMP is developed & mitigation measures are implemented.
1.5	Any works within an identified Hazard zone (e.g., erosion, flooding, coastal inundation)?	Yes			✔		Periods of excessive rainfall accompanied by river flow restrictions have in the past resulting in low level flooding in the areas adjacent to the existing causeway and	Design mitigation methods need to be implemented to provide resilience to

Activity		Impact Screening - without mitigation[34]					Justification (nature, scale, duration of impact/s or sensitivity of receptors	Recommended Actions
		Yes No?	No Impact	Low - Minor Impacts	Moderate Impacts	High – extreme Impacts		
							shoreline inundation and loss have occurred during periods of inclement weather associated with waves and high tide periods.	these weather events.
2.0	**Socio-cultural**							
2.1	Any likely physical displacement/relocation of people.	No					The causeway upgrade/replacement will not require the removal of any buildings or land currently used for habitation or business activities.	Ensure SEP and participatory approach is undertaken to inform and gain support of land owners and community.
2.2	Any likely economic displacement (e.g., temporary or permanent land acquisition, disturbance of physical assets, crops/fruit trees etc).	Yes		✔			Possible lay down areas required during construction, alternative road connection during causeway removal and repair /replacement which may impact some trees. It is not expected any disturbance/removal of other physical assets. All dependent on final design.	Ensure site specific ESMP is developed & mitigation measures are implemented.
2.3	Any identified cultural/historic sites (e.g., graves, historic buildings etc) directly adjacent to road easement in vicinity of the works (i.e., within 50m of site) or otherwise could be affected by physical works.	No					No specific cultural/historic sites within the proposed site and as the site is all reclaimed land the possibility of a chance find during construction is extremely low if not expected. Grave yards & other cultural significant assets are located within the surrounding housing area and need to be protected, all of which are well outside the project site.	Design mitigation methods need to be implemented to provide protection of these sites/assets – chance find procedures need to be implemented as required.
2.4	Any potential access restriction to sensitive receptors / essential services	Yes		✔			Access to essential services can be maintained throughout the construction phase resulting in limited if any impact to users.	Design mitigation methods need to be implemented to provide access to all

Activity		Impact Screening - without mitigation[34]					Justification (nature, scale, duration of impact/s or sensitivity of receptors	Recommended Actions
		Yes No?	No Impact	Low - Minor Impacts	Moderate Impacts	High – extreme Impacts		
	(e.g., hospital, school, church etc).						Causeway road access needs to remain open throughout project life cycle to ensure the community living on Lelu island and the mainland access is available.	users during project, for local residents and general public using the causeway.
2.5	Risk to community health & safety from the proposed works (i.e., communities in close proximity to work site) or construction workforce (e.g., imported/migrant labor related risks)?	Yes		✔			The Lelu community resides in all areas either side of the causeway and use the causeway to commute daily for all services (work, schools, food, church etc), and as such impacts from the scope of works and work force are possible.	Ensure site specific ESMP is developed & mitigation measures are implemented to address these issues. In addition, the projects LMP and SEP are to be implemented.
2.6	Is there a risk of UXOs being present in the works footprint?	Yes		✔			The footprint of the works will be within the exiting road easement and adjacent reclaimed areas (e.g., lay down area) and intertidal lagoon sea floor and as such these areas have been previously utilized and as such the chance of a UXO is extremely rare. However, the area associated with the causeway received extensive bombing during the second world war and as such may be present.	ESMP provides process and protocols to be implemented in the rare chance that an UXO is discovered.

PRIME Safeguard Screening FORM 2: Environmental and Social Risk Screening

Name of Works:	Improving the Lelu Causeway
Location of Works:	Lelu Municipality, Kosrae State FSM.
Description of Works:	Upgrading and/or removal of the existing causeway and replacement including improved water exchange options (bridges, extended

	channels) including associated enter/exit road surfaces and temporary passage.
Date of Form Completion:	July 7 2021.
Name/Position of Person Completing Form:	DoFA CIU Safeguard Team – International Safeguard Advisor (Mr. Lindsay) and National Safeguard Coordinator (Mr. Kilmete).
Date of Site Visit:	N/A
People consulted to date (to inform completion of form):	CIU Safeguard team.
Attached concept description Yes/No:	No. Still under development.

Form 2a: Environmental Risk Screening

Potential Impact		Potential Impacts (without mitigation actions)				Description
		No Impact	Low Impact	Moderate Impact	High Impact	
1.0	**Physical**					
1.1	Dust / noise / vibration impacts on sensitive receptors (e.g., residential communities, businesses, essential services etc).		✔			All three impacts are expected during the construction phase, however they will be limited to standard working times, stakeholder awareness and understanding will be required and all activities will require mitigation to limit excess and as such expected impacts are low. Limited impact on neigbouring buildings due to distance away for site. Site specific instrument need to ensure mitigation actions are identified.
1.2	Generation and discharge of solid and liquid waste (e.g., spoil, roading material, refuse, domestic waste/ wastewater, hazardous substances etc).			✔		Wastes will be a by-product of the projects construction phase. All waste materials are to be recycled and reused within the project and/or disposed of at a locally permitted waste disposal site. Depending on the final design – there is the potential for significant road – causeway (predominately rock) waste material if existing design is replaced with bridge sections. All hazardous waste to be managed to international standards. Site specific instruments need to ensure mitigation actions are identified.
1.3	Erosion and sedimentation risk as a result of works (e.g., stream bank, slope, coastal			✔		During construction these impacts will be elevated and need considerable management especially due to tidal

	margin, channel modification and hydrology etc).					movement, wave action and high rainfall. Site specific instruments need to ensure mitigation actions are identified.
1.4	Works within an identified hazard zone (e.g., erosion, flooding, coastal inundation zones).		✔			Periods of storm activity resulting in increased wave action (tidally impacted) and rainfall have in the past resulting in waves crossing the causeway and low level flooding in the areas adjacent to the existing causeway (reclaimed areas). Site specific instruments need to ensure mitigation actions are identified and these need to feed into the projects design to provide resilience to these weather events.
1.5	Is construction material required for the design (e.g., rock/ aggregate/ asphalt/ cement) able to be sourced locally from a licensed facility (e.g., quarry)	Unknown				Local quarries for road and concrete material are located on Kosrae. Engineering assessments will need to be undertaken on the quality and quantity of the material before a decision is undertaken to use local or imported material. In all cases, the site specific instruments will need to be developed to assess the environmental and social implications and provide mitigation and management measure requirements.
1.6	Could an alternative design be explored to decrease / avoid physical environmental impacts.	✔				All alternative designs will be assessed as “standard engineering practice” during the design phase of the project, which will include stakeholder input and costs implications. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.
2.0	**Ecological**					
2.1	Removal of terrestrial vegetation and/or habitat (incl. riparian vegetation), Including;					
	a. Native/natural vegetation.		✔			Very minor removal is expected associated with the removal and replacement of the causeway associated with the foreshore (either side of the causeway).
	b. Invasive/exotic vegetation (e.g., weeds).		✔			Very minor removal is expected associated with the removal and replacement of the causeway associated with the foreshore (either side of the causeway).

						Possible low level increase once temporary alternative road passage location has been agreed (land or seaward side of existing bridge).
	c. Privately owned trees/crops/ gardens.	✔				None expected to be disturbed, however this needs to be monitored and actions taken if the situation arises. Project safeguards instruments to be followed for all potential removal/relocation/compensation.
2.2	Potential impacts on freshwater (riparian) ecosystems, including;					
	a. Direct disturbance of freshwater habitat (e.g., works foot print within water course).	✔				There is no freshwater habitats/ecosystems associated with the project. Therefore no impacts.
	b. Indirect disturbance of freshwater habitat (e.g., from sedimentation, water quality pollutions etc).	✔				Very limited potential increase in sediment load and siltation resulting from physical disturbance due to scope of works that may impact neigbouring estuarine and river systems, however the river systems are well outside of the project expected indirect impacts.
	c. Risk of barriers to fish passage.	✔				None expected – as long as water exchange under the causeway remains during the construction period. It is noted that if bridges are to be included in the replacement project increased water flows will be a significant positive increase in resource exchange between the reef flat and bay. Design work needs to ensure this happens.
2.3	Works within or potential disturbance of coastal foreshore and coastal marine areas.			✔		Works will be required to remove/upgrade existing causeway structural components that are directly associated with the intertidal reef flat to upgrade the road and provide foreshore to ensure protection of the asset. Limited physical disturbance is anticipated outside the existing causeway footprint. However if additional causeway/bridge/road structural support is required potential impacts will increase this needs to be monitored and site specific ESMP needs to provide mitigation measures.

						Sea grass beds and mangrove forest are located within the indirect area of impact, whilst shallow water intertidal coral reef habitat are located outside of the indirect area however may be impacted (e.g. increased sedimentation) by the construction phase of the project. Site specific instruments need to be developed to ensure mitigation actions are identified and these need to feed into the projects design to provide important ecosystems.
2.4	Could an alternative design be explored to decrease / avoid physical environmental impacts.		✔			All alternative designs will be assessed as "standard engineering practice" during the design phase of the project which will include stakeholder input and costs implications. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.

Form 2b: Social & Resettlement Risk Screening

Potential Impact		Potential Impacts (without mitigation actions)				Description
		No Impact	Low Impact	Moderate Impact	High Impact	
1.0	**Land**					
1.1	Impacts on land outside of the road easement?		✔			Very minor impact expected for the repair/replacement of the causeway and associated road works. Improvement works to driveways, secondary road parking areas may be undertaken. Possibly limited impacts on land associated with lay down area (adjacent to the causeway – reclaimed land) and quarry areas – which would be permitted. All would be temporary and no permanent loss.
1.2	Estimate extent of land loss outside of road easement?	Unknown				Unknown at this time – expected to be very minor if any.
1.3	Estimate number of private landowners are affected?	Low Number				Private landowners are associated with the entry/exit to the causeway. Less than 3.

1.4	Is the ownership status and current usage of land to be acquired known?	Yes				Yes, all state government land and/or road easement.
1.5	Easement paperwork available and obtainable?	Yes				Yes, state land department and Lelu municipality.
1.6	If additional land outside of the road easement is required how is this land to be provided.		✔			There is no expected land requirements outside of the road easement and/or adjacent reclaimed land owned by the state. May change and is directly dependent on the final design. All land if required will require consultation through participatory approach – process is defined in project safeguard instruments and needs to be incorporated into project specific ESMP etc. First priority of land is to use government owned and all private land is to be provided Voluntarily. Confirmation of land requirements to be developed during design phase.
1.7	Could an alternative design be explored to decrease/avoid land loss	✔				All alternative designs will be assessed as "standard engineering practice" during the design phase of the project which will include stakeholder input, land requirements and usage and costs implications. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.
2.0	**Assets**					
2.1	Are there likely to be loss of physical assets and/or crops/productive trees due to works footprint or associated facilities?	✔				It is not expected that any disturbance/removal of physical assets within the road easement will be required. It is anticipated that there may be very low level loss of government/private assets on land directly adjacent to the works or in laydown areas – however this would be very minor (e.g., a food tree) or driveway which are to be reinstated through discussion with landowners. Reduction, preventative and/or replacement (improved) measures limiting asset impacts need to be considered during the development of the scope of works. An additional assessment will need to be undertaken to confirm once the final design is complete.
2.2	Estimate number of asset owners (landowners) affected?	✔				Unknown at this time but would be expected to be limited to very low numbers. It is expected to be State

						government and several land owners predominately on Lelu island itself (causeway exit/entry points).
2.3	What type of assets are affected (directly and/or indirectly).		✔			Unknown at the present time, however it would be expected to include state utilities; power (poles), water (underground pipe lines) and telecommunication (cables) connections and productive and perennial trees and driveways. The private leased aquaculture center access their water from the blue hole across the intertidal reef flat – all changes to the causeway needs to discuss and factor in their water requirements.
2.4	Could the assets be relocated or repaired.		✔			All assets impacted will either be relocated or replaced and will require direct land owner involvement in all actions undertaken. Discussion need to be undertaken early in the project design to ensure utilities are included.
2.5	Could an alternative design be explored to decrease/avoid asset loss?		✔			All alternative designs will be assessed as “standard engineering practice” during the design phase of the project which will include stakeholder input, land/asset requirements and usage and costs implications. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.
3.0	**Livelihoods**					
3.1	Will the works have any impact on people’s livelihoods (e.g., economic displacement)?	✔				It is not expected that people living adjacent to (possible the aquaculture center directly next to the causeway), in the surrounding area and general population of the island will have their livelihoods impacts, if the causeway road remains in use during the works. The influx of workers may have a direct positive impact on the small business in the area supplying basic groceries and food items and possible casual work.
3.2	Estimate number of people/households with livelihoods affected.	✔				As above. It is expected that there will be no livelihoods directly affected by the project.
3.3	What kind of livelihoods are likely to be impacted?	✔				N/A
3.4	Could an alternative design be explored to decrease/avoid livelihood impacts?					All alternative designs will be assessed as “standard engineering practice” during the design phase of the

			✔			project which will include stakeholder input and discussions on potential impacts to livelihoods – of neighboring communities and the general public during construction. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.
4.0	**Access Restrictions**					
4.1	Are there likely to be access restrictions?		✔			Yes. Health and safety requirements are paramount during the construction phase for all workers, residence/business in the area and wider community. Restricted access to work areas are expected – these will need to be clearly marked and protection barriers/signs erected as required.
4.2	What kind of access restrictions are expected?		✔			Access restrictions are expected to include; • Pedestrian access. • Road access, including secondary roads. • Driveways – residential/commercial.
4.3	Is there an alternative means of access required (e.g., temporary diversion or water crossing etc)?			✔		Yes. Traffic utilizing the causeway needs to remain open to allow vehicles and pedestrians access. As such an alternative temporary crossing needs to be factored into the design.
4.4	Could an alternative design be explored to decrease access restriction impacts?		✔			All alternative designs will be assessed as “standard engineering practice” during the design phase of the project which will include stakeholder input and discussions on potential access restrictions. Safety will be a priority of all workers and users and as such measures will need to be in place to manage this risk. Final design once approved will be assess by the safeguards team and instruments developed to ensure impacts are minimal and mitigation measures included.
5.0	**Other Social Impacts**					
5.1	Impacts on Sensitive receptors in close proximity to the works (e.g., residential communities, businesses, places of workshop, essential services).		✔			Access to essential services can be maintained throughout the construction phase resulting in limited if any impact to users. Causeway - road access needs to remain open throughout the project life cycle to ensure

						access is available. Design mitigation methods need to be implemented to provide access to all users during project, for local residents and general public using the causeway.
5.2	Disproportionate Impacts on vulnerable groups or road users.	✔				No specific impacts are expected for any specific group/s and/or road/ pedestrian users. All impacts are expected to be minor and will be the same for all. Consideration for safe pedestrian access to and across the new bridge should be incorporated into the design.
5.3	Risk to community health and safety from proposed works (i.e., communities in close proximity to work site/s, schools).		✔			The Lelu island community resides only in the exit/entry locations accessing the causeway and as such all reside outside the projects direct area of impact and as such health and safety impacts from the scope of works and work force are possible, albeit very low. Aquaculture staff (whom do reside at this location), government staff (marine resources, marina) and Lelu Senior Citizens Building who are on site during the day may be impacted by the project and need to consult during project design and development. Site specific ESMP is to be developed & mitigation measures are implemented to address these issues/concerns. Access to the causeway for vehicles and pedestrians needs to be discussed and a clear protocol developed and implemented during all work stages of the project to ensure safety. In addition, the projects LMP and SEP are to be implemented.
5.4	Risk posed to the community from construction workforce (e.g., imported/migrant labor related risks).		✔			The Lelu community resides in the area of the causeway and as such impacts from the construction work force are possible. Site specific ESMP is to be developed & mitigation measures are implemented to address these issues/concerns. In addition, the projects LMP and SEP are to be implemented.
5.5	Risk of UXOs in work footprint, and resultant risk to workers health and safety.		✔			The footprint of the works will be within the existing causeway and road easement and adjacent land areas (e.g., lay down area) and as such these areas have been previously utilized and as such the chance of a UXO is extremely rare.

PRIME Safeguard Screening FORM 3: Environmental and Social Assessment and Management Plan Requirements

Name of Works:	Improving the Lelu Causeway
Location of Works:	Lelu Municipality, Kosrae State FSM.
Description of Works:	Upgrading and/or removal of the existing causeway and replacement including improved water exchange options (bridges, extended channels) including associated enter/exit road surfaces and temporary passage.
Date of Form Completion:	July 2021.
Name/Position of Person Completing Form:	DoFA CIU Safeguard Team – International Safeguard Advisor (Mr. Lindsay) and National Safeguard Coordinator (Mr. Kilmete).

	Potential Impact	Assessment		Documents Required
		Yes	No	
1.1	Does the Generic ESMP adequately address the potential environmental and social risks identified in Form 1 and 2 for the specific project detailed?		✔	A site specific Environmental and Social Management Plan (ESMP) is to be prepared for this project and scope of works.
1.2	Is the site in an area, or could potentially impact an area of ecological significant (terrestrial, riparian, coastal or marine), species or habitats, protected, managed or conservation area, or customary/heritage area?		✔	The project is expected to have no impacts to any environmental significant ecological habitats, species or ecosystems nor are there any protected/conservation areas and/or customary/heritage sites located in close proximity of the projects scope of works. However, minor impacts are expected to the intertidal reef flat in the area directly associated with the repair/removal of the infrastructure associated with the existing causeway and the construction of the new infrastructure (bridge, causeway), all of which will be within the road easement. Nevertheless, expected impacts from the scope of works based on the final design including specific mitigation measures are to be developed and incorporated into the site specific ESMP to be prepared.
1.3	Do the works involve land loss outside of the road easement corridor, asset loss, or loss of income sources or impact livelihoods?		✔	It is anticipated that no involuntary resettlement impacts are required and as such a site specific Land Access Due Diligence Report (LADDR) is required to be prepared.

				The development of this report needs to be based on and in line with the PRIME Resettlement Framework (RF) instrument and undertaken during the detailed design to inform the design consultant of conformation that all activities do not include involuntary resettlement.
1.4	Will the land and/or assets be required via Voluntary Land Donation (VLD)?	✔		All land used by the project is to be provided voluntarily and as such a Voluntary Land Donation (VLD) report is required to be prepared. The development of this report needs to be based on and in line with the PRIME Resettlement Framework (RF) instrument and undertaken during the detailed design to inform the design consultant of conformation that land will be provided voluntarily. Consideration during the documents development based on the site specific project requirements may require compensation or restoration measure for non-land losses, if this is the case a project Abbreviated Resettlement Action plan (ARAP) should be included.
1.5	Will the land and/or asset loss, or livelihood impacts require financial compensation, as per entitlement matrix in the Resettlement Framework?		✔	It is anticipated that the project will not require financial compensation payments for the scope of work, however this determination is to be based on the final design once available. It is noted that during the design phase, the project is to explore all avenues to ensure the design does not require payment for land/assets. In the event that payment for land or non-land asset is required, and the projects existing Resettlement Framework entitlement matrix is triggered a project Resettlement Plan will be required.

PRIME Safeguard Screening FORM 4: Agreed Environmental and Social Document Requirements

Name of Works:	Improving the Lelu Causeway
Location of Works:	Lelu Municipality, Kosrae State FSM.
Description of Works:	Upgrading and/or removal of the existing causeway and replacement including improved water exchange options (bridges, extended channels) including associated enter/exit road surfaces and temporary passage.
Date of Form Completion:	July 2021.
Name/Position of Person Completing Form:	DoFA CIU Safeguard Team – International Safeguard Advisor (Mr. Lindsay) and National Safeguard Coordinator (Mr. Kilmete).

Environmental Safeguard Requirements:

As per the PRIME Environmental and Social Management Framework (ESMF) the following safeguard documents are to be prepared and implemented for the above project scope of works.

- **Site Specific Environmental and Social Management Plan (ESMP).** The development of this instrument is to use the existing PRIME safeguard instruments (ESMF and generic ESMP) as background and guiding documents.

Social Safeguards Requirements:

As per the PRIME Resettlement Framework (RF) the following safeguard documents are to be prepared and implemented for the above project scope of works.

- **Land Access Due Diligence Report (LADD**). The development of this report needs to be based on and in line with the PRIME Resettlement Framework (RF) instrument and undertaken during the detailed design to inform the design consultant of conformation that all activities do not include involuntary resettlement.
- **Voluntary Land Donation Report (VLD).** The development of this report needs to be based on and in line with the PRIME Resettlement Framework (RF) instrument and undertaken during the detailed design to inform the design consultant of conformation that land will be provided voluntarily.
- **Resettlement Plan (RP).** Required only if the projects existing Resettlement Framework entitlement matrix is triggered.