

Environmental and Social Management Plan

PRIORITIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMENTS (PRIME) PROJECT

Federated States of Micronesia - Chuuk State

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) **Airport to Pou Bay Bridge Road Improvement Project** **Chuuk**

Prepared by



With Funding from



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ABBREVIATIONS

ABS	Areas of Biological Significance
AP	Affected Person
CESMP	Construction Environmental and Social Management Plan
CPUC	Chuuk Public Utility Corporation
CHSMP	Community Health and Safety Management Plan
CSCP	Communication Strategy, Consultation and Participation Plan
DDR	Due Diligence Report
DoFA	Department of Finance and Administration
DTC&I	Department of Transportation, Communications, and Infrastructure
EEZ	Exclusive Economic Zone
ESMP	Environmental and Social Management Plan
ESCP	Environmental and Social Commitment Plan
EHSM	Environmental, Health and Safety Manager
E&SCP	Erosion and Sediment Control Plan
EMR	Environmental Monitoring Report
ENSO	El Nino Southern Oscillation
EPA	Environmental Protection Agency
ESHS	Environmental, Social, Health and Safety
ESS	Environmental Safeguard Specialist
ESF	Environmental and Social Framework
ESHG	Environment, Health, and Safety Guidelines (of World Bank Group)
FGD	Focus Group Discussions
FSM	Federated States of Micronesia
FSMEPA	Federated States of Micronesia Environmental Protection Act (2014)
GBV	Gender Based Violence
GFP	Grievance Focal Person
GIS	Geographic Information Systems
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HIV/AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
HPO	Heritage Protection Office
IA	Implementing Agency
ICT	International Consultants and Technocrats
IUCN	International Union for Conservation of Nature
KII	Key informant interviews
LHS	Left Hand Side
OSH	Occupational Safety and Health Act
PAN Act	Chuuk State Protected Areas Network Act 2017
PCS	Palikir Consulting Services
PIU	Project Management Unit
PRIME	The Prioritized Road Investment and Management Enhancements
PSC	Project Steering Committee
RCP	Representative Concentration Pathways
RHS	Right Hand Side.
ROW	right of way
SEAH	Sexual Exploitation, Abuse and Harassment
SECP	Soil and Erosion Control Plan
SIDS	Small Island Development States
STI	Sexually transmitted infection

TRSMF	Traffic and Road Safety Management Plan
TOR	Terms of Reference
VAC	Violence Against Children
WB	World Bank
WHO	World Health Organization
WMP	Waste Management Plan
USA	United States of America

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

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 requested the World Bank (WB) for financing of 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 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 PRIME Project is included within the WB's Pacific Climate Resilient Transport Program (PC RTP) series of projects and will make significant investments in a range of climate-resilient infrastructure. Project activities will primarily take place within existing primary road corridors, or immediately adjacent to the road to improve erosion protection, drainage or safety features.

Rationale. Chuuk is one of the four states of FSM located approximately 980 kilometers (610 miles) southeast of Guam and 680 kilometers (424 miles) west of the FSM capital of Pohnpei. It consists of 19 'high' islands located inside a lagoon called Truk Lagoon 10 atolls, and 225 'low' coralline islands, of which many are located outside the lagoon. The existing roads in Chuuk are in poor condition with potholes and large sections of paved roads returned to a gravel standard, including the proposed project – Airport to Pou Bridge Road. This project is designed to rehabilitate and reconstruct 1.73 miles (2.5 km) of the Airport to Pou Bridge Road, integrating climate-resilient features and enhancing road safety.

Institutional arrangements. The Department of Finance and Administration (DoFA) will be the executing agency (EA) for the project with the Department of Transportation, Communication, and Infrastructure (DTC&I) as the implementing agency (IA). A Project Management Unit (PIU) established within the DTC&I will be responsible for the overall coordination, results monitoring, and reporting to the WB on the progress of project implementation. The PIU consists of international and national consultants including environmental experts. These resources will be responsible for monitoring compliance with the ESMP, WB's and national legislation.

Environmental and Social Risk Management Due Diligence: The Airport to Pou Bay Bridge Road Improvement Project Chuuk is a 'moderate' risk project under the WB Environmental and Social Framework 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.

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 World Bank requirements.

This ESMP, focusing on upgrade works for the Airport to Pou Bridge Road addresses mitigation, monitoring, responsibilities and institutional capacity for the project.

The Scope of works (SOW) includes resealing and raising 1.5 miles of roadway by 300-600 mm to reduce flooding, armoring of the embankments to reduce coastal erosion, culvert/drainage enhancements to reduce roadway flooding and to improve water quality discharge to the marine environment and additional pedestrian safety improvements.

The majority of potential adverse impacts will occur during the construction phase. Screening of the proposed upgrades has identified impacts, are discussed in detail in the ESMP. The key potential impacts that will require mitigation include:

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

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 during the construction phases of this project.

Climate change. This project is prioritizing climate-proofing of the Airport to Pou Bridge recognizing the critical role of the road's connectivity to services for the people of Chuuk. These threats are:

- (i) Increase sea water inundation;
- (ii) Increase in tropical typhoon 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 natural foreshore and shallow water marine areas have been significantly modified and disturbed by numerous levels of development, including extensive shoreline reclamation and associated infrastructure developments, resulting in a high degree of conversion, alteration and degradation. These modified habitats as per ESS 6¹, are areas where human activity has substantially modified an area's primary ecological functions and species composition. Small areas of mangrove and seagrass still present at the northeastern end of the roadworks and in a small adjacent area of Pou Bay may be considered in the project area of influence.

Terrestrial assessment: The vegetation associated with the project area of influence has been highly modified by urban development and bears little resemblance to the original natural vegetation and terrestrial ecosystem. These modified habitats as per ESS 6, are areas where human activity has substantially modified an area's primary ecological functions and species composition. Significant settlements are located along the narrow coastal land strip, where the land is relatively flat. Urban developments are confined to the coastal zones because of land ownership issues.

The Endangered Chuuk Flying Fox (*Pteropus pelagicus*²) was recorded in vegetation on the western side of Pou Bay. Bats at Chuuk Lagoon are at least partially colonial. Current roost sizes on Weno are unknown, but it is unlikely that any continue to hold as many as a thousand animals.

The potential roosting habitat of the Chuuk Flying Fox either in the neighboring mangroves or forest around Pou Bay is unlikely to be disturbed by road noise, vibration and dust as the works

¹ Environmental & Social Framework for IPF Operations - ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

² This species is an Endangered per IUCN red list and is restricted to the islands of Chuuk Lagoon and Namonuito Atoll in FSM.

will be localized; within 150 ft of the roadway as a result of the effects of attenuation by residential housing and vegetation and the distance between roadworks and the potential habitat. Many species of *Pteropus* readily forage in agroforest; so access to this habitat adjacent to roadworks during the nighttime continues to be favorable (Buden et al. 2013³). The endangered Chuuk Monarch bird (*Metabolus rugensis*) was also reported in the project area and is unlikely to be disturbed by road noise, vibration and dust, similar to the Chuuk Flying Fox.

Impacts on the marine receiving waters by sediment runoff during construction will also be minimal as detailed erosion and sediment control plans will be implemented by the contractor and maintained throughout the construction period. Embankment repair works adjacent to the Pou Bay ABS will be temporary and small scale over a 24-month period, with detailed erosion and sediment controls in place to reduce soil loss. There will be minimal impact on critical habitat e.g. seagrass and corals in Pou Bay.

Protected Areas: Pou Bay supports significant biodiversity, including coral reefs, seagrass beds, and mangrove forests. Given its ecological importance, Pou Bay has been identified as an Area of Biological Significance (ABS) under FSM's environmental and conservation policies. Appropriate controls, e.g. design features where the majority of road runoff will be treated and discharged to the ocean side during construction and operation (with different strategies for treatment), dust control during the construction phase will be in place during both so that there will be minor or negligible impact on Pou Bay environs.

Environmental and Social Monitoring Plan. The PIU within the DTC&I will be responsible for the implementation and monitoring of the environmental and social management plan (ESMP) and the CIU will assist DTC&I with inspection, monitoring, reporting, and initiating any required corrective actions or measures. An environmental and social management and monitoring plan (ESMMP) has been included in this ESMP to cover the civil works components of road upgrades/repairs. This ESMP meets FSM's Environmental Impact Assessment (EIA) Regulations.

To ensure that contractors comply with ESMP provisions, the PIU has prepared and provided the specification clauses for incorporation into the bidding procedures including: (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 PIU and contractors will each nominate qualified EHS staff to undertake environmental, social, health and safety management activities and ensure effective ESMP implementation.

Information, disclosure, consultation, and participation. The proposed project specific information, its anticipated environmental and social impacts were discussed with the general community and other key stakeholders. The ESMP will be made available for review by interested stakeholders and Chuuk Environmental Protection Agency according to the provisions of the World Bank (WB) ESS10. The stakeholder consultation process disseminated information to the public, project-affected communities, and key stakeholders⁴.

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. Should grievances arise from technical advisory, design,

³ Wiles, G. (2020). "*Pteropus pelagicus*". IUCN Red List of Threatened Species. 2020 e.T85043053A22081930. doi:10.2305/IUCN.UK.2020-2.RLTS.T85043053A22081930.en.

⁴ The ESS10 defines the stakeholders are (i) affected or likely to be affected by the project (project-affected parties); and (ii) may have an interest in the project (other interested parties)

institutional strengthening, construction or operation impacts from activities associated with the project, to comply with the ESS10, a grievance redress mechanism (GRM) has been established for the PRIME and SCORE projects (in the projects combined SEP) 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 Chuuk 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. Additionally, the PRIME and SCORE projects will be managed by the projects specific Grievance Mechanism (GM) which includes a gender-based violence (GBV)/ sexual exploitation and abuse (SEA)/ sexual harassment (SH) reporting and referral pathway as well as standard project grievance pathway. The PIU continuously updates grievance information (grievance records, grievance database, agreements, meeting registers).

Monitoring and Reporting: Monthly Environmental, Social, Health and Safety (ESHS) report within the Construction Report. Contractor's monthly reports to be submitted to PIU and CIU, then World Bank WB.

Estimated Cost for ESMP: A total budget of USD \$389,625.00 has been allocated to implement the Environmental and Social Management Plan (ESMP) over a 24-month and pre-construction period. The allocation covers core personnel, routine monitoring, and compliance-driven management activities.

Conclusions: The project is expected to bring significant positive impacts to the community of Weno with improvements in roadways and transport efficiency, with enhanced flood mitigation reducing impacts on the built environment, including housing and roadways. The potential environmental and social impacts arising from design, construction, operation, and maintenance of the project will be minor, localized, and acceptable, with corrective actions and mitigation measures, as set out in the ESMP to be implemented.

This ESMP is considered appropriate to meet the environmental and social safeguard requirements of the World Bank (WB) applicable FSM Environment Protection Act (2014), Chuuk Environmental Protection Agency (EPA) Environmental Impact Assessment Regulations (1989) and other relevant national legislation and the Chuuk state applicable regulations, in respect to the management of the upgrades to the Airport to Pou Bridge Road.

1) INTRODUCTION

a) Report Structure

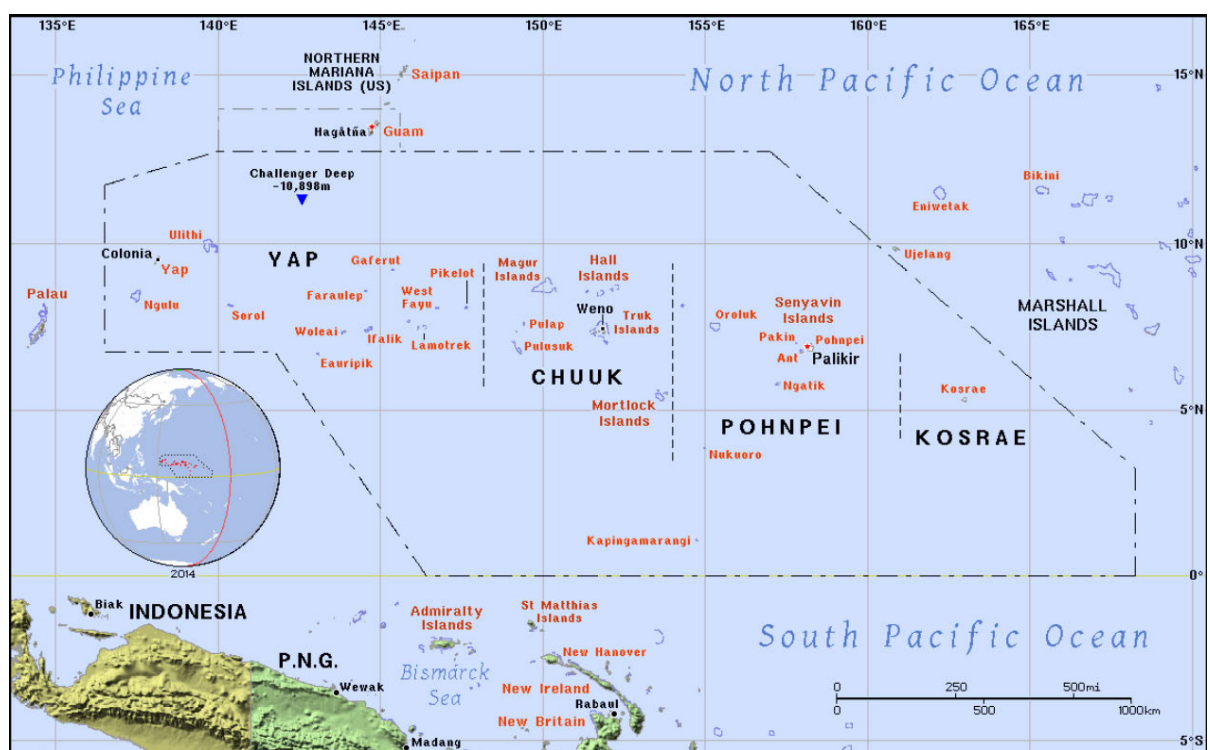
1. The Environmental and Social Management Plan (ESMP) consists of the following sections: Executive Summary; (1) Introduction; (2) Legal and Institutional Framework; (3) Project Description; (4) Description of the Environment; (5) Anticipated Impacts and Mitigation Measures; (6) Stakeholders Management, Information Disclosure and Public Consultation; (7) Grievance Redress Mechanism; (8) Environmental and Social Management 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 (Figure 1). 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: Yap, Chuuk, Pohnpei and Kosrae 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. Chuuk is one of the four states of the FSM located approximately 610 miles southeast of Guam and 424 miles west of the FSM capital island of Pohnpei. Chuuk consists of over 290 islands, less than 20% of which are inhabited and geographically dispersed throughout five regional areas.

Figure 1: Map of Federated States of Micronesia



4. The Airport to Pou Bay Bridge Road Improvement Project (the Project') is located on the north of Weno Island, the main population center in Chuuk (Figure 2).
5. **The Project.** The works comprise improving 1.73 miles (2.5km) of the primary 'ring road' of Weno Island, from the Chuuk International Airport to immediately before the Pou Bay bridge. The rationale for the project is to improve climate resilience, reduce flood risk, and enhance connectivity for emergency services and local communities. The project is one of a series of projects funded under the FSM Prioritized Road Investment and Management Enhancement Project (PRIME). The design has avoided impacts on lands, properties, livelihoods and structures. This is set out in the LADDR which will be submitted separately. This ESMP will reflect key findings of the LADDR.
6. The stretch of road is located within predominantly commercial land uses, with the first 0.5 miles bordered by the Chuuk International Airport fence to the northwest and several hotels, stores, a gas station, a school and a large church located roadside along the route. There are also quite a number of residential dwellings along the route.
7. The road in this location is largely destroyed, unpaved, and quite dusty when it is dry (posing a hazard to the pedestrians) and the current vehicle speeds are well under 10 miles per hour due to the road conditions. The roadway, from the corner of the airport at the northwestern side, turns sharply to the east and runs along the edge of the bay, very close to the water's edge. The water along this edge is prone to a 1-meter (approximate) tidal difference. During normal high tide, the high-water mark is not more than 0.5 meters below the finished road level at any point. At king tide, the water level can be higher than the current roadway. Added to this is the steep rise in the land to the landward side of the road that creates large volumes of runoff during heavy rains. Existing culverts are no longer operable. There is frequent surface flooding along the 1.73-mile stretch during rainfall events. Trash and sediment are regularly discharged to the coastal area from stormwater outlets or flood waters. Some of the road embankments along the coastline at Pou Bay are deteriorating and eventually will expose the road to erosion.
8. The work includes full-width reconstruction and raising of the roadway between 300 to 600 mm above the existing level and roadside properties to enhance road drainage of the existing road levels to allow for climate change. The road pavement and drainage upgrades will be completed using concrete and include upgrades to existing parking areas and access points along the route. In addition, pedestrian walkways will be introduced on each side (where possible, one side where not) for the full road length.
9. The road works stop short of the Pou Bay bridge and do not involve the bridge. There is no demolition or works directly above the water flowing under the bridge.
10. To assist storm water drainage the designs have incorporated drainage either side of the road with culvert cross connections with oil and grit sumps prior to discharge to the ocean and Pou Bay.
11. Additional armor rock layer (~31, 000 cu ft of rock) for embankment protection will be installed in one location to mitigate existing and future coastal erosion. The source of this rock has not yet been confirmed.
12. Road vehicular safety measures include junction design to ensure smooth safety and traffic circulation, improved geometry ensuring safety of roadway users with adequate sight distance, improved signage and roadway markings to ensure safety especially at junction locations for crosswalk movement and provision of a concrete crash barrier to ensure durability and longer life with minimal maintenance.
13. During road works, the road will be constructed in two parts, left and right, to always allow for one way flow of traffic around the works. Works will be progressively completely in separate sections along the existing road. Works will have safety barriers to protect pedestrians and workers from diverted traffic whilst construction proceeds.

14. **Institutional arrangements.** The Department of Transport, Communications and Infrastructure (DTC&I) is the implementing agency PRIME through its Project Implementation Unit (PIU). DTC&I engaged Works Supervisor Contractor - consultant ICT (Intercontinental Consultants and Technocrats Pvt. Ltd.) to prepare the design, drawings and bidding documents and supervise the road contractors. ICT contributed environmental and social information for the preparation of this ESMP and will be responsible for overseeing the implementation of the ESMP and the Contractor's ESMP (CESMP), on behalf of the PIU. Chuuk state is responsible for implementing the state environmental laws and regulations.

c) Scope of the ESMP

15. **The scope of the ESMP is 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.

16. The project is a 'moderate' risk project under PRIME E&S instruments and requires the development of a site-specific Environmental and Social Management Plan (ESMP).

17. The preparation of the ESMP involved desktop research, field trips, observational surveys, social surveys and stakeholder engagement. 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

18. 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.

19. The four States of FSM (Kosrae, Pohnpei, Chuuk and Yap) 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”. The following articles of legislation are relevant to the PRIME and SCORE projects.

20. The following laws and policies that exist in Chuuk for managing and conserving the environment that may apply to the PRIME Project:

21. Constitution of the State of Chuuk 1989 (Primary rule of law in the State of Chuuk).

- Memorandum of Understanding (MoU) – Solid Waste Management (MoU between the State and National Governments delegating State power to administer, at State level, the Solid Waste Management Permit Program and the Solid Waste Management Permit Variance Program).
- MoU – Earthmoving (MoU between the State and National Governments delegating State power to administer, at State level, the National Earthmoving Regulations).
- Chuuk State Historic Preservations Act 1991 (Relating to wrecks in Chuuk lagoon).
- Chuuk State Environmental Protection Act 1994.

22. Chuuk Constitution (1989)

23. Article XI of the Chuuk Constitution requires the legislature to “provide by law for the development and enforcement of standards of environmental quality, and for the establishment of an independent state agency vested with responsibility for environmental matters.” Article XI of the Chuuk Constitution also gives the State Government the power to take an interest in land for public interest purposes subject to negotiations and the payment of compensation.

24. Article IV of the Chuuk Constitution recognizes and protects customary law and the role of tradition leaders in Chuuk.

25. Chuuk State Environmental Protection Act (1994).

26. The Chuuk State Environmental Protection Act (1994) creates and empowers the Chuuk State EPA. Section 1005 defines the functions and powers of the Chuuk EPA, one of which (para f) is: “Establish and provide for the continuing administration of a permit system whereby a permit shall be required before the discharge by any person of any pollutant in the

air, lands and water or for the conduct by any person of any activity, including but not limited to, the operation, construction, expansion, alteration of any facilities.”

27. Section 1006 of the Act states that “A person shall submit an environmental impact statement to the Agency, in accordance with regulations established by the Agency, prior to taking any major action which may substantially affect the quality of the environment.”

28. In addition, further functions of the Chuuk EPA relevant to the PRIME Project include:

- Establishment of criteria for the classification of air, land and water; and
- Collection of information, record keeping, monitoring, and reporting.

29. There are penalties for any persons who violate the Act or any permits or orders issued under it. The Act is not clear regarding the process of applying for a permit, and the environmental assessment requirements to support such an application.

30. Notwithstanding this, given the nature and scale of the works proposed under the PRIME Project it is likely that an EIS would be required.

31. Each state maintains its own legislation for marine resources within its territorial waters (up to 12 nautical miles) so Chuuk employs the **Chuuk State Protected Areas Network (PAN) Act 2017**, focusing on traditional ownership and community participation. The Director of the Department of Marine Resources serves as the Chuuk State Focal Point for purposes of the FSM National Protected Areas Network Policy Framework. The Act establishes a framework for conserving marine and terrestrial resources in Chuuk State. It is a critical component of the national Micronesia Challenge initiative; an initiative aimed at conserving at least 30% of nearshore marine resources and 20% of terrestrial resources across Micronesia.

32. Key Aspects of the Act include:

- (i) **Community-Driven Process:** The Act requires that protected areas be proposed by local communities, highlighting a "community-first" approach to resource management.
- (ii) **Traditional Rights:** The legislation recognizes traditional ownership over reefs, tidelands, and submerged lands.
- (iii) **Technical Support:** The Act tasks the Director of the Department of Marine Resources, in collaboration with traditional owners and mayors, to provide technical assistance for proposed areas and ensure public awareness.

Management & Conservation: The law provides the legal basis for the state to manage and protect areas in collaboration with the Chuuk Conservation Society and other partners.

33. Biosecurity in Chuuk is governed by the national laws of the Federated States of Micronesia (FSM), specifically the **FSM Biosecurity Act of 2017 (Public Law No. 19-174)**, with the objective of preventing the entry of animal and plant pests and diseases, regulate the movement of plants and animals, and manage the risk of invasive species in the FSM, including the state of Chuuk.

34. The full list of relevant federal and state acts and conventions of FSM are parties to are summarized in the PRIME ESMF, LMP and RF.

b) World Bank Environmental and Social Framework

35. 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

36. **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

37. The ten ESS standards address various project risks, including labor 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.

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

39. 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 sub-project investments in accordance with FSM federal and state systems and the World Bank ESF. Many documents relate to both the PRIME Project and Strategic Climate-Oriented Road Enhancement Project (SCORE)⁵:

- (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 ESF and the relevant ESS. The ESCP forms 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 sub-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 sub-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 sub-projects to be prepared during project implementation. The RF prescribes the processes for identifying land requirements, consultation with

⁵ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/453251648600227981>

landowners 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 sub-project, documenting and addressing feedback, disclosure of documents and a grievance redress mechanism for the projects which must be applied to each sub-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 sub-projects which do not have unique or site-specific risks. Many of the mitigation measures can be utilised or adapted for use in site specific ESMP.

40. All project investments such as the Airport to Pou Bay Bridge Road Improvement Project, must follow the processes, procedures and standards of the aforementioned instruments. The Project was screened under the ESMF and RF and the screening concluded the following:

The Project was classified as moderate risk. This means the project impacts are site-specific, few in number, and not complex. Adverse impacts are temporary or reversible with mitigation. Potential negative consequences are well-known and easy to identify. Mitigation measures typically include standard, established procedures rather than complex, specialized designs

The Project required a site specific ESMP, proportionate to the environmental and social risks. The Generic ESMP mitigation measures could be applied where relevant.

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

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

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

Standard	Application to the Airport to Pou Bay Bridge Road Improvement Project
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	PRIME project instruments were prepared in accordance with ESS1. Under the ESMP the Project has been 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. The ESMP will apply federal and state laws and regulations, the ESMP and World Bank Group Environmental, Health and Safety Guidelines (ESHG). 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 sub-projects to follow. The LMP is applicable to the Airport to Pou Bay Bridge 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. 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 Materials Management Plan (WMMP) will prevent any hazardous materials loss from the project construction site. Noise emissions 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 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) and Community Health and Safety Management Plan (CHSMP) 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 Airport to Pou Bay Bridge Road Improvement Project. To mitigate any direct impacts on properties of land use, a registration process was undertaken with landholders to ensure additional voluntary land was made available so that the roadworks could be undertaken. Additional signatures were acquired along the intended road construction Right of Way (ROW), confirming that the land occupants are aware of the ROW and that they have no objection to the Works being undertaken. No land has been acquired for the Project, and no involuntary resettlement is required.
ESS6: Biodiversity Conservation and Sustainable Management of Natural Resources	ESMF risk screening and mitigation procedures include ESS 6 requirements. Some work will be undertaken near Pou Bay which is a designated Area of Biodiversity Significance (ABS) and habitat for the endangered Chuuk Flying Fox and the Chuuk Monarch bird. The term ABS refers to specific marine and terrestrial locations identified in FSM as priorities for conservation efforts due to their 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) or degradation of natural habitats, be it directly (through the construction) or indirectly (with the human activities caused by the project). A small section of the Pou Bay is adjacent to the roadworks and road design has avoided significant works or discharges into the ABS. With additional construction-related controls, e.g. Erosion and sediment control Plan (E&SCP) and Waste Minimization and Management Plan (WMMP) impacts during road construction will be minimized. Otherwise, construction will occur in a highly modified urban environment.
ESS7: Indigenous Peoples	ESS7 is relevant but no separate plan or framework has been prepared for PRIME. All relevant requirements of ESS7 have been integrated into project design and the ESMF, RF, SEP and this ESMP.
ESS8: Cultural Heritage	ESMF risk screening and mitigation procedures includes cultural heritage identification and protection. The project involves construction works in modified urban and peri-urban areas. No cultural heritage sites or artefacts have been identified. However, a Chance Find procedure is required in the CESMP to ensure appropriate measures are taken if 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 Airport to Pou Bay Bridge Road Improvement 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 Chuuk State and FSM websites and the WB's website and discussed at stakeholder engagement meetings.

iii) Word Bank Group Guidance

41. The World Bank Group EHSG 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.

42. 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.

43. The General and Industry Sector EHSG and the International Standards 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>

iv) International Standards and OHS Labor Guidelines

44. FSM is a signatory to several international conventions and treaties. Those potentially relevant to the Project are listed below:

- (i) International Plant Protection Convention 1951.
- (ii) World Heritage Convention 1972.
- (iii) United Nations Convention on the Law of the Sea 1982.
- (iv) Agreement relating to the Conduct of a Joint Program of Marine Geoscientific Research and Mineral Resource Studies of the South Pacific Region, with Appendices, 1982; with Related Agreement, 1984.
- (v) Vienna Convention for the Protection of the Ozone Layer 1985.
- (vi) Convention for the Protection of the Natural Resources of the South Pacific Region 1986; and companion protocols 1986.
- (vii) Convention on Biological Diversity (CBD) 1993

3) PROJECT DESCRIPTION

a) Location

45. The road is part of the primary circumferential road around the island of Weno, providing key connectivity to communities and commercial entities in the Wichen and Sapuk areas of the island to the airport and town center.

46. The project road is in the northwest quadrant of the island. The roadworks are 1.73 miles (2.5 kms) long, beginning at the Chuuk International Airport and finishing at the western end of the Pou Bay Bridge (Figure 2).

47. The key community receptors of the Airport to Pou Bridge Road are shown in Figure 3. These community receptors consist of commercial businesses opposite the Chuuk International Airport, a community hall adjacent to the end of the runway north of the road, three hotels along the road, the Apatheia Church and an elementary school before the Pou Bay Bridge. On the eastern side of the bridge, beyond the footprint of the works, is the Mary Immaculate Catholic Cathedral, the community of Wichen and Xavier High School which provides a college preparatory education, serving the different island nations of Micronesia.



Figure 3: Location of the Airport to the Pou Bridge Road and nearby community receptors.



b) Scope of Works

48. The scope of works (SoW) has focused on improvements to mitigate climate change impacts with the possible occurrence of more severe storms and 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 Airport to Pou Bay Bridge Road are detailed in the design report '*Chuuk Vol 1 – Main Report (June 2024)*' ('Design Report'). The design has addressed the feedback from stakeholders (detailed in Section 6). Observations during Engineers Design Visit - June 24 are found in Appendix B.

i) Climate Change

48. An assessment of Climate Change was undertaken in the Design Report. The design report for the roadway improvements is based upon a series of hydrological analyses, including climate change predictions. These analyses are the basis for drainage design, one of the key tenets for the roadway upgrade (see Table 2).

Table 2: Climate change considerations for design of the Road

Design Parameters	Airport to Pou Bay Bridge Road (Chuuk)
1. Basic Information	
Design life for Road (years)	30 years
Difference of Road surface between present and completed Road (m)	0.5 feet to 2.0 feet (see Section 3 (b) (ii))
2. Sea Level Rise	
Rate of historical sea level rise for the State (mm / yr.)	7.4 mm/yr. for Adopted RCP 6.0
No. of years of records	-
Reference (source and / or web link)	CLIMATE RISK COUNTRY PROFILE: MICRONESIA by World Bank
Design sea level rise for subject Road (ft)	7.4 mm/yr.
Detailed justifications	-
S3. Tidal Wave / Storm Surge	
Highest king tide in history (m)	3.12 feet
Year when highest king tide occurred	1988
Reference (source and / or web link)	https://tidesandcurrents.noaa.gov/
4. Rainfall for Drainage	
Historical 24-hr rainfall (mm)	19.70 inches (500.4 mm)
Design 24-hr rain intensity for drainage (mm)	11.30 inches (287.02 mm) for culverts (20 yr. ARI) and 9.23 inches (234.4mm) for drains (10 yr. ARI)

Design Parameters	Airport to Pou Bay Bridge Road (Chuuk)
Design discharge capacity for culverts (m ³ / s)	0.44 m ³ /s to 6.1 m ³ /s

Abbreviation: ARI = Average Recurrent Interval, RCP – Representative Concentration Pathways

i) Road Upgrade – Additional Height Increase to the Road Formation Level

49. The terrain in the project area is very flat. The commercial and residential settlements are almost at the same level of the existing road. To enhance road drainage and longevity of the pavement the Road Formation Level will be raised between 300 to 600 mm above the existing level and roadside properties. This relates to the RCP 6.0 climate change scenarios e.g. a raising of sea levels of 7.4 mm / yr (see Table 4).

ii) Pavement Design

50. A new rigid pavement will be constructed to provide better structural strength, better weight distribution among pavement layers, along with a drainage layer as sub-base and should sustain against the occurrence of cracks. As the location receives high rainfall for the majority of the year, rigid pavement has a longer life and minimal maintenance. Durability of rigid pavement is well suited for the climatic conditions of the project area.

51. The Pavement layers will consist of a soil subgrade layer of thickness around 1 ft., Granular Subbase (GSB) layer of thickness 0.66 ft., called the “drainage layer”. The next layer constitutes the Dry Lean Concrete (DLC) layer of thickness 0.33 ft. followed by a top layer of Pavement Quality Concrete (PQC) of thickness 0.66 ft.

52. The volumes of key materials required for these works are shown in Table 3 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. Potential sources are Guam, Philippines and Saipan registered licensed quarries.

Table 3: Road Material Construction Quantities

Road Pavement Quantities	Quantity (cuft)	Source
Granular Base and Sub-base	192,232	To be imported to Chuuk
Asphaltic concrete	TBC	Mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacted with 8-10 tonnes vibratory roller, finishing and curing.
Bitumen	7 t	To be imported
Aggregate	TBC	Aggregate for asphaltic concrete to be imported
Pavement Quality Concrete (wearing course and lean mix sub-layer)	178,525	Mixed in a batching and mixing plant as per approved mix design possibly co-located at the laydown area, transported to site, laid into fixed forms or with a slip form paver, spread, compacted and finished in a continuous operation compound, finishing to lines and grades as per drawing.
Concrete aggregate	TBC	Concrete aggregate to be imported
Road Embankment Quantities	Quantity (cuft)	Source
Fill	TBC	Construction of embankment with approved materials deposited at site from roadway cuttings, excavation from the drains, or borrow pits on Chuuk.
Borrow Area	295,343	
Roadway cutting	89,086	
Subgrade	185,421	
Bridge/Culvert Quantities	Quantity (cuft)	Source
Concrete poured on site.	66,578	Mixed in a batching and mixing plant as per approved mix design, transported to site and poured into forms.
Concrete aggregate	TBC	Concrete aggregate to be imported
Armoring Rock	22,393.00	TBC
Stone Pitching	9,028.00	TBC

iii) Culvert and Roadside Longitudinal Drain Upgrades

53. The location of the rehabilitated and proposed culverts and their discharge points are shown in Figure 4. Most of the rehabilitated and proposed culverts are located near the airport and areas of commercial activity, including the ocean-side hotels and houses on reclaimed land.

54. After construction, the new longitudinal roadside drains run parallel to the roadway and receive discharge from the embankment surface and hill side runoff. A roadside roller-compacted concrete rectangular drain has been provided in the design to receive the stormwater discharge from roadway surface and neighbouring property runoff and carry it safely to the nearest outfall point avoiding flooding on the road and in the property area.

55. Silt and oil trap chambers are to be located at the junction of the longitudinal drains and the cross-drainage culverts (Figure 5). The new and replacement culverts capture the stormwater flows after passive treatment for grit and any oil residue capture, before discharge to the marine environment.

iv) Embankment Slope Protection for Coastal Erosion

56. The existing embankment section of the roadway is not in good condition due to the continuous influence of water bodies as well as extreme conditions, during high tides and water level rise (Figure 6). There are a number of cavities in the embankment layers and the pavement layers/fill material have been washed away.

57. A length of 440 ft (~130m) of RHS and LHS embankment near the Pou Bay Bridge will be repaired within the existing embankment footprint (Figure 6). There is no declared boundary for the Pou Bay ABS, so the edge of the road embankment is considered to be the Pou Bay ABS boundary.

58. Figure 7 shows a sheet pile protection option at toe of embankment repairs (where tidally influenced). The armour protection design for the embankments is to be repaired and stabilized is shown in Figure 8. A geomembrane (0.3 inches thick) will be placed at the base of the embankment, then a section of underlayer stone (0.5ft thick), before a two stone armour layer (1ft thick) filled with mortar is placed on top.

Figure 4: The location of the rehabilitated and proposed new drainage culverts



Figure 5: Grit and oil trap chambers at the junction of the longitudinal drain and cross drainage culverts

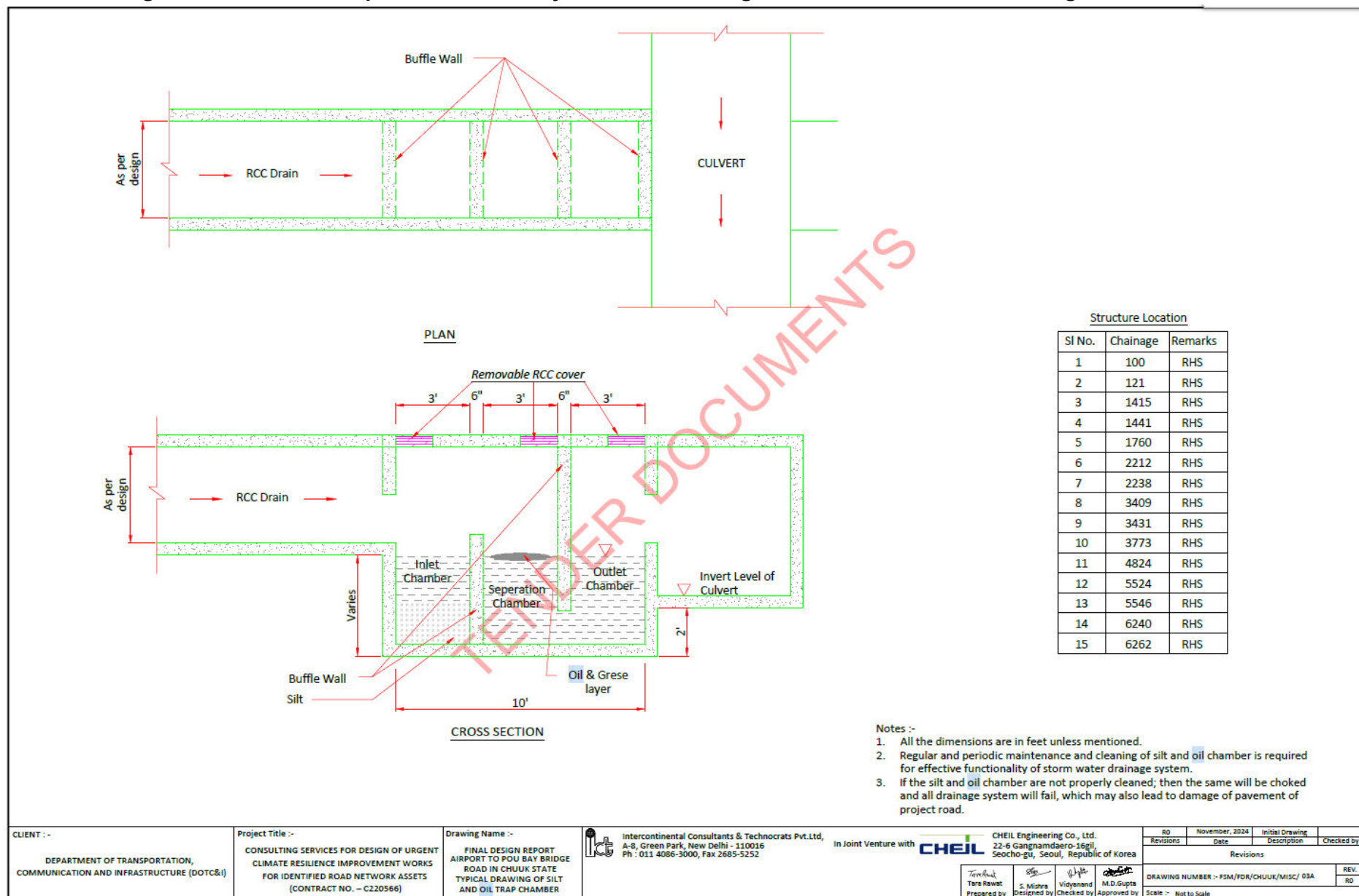


Figure 6: Location of the Proposed Rock Armoring (Yellow dashed lines) - Insert: Extent of rock armoring at Pou Bay to the south of the bridge



Figure 7: Sheet pile protection option at toe of embankment repairs (where tidally influenced)

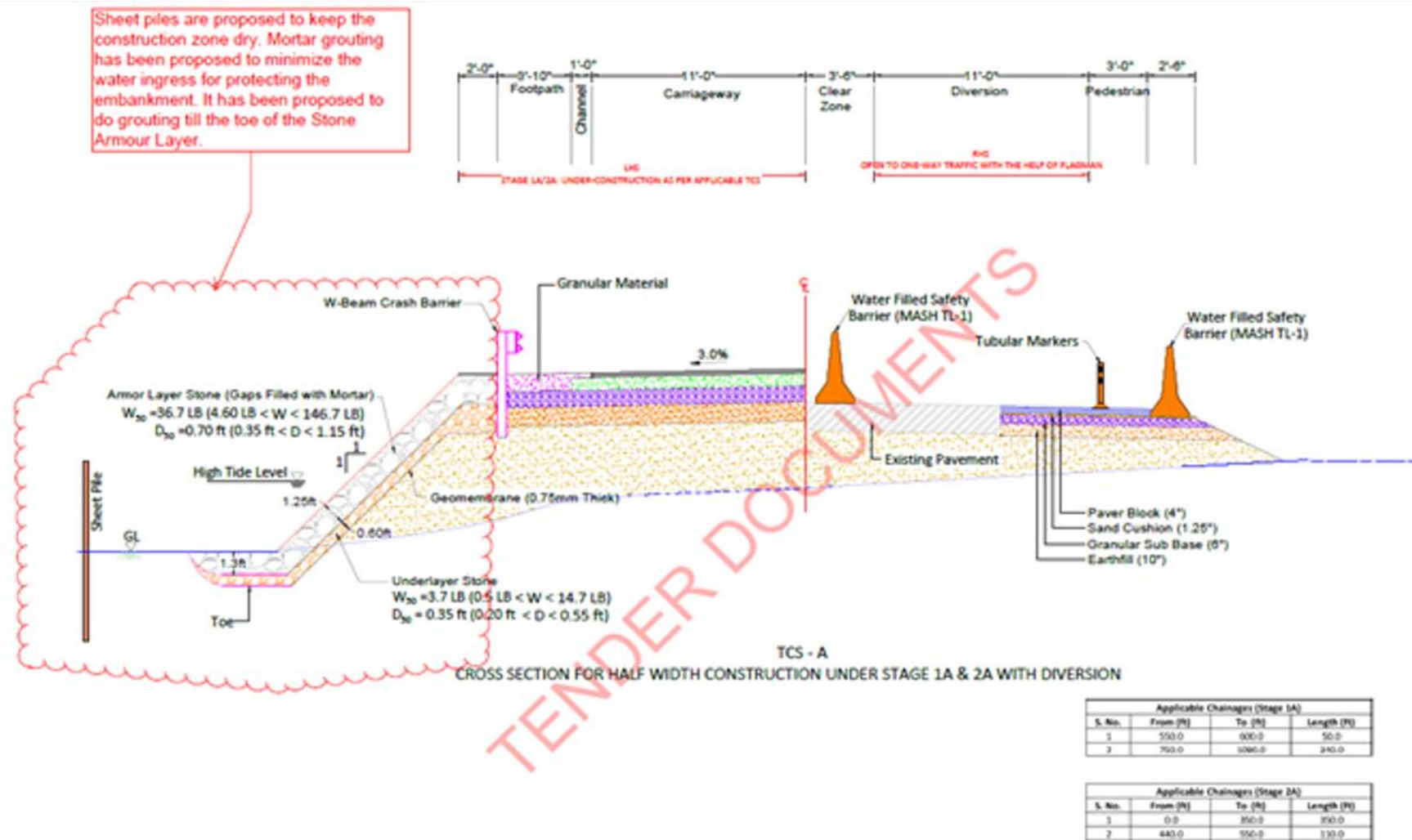
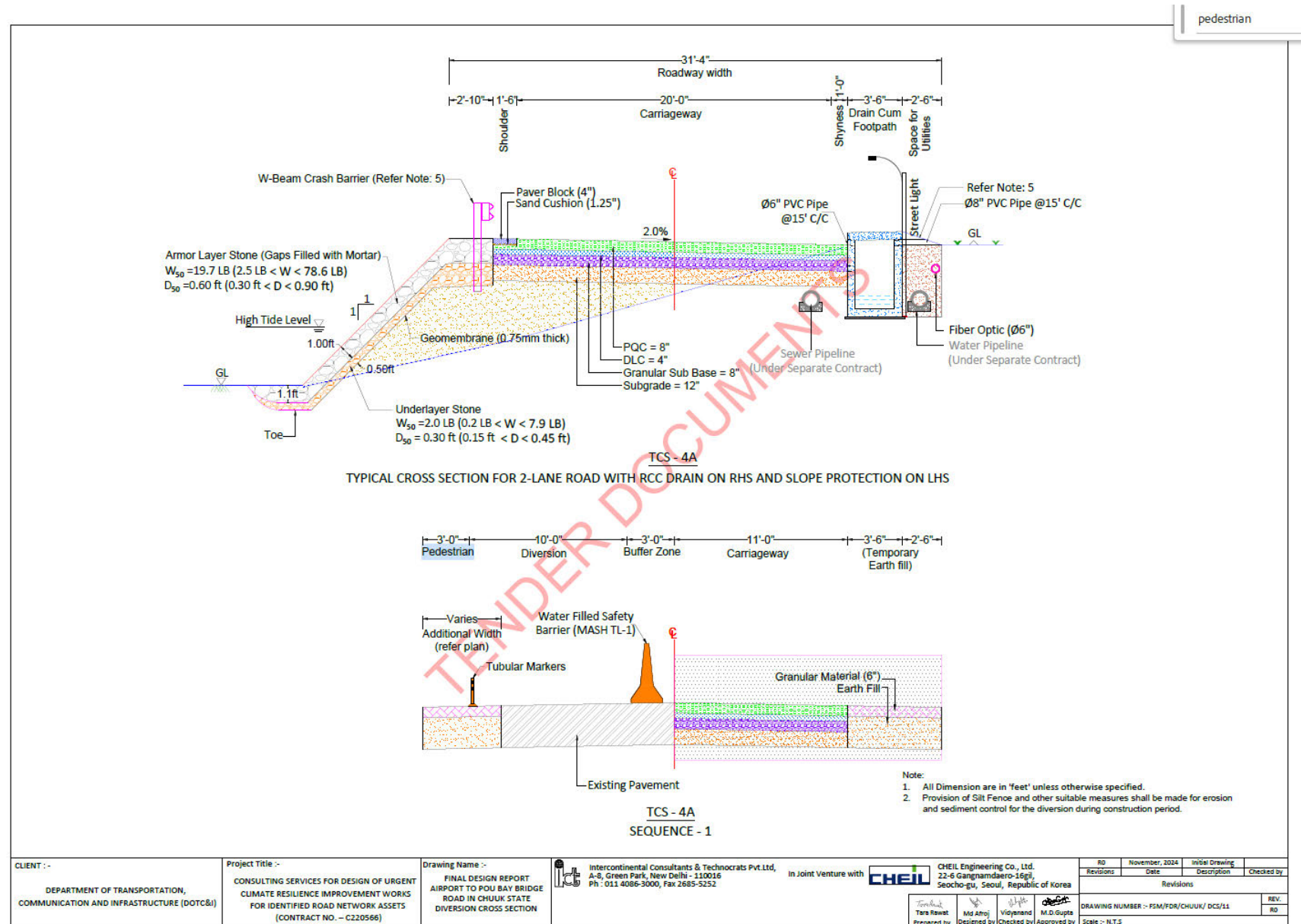


Figure 8: Embankment Armoring Typical Cross Section



v) Pedestrian Safety

59. Raised foot paths up to 3 ft in width have been located in the design on either one or both sides of the road. The foot paths are of varying widths to improve safety and access. In Figure 9, a typical 3 ft pedestrian access walkway is shown.

60. Pedestrian safety during construction is also shown in Figure 9, with the segregation of vehicular traffic and pedestrians undertaken by the positioning of flexible spring parking post barriers in the construction zone.

61. Crosswalks are proposed at 15 different locations, to further enhance operational pedestrian safety along the roadway by facilitating cross movement. Two of these locations will be flat top raised across the crosswalk as shown in Figure 10. Solar street lighting also will be available at these sites.

vi) Road Safety

62. Safety features include:

- (i) Improved junction design with driveways and crossroads.
- (ii) Provision of concrete barriers on one/both sides to replace the existing W-Beam Metal crash barrier which is damaged and corroded and would require frequent maintenance.
- (iii) Traffic signage and markings are designed along the project road to guide, regulate and inform the road users in advance especially for School Zone near Ch. 6100". Pavement markings will be made for traffic lane lines, centre lines, edge lines and hatching etc.

Figure 9: Typical footpath location and a cross section for pedestrian safety during construction

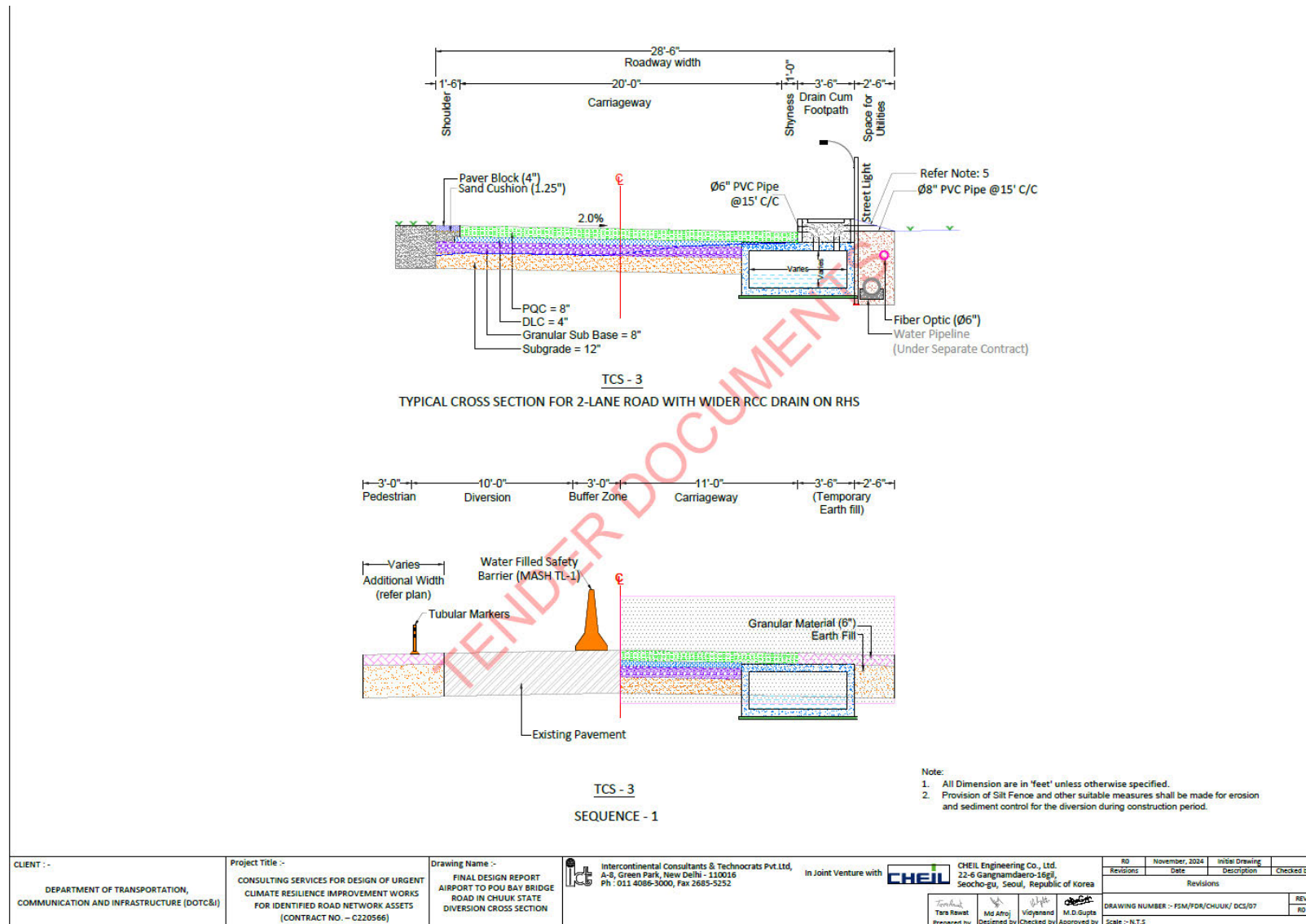
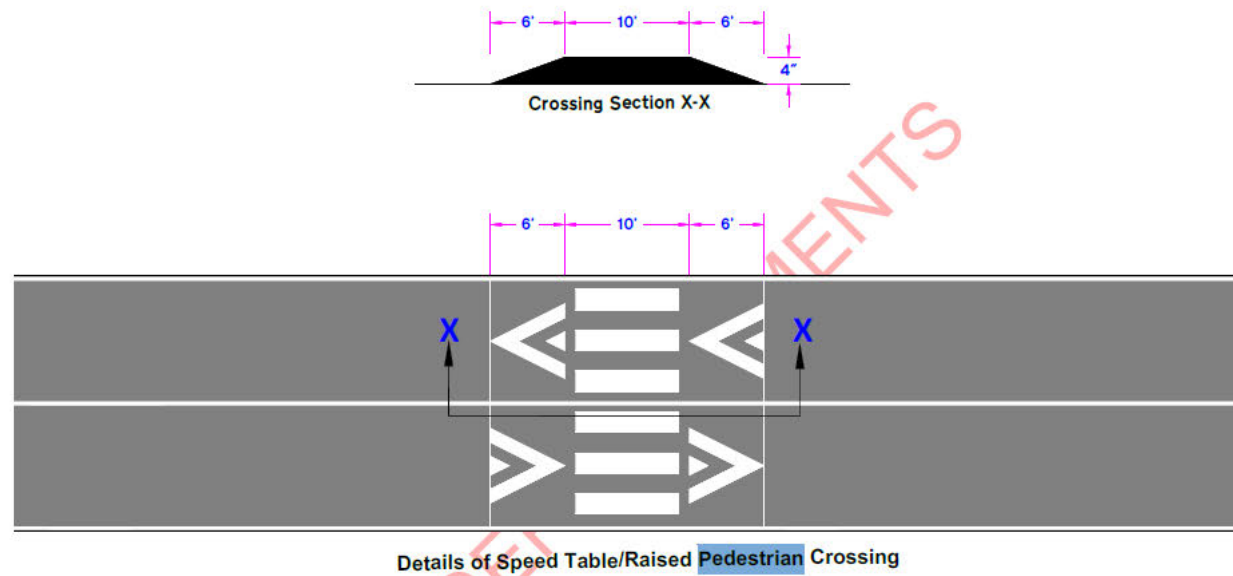


Figure 10: Typical detail of speed table



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 AIRPORT TO POU BAY BRIDGE ROAD IN CHUUK STATE TYPICAL DETAIL OF SPEED TABLE	 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	RO	November, 2024	Initial Drawing			
					Revisions	Date	Description	Checked by		
					Revisions					
					 Preet Singh Prepared by	 Md Atroj Designed by	 Vidyanand Checked by	 M.D. Gupta Approved by	DRAWING NUMBER :- FSM/FDR/CHUUK/ MISC/02	REV
					Scale :- NTS				RD	

vii) Land Access

A LADDR has been prepared in accordance with the PRIME/SCORE RF and ESS5. The LADDR confirmed that there will be no land acquisition nor physical or economic displacement under the project (Appendix A).

63. Land access due diligence demonstrated the existence of an approximate 33 ft road easement along the entire alignment covered by the project works. This width is deemed sufficient for the designed cross sections. There are a number of minor structures consisting of fences within the road easement of 33 ft. The final road design has adjusted the limit of works and road widths in sections to avoid these. At the narrowest available space, the road will narrow to approximately 23 ft to avoid two concrete walls on opposite sides of the road.

64. Additional signatures were acquired along the intended Road Construction Right of Way, confirming that the land occupants are aware of the Registered Right of Way and that they have no objection to the Works being undertaken, noting that the works take place within the Right of Way.

65. This ensures that any land required for construction will be mitigated by agreements between the relevant parties. In addition, to reduce impacts on land access, adjustments were made to the road design and drains/culverts, so no land acquisition is required. The original designs have been changed to avoid all such assets and ensure the construction of the new road remains entirely within the ROW.

66. A registration process was completed of the outer boundaries of the roadwork area where the contractor may work after consultation with local landholders and detailed in the LADDR. This registration process ensures that there will be no direct social impacts through the use of land required for construction. This process has avoided involuntary land acquisition or resettlement.

viii) Construction Timeline, Workforce numbers and Temporary Works

67. The proposed timeline is for the roadworks to be completed is 24 months. Typical roadwork crews will consist of several expatriate engineers, as required, key personnel from neighbouring FSM islands as part of the contractor's team and a local workforce. There is a range of accommodation in Chuuk including local hotels, apartment blocks and rented housing for the duration of their works.

68. 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 and negotiate access with the landowner for the duration of the Project.

4) DESCRIPTION OF THE ENVIRONMENT

69. This section characterizes the existing social and environmental context in which the 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. 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:

- (i) Landowners and occupiers adjacent the road and along drainage paths between the road and discharge points (land use, construction nuisances, road works disruptions, changes to road layout, worker-related safety risks).
- (ii) Residents and businesses not adjacent to the road but along the route (construction nuisances, road works disruptions and safety risks, worker-related safety risks).
- (iii) Road users from any location in Weno (road works disruptions and safety risks).
- (iv) Weno residents, particularly vulnerable women and children (community safety risks).
- (v) Coastal margins and waterways within 100m of the shoreline (construction and operational stormwater discharges).
- (vi) Lagoon margins and waterways within 50m of the shoreline (construction disturbances).

70. 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 (sub-base, base course, concrete aggregate) will have to be imported from international sources

71. A series of photos along the roadway taken in May 2025 (Google Earth) highlights some of the major features of the area (Figure 11).

72. Highlights include:

- At the western end of the road works area there is the Chuuk International Airport runway and a commercial area opposite the airport runway - Photo A.
- Typical land uses that occur along the roadway are shown in Figure 11 and Figure 12- Photos B, C, E – a gas station and residential areas are located 0.75 miles western end of the road works area and there are extensive housing and commercial buildings on the ocean side of the road for much of the roadway.
- On the mountain side of the road there is often untended and overgrown vegetation – Figure 11 - Photo C and D.
- Plants such as breadfruit, bananas and coconuts are well established in properties adjacent to the roadway –Figure 12- Photo E and F.
- There has been ongoing water supply excavation works for upgrades to the Weno water supply system in the roadway – Figure 12- Photo G.

73. Additional observations during the Engineer's Design Visit in June 24 are provided in Appendix B.

Figure 11: Key Road attributes - July 2025



A: Commercial center, opposite to the Airport, along the Airport to Pou Bay Bridge road.



B: Griffin gas station on the ocean side of the Airport to Pou Bay Bridge road (typical residential section).



C: Commercial buildings on the Ocean side and overgrowth borders the roadway near Rachael Beach Resort.



D: Pot holed road and overgrowth borders at Anaganan 1 km from Pou Bay Bridge.

Figure 12: Observations made along the proposed road upgrade



E: Neatly tended residential area ~ 0.5 km from the Pou Bay Bridge.



F: Coconut palms, coastal shipwrecks and grassland borders near the Pou Bay Bridge.



G: A small section of Pou Bay on the left and the ocean on the right. Works being undertaken for the upgrade to the Weno water supply network



H: The end of the Airport to Pou Bay Bridge roadworks with vegetation dominated by the invasive species - *Leucaena leucocephala*

a) Physical Environment

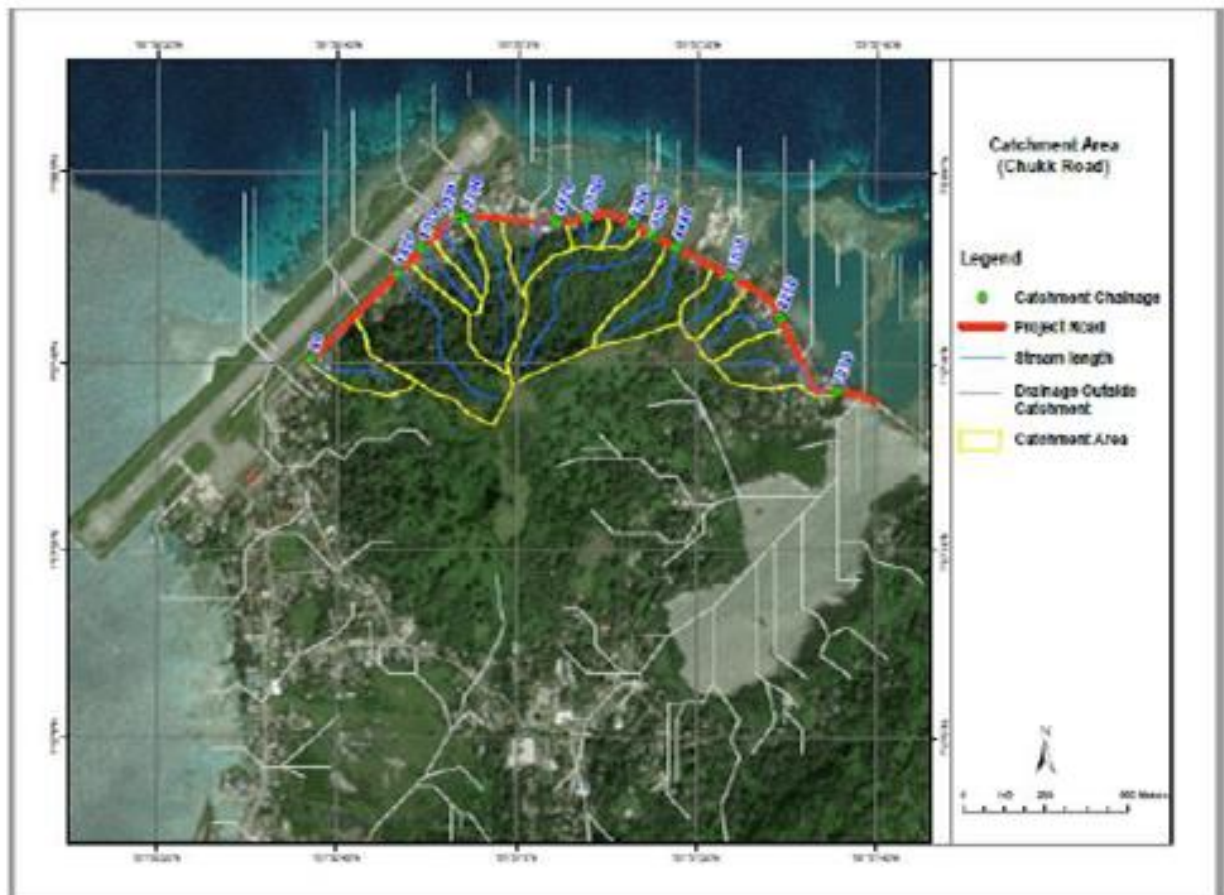
ii) Topography and rivers

74. The project road lies on the flat coastal plain, with bordering hills to the south and west (Figure 13). Runoff from these hills drains across the coastal plain, including the existing roadway. The numerous small and short catchments are shown in Figure 14.

Figure 13: The location of the Airport to Pou Bridge Road on the coastal plain



Figure 14: Catchment map along the road length



iii) Climate

75. Chuuk/Weno experiences little seasonal variation in mean air temperatures across the year, less than 1.5°C between the warmest and coolest months, which is driven mainly by sea surface temperatures around the islands. There is little variation in temperatures and rainfall from month to month. Maximum temperatures are 30 °C and minimum temperatures are between 22 °C and 24 °C throughout the year.

76. Chuuk receives an annual rainfall of 3,556 mm, with rain occurring throughout the year (Table 4).

Table 4: Climate Data for Chuuk

Climate data for Weno, Chuuk													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	33 (91)	32 (90)	32 (90)	33 (92)	33 (91)	33 (92)	33 (92)	33 (92)	34 (93)	33 (92)	33 (91)	33 (91)	34 (93)
Mean daily maximum °C (°F)	29.9 (85.8)	29.9 (85.8)	30.2 (86.4)	30.4 (86.7)	30.7 (87.3)	30.7 (87.3)	30.6 (87.1)	30.7 (87.3)	30.7 (87.3)	30.7 (87.3)	30.7 (87.3)	30.2 (86.4)	30.4 (86.7)
Daily mean °C (°F)	27.4 (81.3)	27.5 (81.5)	27.6 (81.7)	27.7 (81.9)	27.8 (82.0)	27.7 (81.9)	27.4 (81.3)	27.4 (81.3)	27.5 (81.5)	27.6 (81.7)	27.7 (81.9)	27.6 (81.7)	27.6 (81.7)
Mean daily minimum °C (°F)	24.9 (76.8)	25.0 (77.0)	25.1 (77.2)	25.0 (77.0)	24.9 (76.8)	24.6 (76.3)	24.2 (75.6)	24.2 (75.6)	24.2 (75.6)	24.3 (75.7)	24.6 (76.3)	25.0 (77.0)	24.7 (76.5)
Record low °C (°F)	21 (69)	21 (70)	22 (71)	22 (71)	21 (70)	21 (70)	21 (70)	21 (70)	20 (68)	19 (66)	21 (70)	21 (70)	19 (66)
Average precipitation mm (inches)	228 (8.98)	163 (6.42)	230 (9.05)	291 (11.46)	354 (13.94)	301 (11.84)	365 (14.37)	350 (13.77)	307 (12.07)	361 (14.23)	282 (11.10)	293 (11.55)	3,525 (138.78)
Average precipitation days (≥ 1.0 mm)	14.8	12.2	14.9	16.2	21.2	20.3	20.8	21.0	18.6	20.0	20.0	18.8	218.8
Average relative humidity (%)	78.7	77.7	78.7	81.0	82.6	82.9	83.9	83.2	83.0	83.1	81.9	80.8	81.6
Mean monthly sunshine hours	195.3	197.8	217.0	195.0	192.2	180.0	195.3	195.3	177.0	161.2	162.0	167.4	2,235.5
Source 1: Hong Kong Observatory (sun 1961–1990) ^[12]													
Source 2: NOAA ^[13]													

iv) Natural Hazards

77. Chuuk is vulnerable to various natural disasters which are destructive, often unpredictable, and occur frequently. Located in the north-western Pacific Ocean known as the typhoon belt, it is also in the geographical location known as the Pacific Ring of Fire, housing one of the world's main tectonic plates and contains over 75% of the world's active volcanoes, and 90% of the world's earthquakes.

78. Consequently, the state counts heavy, year-round rainfall, earthquakes and landslides, and Typhoons as its main source of natural disasters. Design features to minimize the impacts of these natural hazards are addressed in the Design Report.

79. **Typhoons.** The frequency of Typhoons across FSM 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 centre 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 originate in the east each year, and as they are north of the equator, they usually progress to the northwest and seldom strike any of the other islands.

80. Although the major Typhoons tracks of the northwestern Pacific lie to the north and west of Chuuk, several of the storms have passed close enough to Weno to cause widespread damage. Severe Typhoons with winds more than 100 mph (161 km/h) which struck Chuuk include Super typhoon Nina in November 1987 and Typhoon Chata'an in July 2002.

81. Typhoons occurred in 2012, 2015 and 2019 in Micronesia with Chuuk being badly hit. Their intensity increases every year, with Typhoon Wutip in 2019 being the worst on record. Typhoon Wutip reached its peak intensity on February 23, 2019, with 10-minute

sustained winds of 195 km/h (120 mph), 1—minute sustained winds of 265 km/h (165 mph), and a minimal pressure of 920 millibars while passing to the southwest of Guam, becoming a Category 5-equivalent super typhoon.

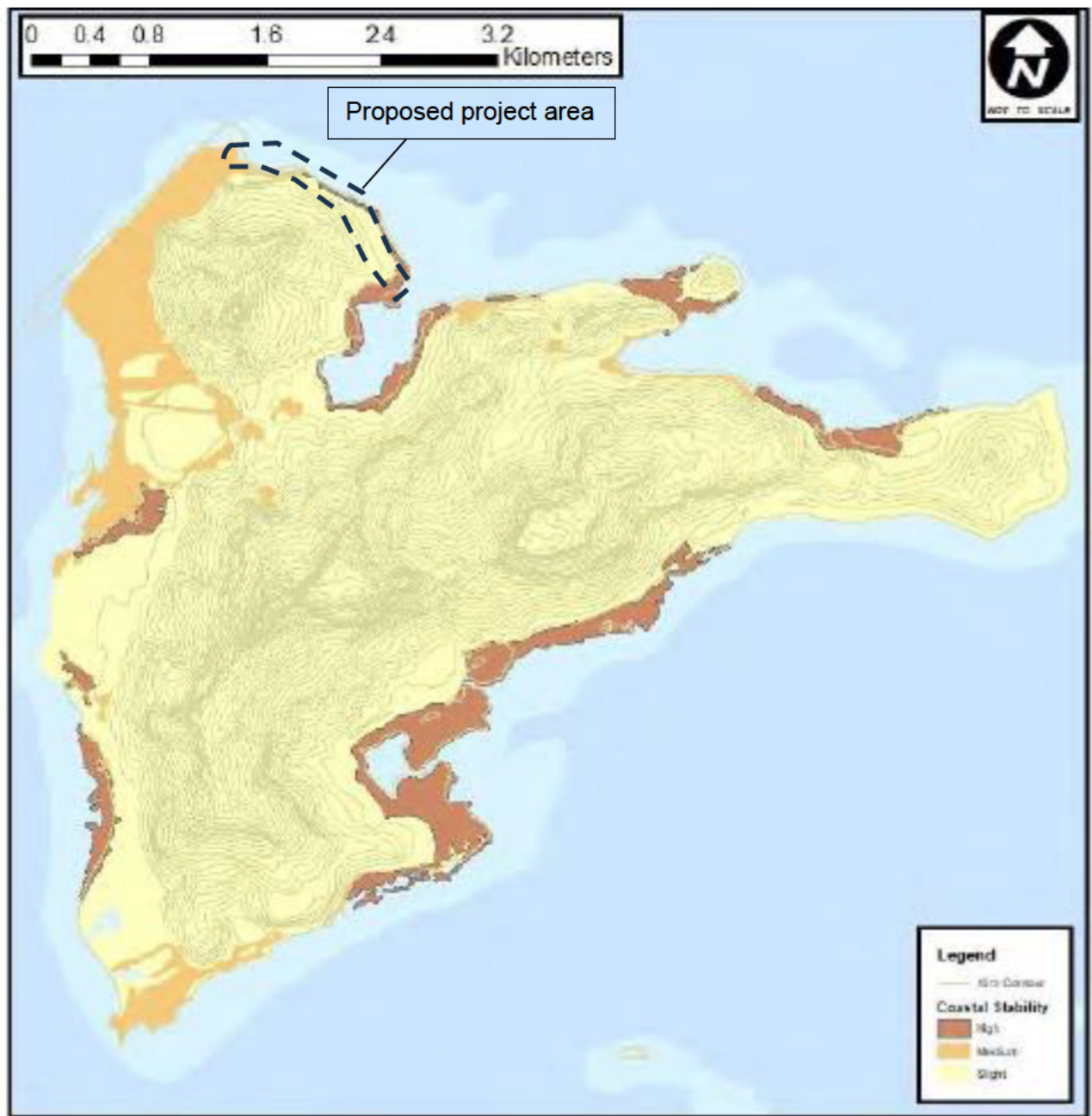
82. **Drought.** The islands within the western states (Yap and Chuuk) are affected by excessive rainfall and drought associated with the warm and cold phases of the ENSO.

83. **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 the 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.

84. **Flooding and Erosion.** Drainage problems can arise from increased rainfall intensity and road over washing by marine inundation. Figure 15 presents an image showing areas of concern in relation to coastal stability in Chuuk based on ArcGIS data provided by Chuuk EPA.

85. Key areas considered to be of high coastal instability are primarily located along the northern (including Pou Bay) and south – eastern coastlines.

Figure 15: High risk coastal stability locations in Chuuk (Chuuk EPA)



b) Socio-economic Environment

i) Local community, land uses and road users

86. The community is described in Section 3) a), and is mostly residential and commercial and the airport. The road is used by vehicles travelling to and from the airport and main town of Weno and the communities of Wichen and Sapuk. Pedestrians currently use the shoulder or informal paths on the side of the road. Importantly access to nearby hotels, community halls, places of worships, schools and residents all need good road access

87. The traffic volume is 7,515 vehicles per day.

88. A survey of 10 residents indicates household incomes may be higher than average in this community compared with other sections of the population from Chuuk and FSM (Table 5). Most of the community people interviewed (10 in total) were public servants (75%) with tertiary qualifications. Their earning capacity is greater than \$500/week, the remaining

workers earn less than 100/week.

89. Regardless of income or earning potential, or whether households rely on public or private transport, the ring road is critical for safe and efficient travel to and from markets, workplaces, the airport, schools and social connections.

90. The Household Income and Expenditure Survey (HIES) 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.

91. **Economic Context:** The 2013-2014 survey highlighted significant reliance on both cash and subsistence income, with high expenditures on food items. Chuuk state had the second highest total annual household income though 50 % of that in Pohnpei.

Table 5: Household income by state 2013/2014⁶

	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	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.

c) Biological Environment

i) Protected Areas

92. Pou Bay has been identified as an Area of Biological Significance (ABS) under FSM's environmental and conservation policies.⁷ It is managed under the Chuuk State Protected Areas Network (PAN) Act 2017, focusing on traditional ownership and community participation. As part of the broader Micronesian marine environment, Pou Bay supports significant biodiversity, including coral reefs, seagrass beds, and mangrove forests that provide essential services such as coastal protection, carbon sequestration, and fisheries support (Figure 16).

93. Local governance plays a significant role in the protection of Pou Bay, as traditional leaders and community-based management practices influence conservation efforts. While certain customary marine tenure systems regulate fishing and resource use, illegal and unregulated fishing still pose a threat to the bay's ecological health.

94. Pou Bay is considered Natural Habitat because its ecological functions are still predominantly intact despite human settlement and use. Pou Bay is also considered Critical

⁶ Government of FSM (2014) *Household Income and Expenditure Survey 2013/14 Main Analysis Report*

⁷ The Federated States of Micronesia Chuuk Biodiversity Strategy and Action Plan 2018–2023

Habitat under ESS6⁸ because it is a habitat of significant importance to the Chuuk Flying Fox and the Chuuk Monarch bird (refer Section 4) c) iii).

95. **Conclusions on Habitat Definition Under ESS6:** The mangrove and the marine habitat of Pou Bay have retained viable assemblages of animal species of largely native origin and ecological functions and species composition are largely intact. Therefore, they are considered Natural Habitats under ESS 6⁹. Table 6 describes the habitats against the criteria in the ESS 6 Guidance Note.

⁸ Environmental & Social Framework for IPF Operations – ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

⁹ Environmental & Social Framework for IPF Operations – ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Table 6: Analysis to support the classification of Natural Habitat Values ESS 6 for the Mangrove and Marine Habitat

Definition in ESS6 Guidance Note	Natural Habitat Values at Pou Bay Project Location
Is this habitat officially declared as habitat by the local or FSM government.	The Pou Bay ABS is managed under the <i>Chuuk State Protected Areas Network (PAN) Act 2017</i> . The management objectives include developing a network of protected sites combining biodiversity conservation with community-driven fisheries management as well as building resilience against climate change and protecting critical ecosystems.
There has been limited impact on the species composition or ecological function of the habitat.	The mangrove habitat and coral reef is still vigorous and well established. Dredging and land reclamation activities on the ocean side of the road were not undertaken in Pou Bay.
Form part of a long-term pattern of traditional use, to which native species assemblages have adapted.	The traditional fish species and estuarine and marine flora e.g. mangroves and coral reef have all adapted to the disturbed habitat (from land use changes) 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; or have not profoundly affected the habitat's ability to recover its former ecological characteristics.	Threats on works in the Bay are no longer relevant due to its conservation status, and the bay supports a mature and diverse community of predominantly native species of mangroves and coral reefs and associated marine flora and fauna.

96. The mangrove area can also be considered Critical Habitat under ESS 6 as it is likely to meet the criteria of ' (a) habitat of significant importance to Critically Endangered or Endangered species, as listed in the IUCN Red List of threatened species or equivalent national approaches; (b) habitat of significant importance to endemic or restricted-range species;' because of the presence of the Chuuk Monarch or Chuuk Flying Fox in the project area of influence. The baseline observations did not conclude whether the habitat was of 'significant importance', so the Critical Habitat classification is precautionary.

Figure 16: Location of Areas of Biological Significance on Weno Island including Pou Bay



ii) Rapid Marine Habitat Assessment along the Project Road – June 2025

97. A rapid marine survey was undertaken between 2-4 June 2025 for the preparation of the ESMP. The methodology included direct observation within the marine areas adjacent to the proposed road upgrades with photographic documentation.

98. Figure 17 show the specific findings of this survey along the five 'zones' of the road project corridor.

99. A summary of the key findings from the survey notes:

- (i) There is substantive barrier coral reef established along this coastline.
- (ii) There has been extensive disturbance in nearshore marine environment in Zones, 1, 2 and 3 due to land reclamation and dredging of coral rubble, impacting on coral diversity and causing seagrass and mangrove losses.
- (iii) In Zone 3, there are a small number of mangrove trees present.
- (iv) In Zone 4, seagrass meadows are present as anthropogenic activities have been less here compared with other sections of the marine environment adjacent to the roadway.
- (v) In Zone 5, *Rhizophora apiculate* is well established, on the estuarine side of Pou Bay within the ABS.
- (vi) The entire coastal area (not including the Pou Bay ABS) is classified as Modified Habitat as per ESS 6¹⁰ described as 'areas where human activity has substantially modified an area's primary ecological functions and species composition', largely as result of reclaimed

¹⁰ Environmental & Social Framework for IPF Operations - ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

coastlines and human settlement.

- (vii) Water clarity in dry weather appears good in both Pou Bay and the coastal area (based on visual observations).

100. Figure 18 to Figure 22 highlight the rapid marine survey findings along the project road corridor by each zone¹¹.

¹¹ All photo credits are for Olivier Wortel.

Figure 17: ESMP Rapid Marine Survey locations



Figure 18: ESMP Rapid Marine Survey at Zone 1

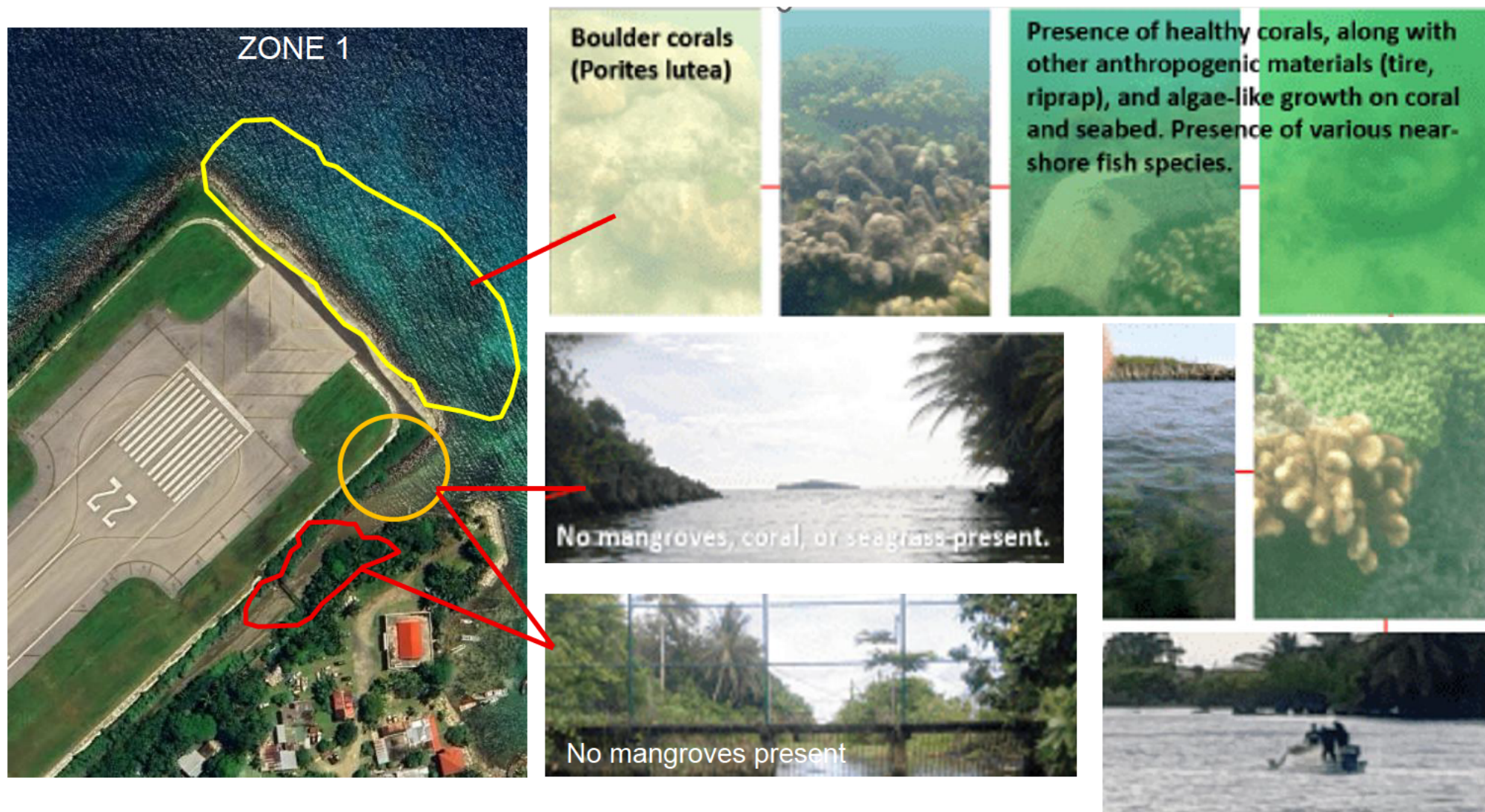
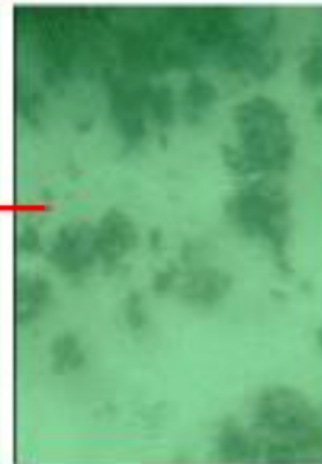


Figure 19: ESMP Rapid Marine Survey at Zone 2



No mangroves present



No mangroves and very few seagrass meadows present. Some corals are within the present. Large sandy, shallow areas with large amounts of algae growth and dead corals are present.

Figure 20: ESMP Rapid Marine Survey at Zone 3

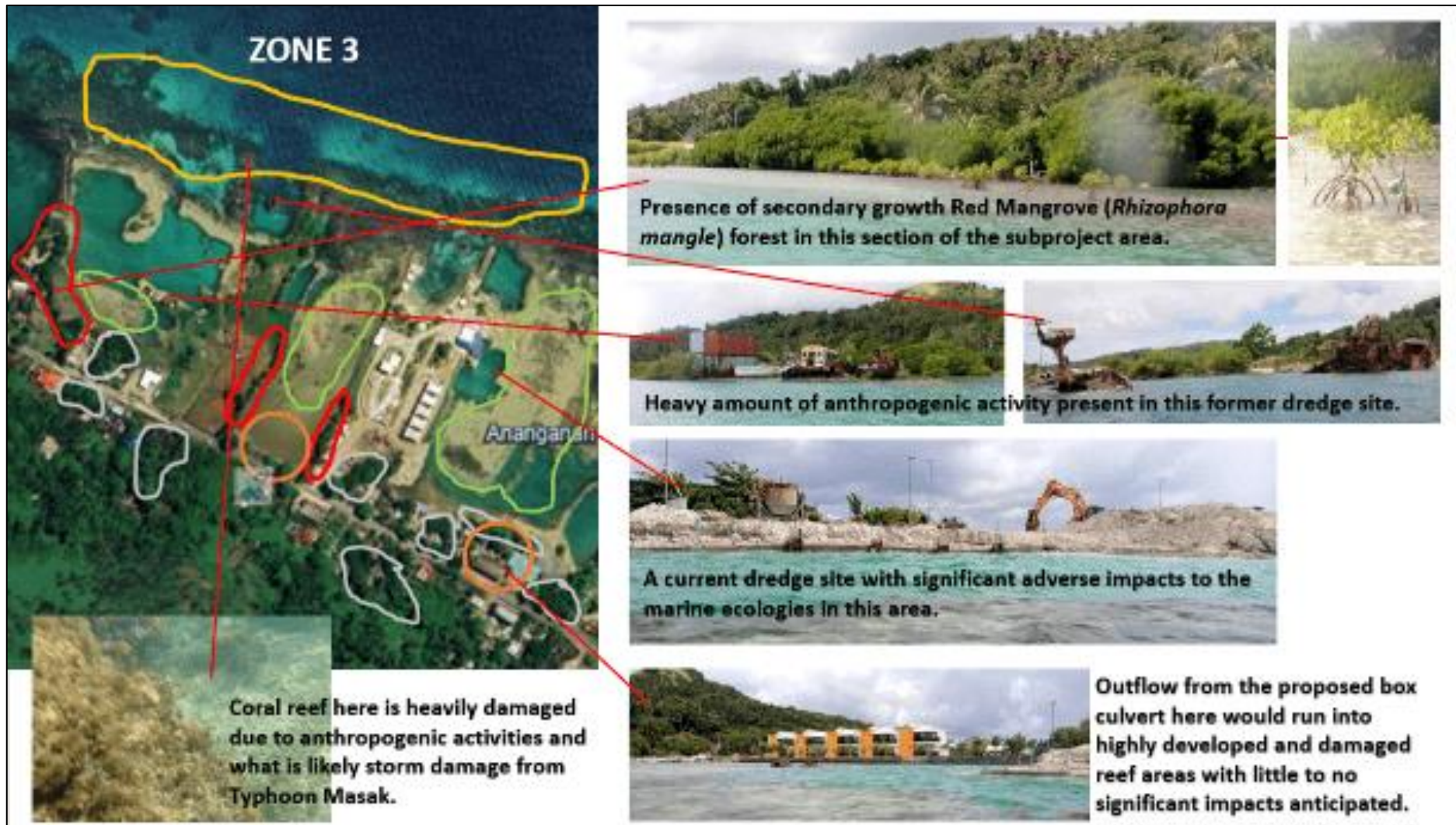


Figure 21: ESMP Rapid Marine Survey at Zone 4

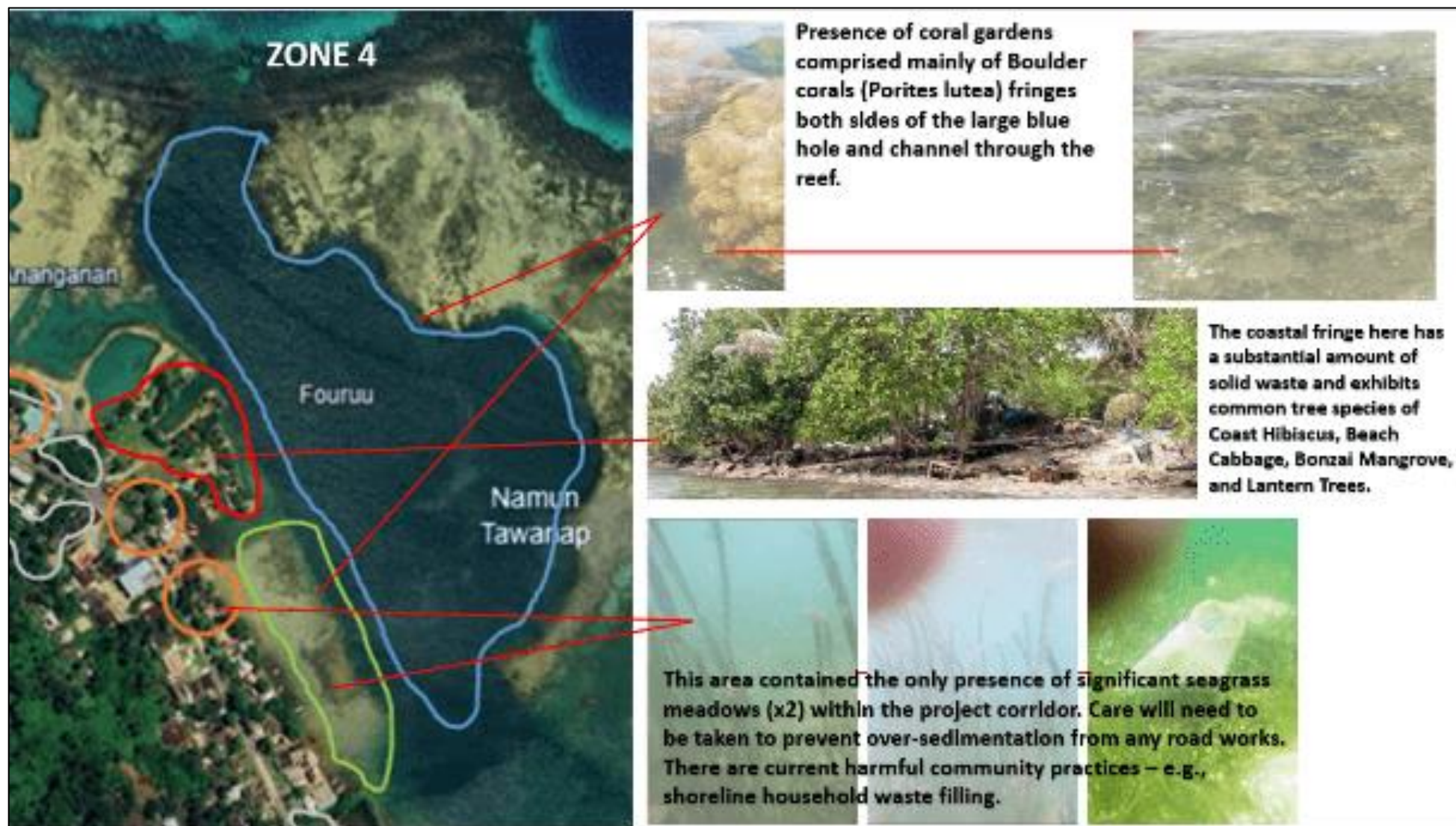
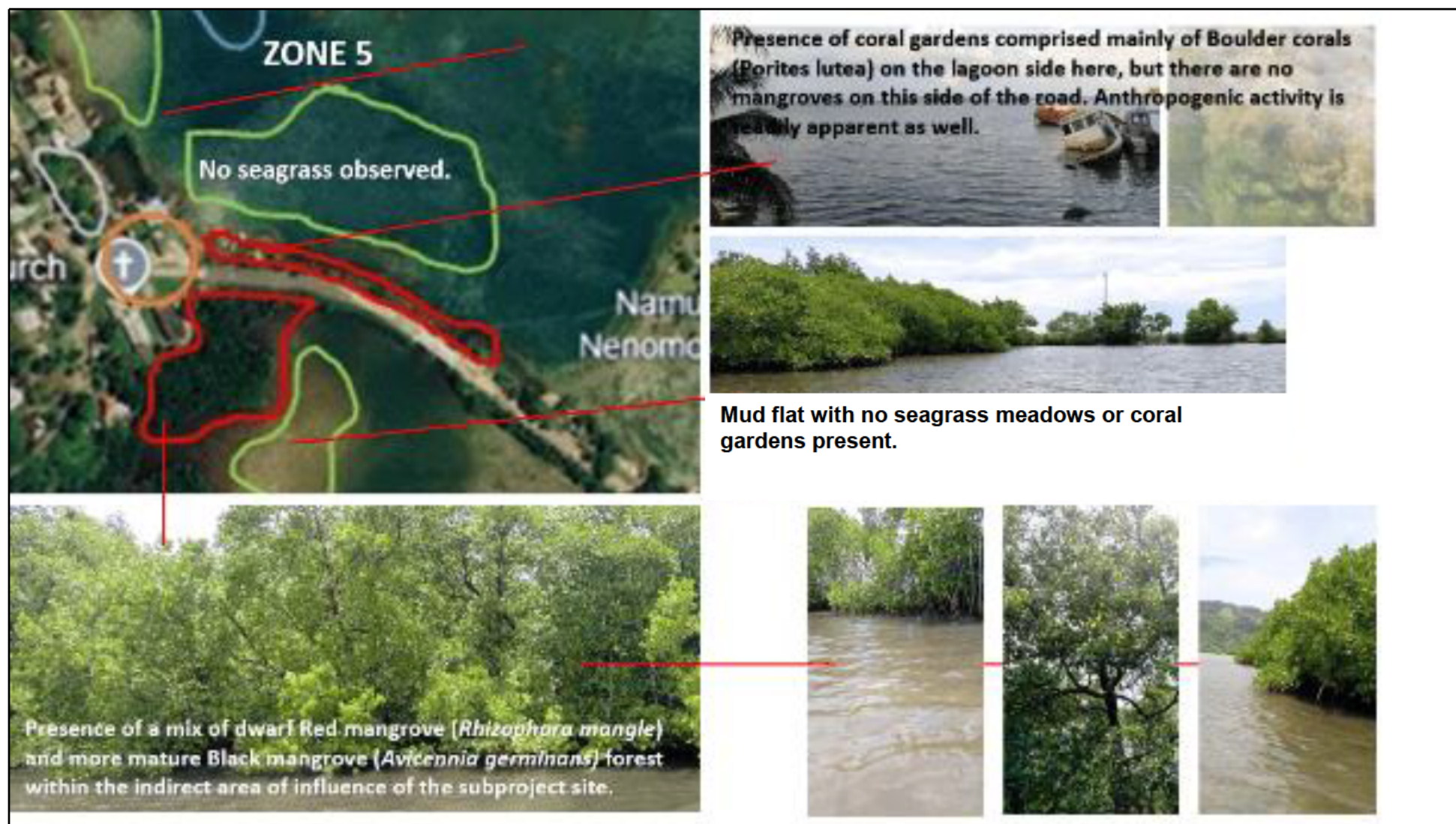


Figure 22: ESMP Rapid Marine Survey at Zone 5



iii) Terrestrial Vegetation Survey Adjacent to the Road Corridor

101. The road corridor is a well-established urban and peri urban area with multiple residents lining both sides of the road with plant species, a mix of disturbed, and cultivated species or ubiquitous native species, which are highly tolerant of disturbances.

102. A survey of vegetation found adjacent to road corridor was undertaken in December 2024 and is described below.

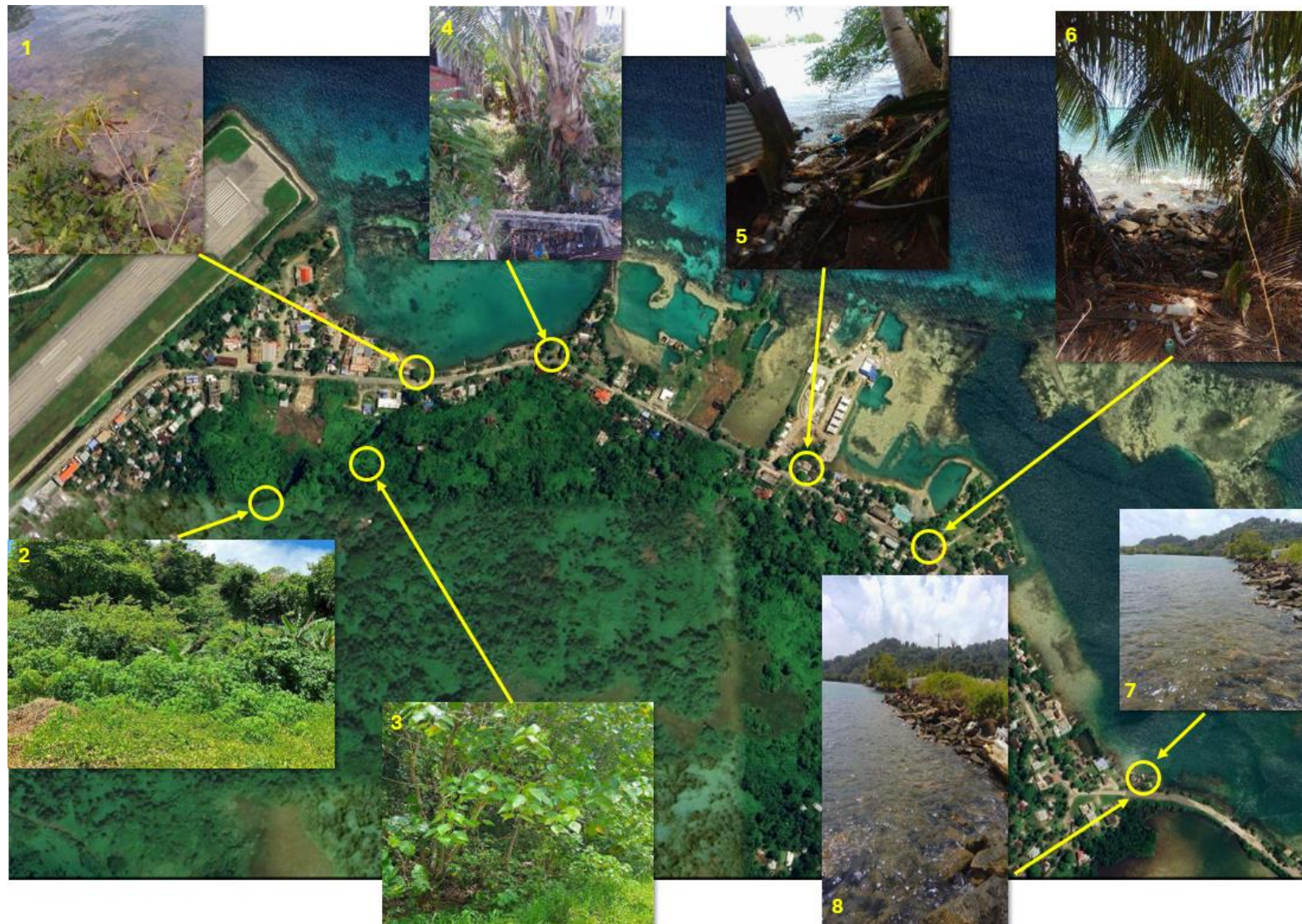
103. The following list identifies some of the common flora adjacent to the road corridor (Figure 23)

- (i) #1 on the ocean foreshore is Wild Sea Fern (*Stenochlaena palustris*) and the invasive plant - morning glory creeper (*Ipomoea* genus)
- (ii) #2 is a combination of Wild Cassava (*Manihot esculenta*), Banana Tree (*Musa* genus) and Betel Leaf (*Piper betle*) combination of plants found regularly in agro-forestry plots.
- (iii) #3 Hibiscus (*Hibiscus tiliaceus*) a least concerned listed plant, which is an indigenous species throughout FSM and is often found in coastal and near-coastal areas, but also in agricultural environments and even brackish swamps.
- (iv) #4 Lobster Claw Heliconia (*Heliconia rostrata*) is well established in Chuuk with its warm and humid environment like the climate from whereby the Lobster Claw Heliconia originates - native Central and South American rainforest, the ubiquitous and useful Coconut Palm is found throughout the coastal region of Chuuk.
- (v) #5 and #6 Coconut Palm (*Cocos nucifera*).
- (vi) #7 Sea Almond Tree (*Terminalia catappa* -Least concern), is a large tropical tree valued for shade, its edible nut and coastal resilience due to saltwater tolerance.
- (vii) #8 the invasive plant *Leucaena leucocephala*, a small fast-growing mimosoid tree native to southern Mexico and northern Central America, now naturalized throughout the tropics including parts of Asia, is well established on the road embankments near the Pou Road Bridge.

A number of other invasive species were found within the vegetation community adjacent to the road corridor and include *Chromolaena odorata* (Siam weed) and *Merremia peltata* (mile-a-minute vine).

Vegetation adjacent to the road corridor includes a mix of natural, disturbed, and cultivated species. The road corridor is classified as Modified Habitat as per ESS 6.

Figure 23: Examples of vegetation types and species adjacent to the road corridor



104. A localized fauna survey was undertaken by Palikir Consulting Services (PCS) and Chuuk Conservation Society personnel in December 2024 in area of remnant vegetation, surrounded by residences on the western side of Pou Bay (Figure 24). The species identified are listed in Table 7.

Table 7: List of Fauna observed during field observations

Common Name	Scientific Name	IUCN Redlist Status ¹²	Type	Notes
Chuuk Flying Fox	<i>Pteropus pelagicus</i>	Endangered	Mammal	Endemic and restricted range species; Keystone species; forest regenerator; frugivorous. The Chuuk Flying Fox is classified as Endangered by the IUCN Red List. # 3 in Figure 24.
Chuuk Monarch	<i>Metabolus rugensis</i>	Endangered	Bird	Endangered; sexually dimorphic plumage. # 2 in Figure 24.
Micronesian Starling	<i>Aplonis opaca</i>	Least Concern	Bird	Native to FSM.
White Tern	<i>Gygis alba</i>	Least Concern	Bird	Coastal nesting habitats include large agroforest trees and mangroves
Pacific Reef Heron	<i>Egretta sacra</i>	Least Concern	Bird	Found on reef flats, mangroves and Likely shorelines
Chuuk Flycatcher	<i>Myiagra oceanica</i>	Least Concern	Bird	Endemic; forest-dwelling # 8 in Figure 24.
Thin Shelled Rock Crab	<i>Grapsus tenuicrustatus</i>	Data Deficient	Crustacean	Intertidal; culturally significant # 5 in Figure 24.
Island Land Crab	<i>Gecarcoidea natalis</i>	Data Deficient	Crustacean	Terrestrial; migratory; moisture-dependent
Orbiculate Cardinalfish	<i>Sphaeramia orbicularis</i>	Least Concern	Fish	Mangrove-associated; near shore and thrives in anthropogenic influenced areas (e.g. sea walls) # 4 in Figure 24.
Rabbit Fish	<i>Siganus canaliculatus</i>	Least Concern	Fish	Herbivorous; seagrass-associated; venomous spines; preferred food
Island Rainbow Skink	<i>Lampropholis delicata</i>	Least Concern	Reptile	Found throughout the landscape; in gardens and grassy areas; eats various insects # 1 in Figure 24.
Freshwater goby	<i>Sicyopus zosterophorus</i>	Least Concern	Fish	Marine; freshwater; brackish; benthopelagic; amphidromous depth range 0 - 5 m, Tropical; 10°N - 17°S

¹² The IUCN Red list 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).

				# 6 in Figure 24.
Pacific Tree Gecko	<i>Gehyra oceanica</i>			Thrives in tropical wooded habitats, sheltering in large trees, and is well-adapted to the island environment. # 7 in Figure 24.

Figure 24: Fauna observed during the site assessment



105. Conservation Status and Threats – the Chuuk Flying Fox is classified as Endangered by the IUCN Red List due to several threats. The small, cave-dwelling microbat Pacific sheath-tailed bat (*Emballonura semicaudata sulcata*) is also found on Chuuk.

106. The primary concerns for the protection of the Chuuk flying fox include habitat loss, vulnerability to severe typhoons, and the projected impact of sea level rise associated with climate change on their low-lying atoll habitats. Historically, commercial hunting for export also posed a significant threat¹³. The estimated total population is small, with a declining trend.

107. According to the description of the Chuuk Flying Fox in the IUCN Red List of Threatened Species (2020¹⁴), few details of the biology of *Pteropus pelagicus* have been documented. The Chuuk Lagoon population occurs on both high islands and fringing atoll islands, and uses native forest, agroforest, mangrove, and atoll forest (e.g., Kepler 1994)¹⁵. The Pou Bay ABS is considered Critical Habitat as a precaution, as it is assumed that the mangroves are a significant habitat for the bat.

108. Bats at Chuuk Lagoon are at least partially colonial. Colonies have been reported in native forests near the summits of Tol Island (ranging in size from about 100 to 1,000 bats between 1976 and 1984) and Dublon Island (about 100 bats in 1983 (Bruner and Pratt 1979, Wiles 1992b)¹⁶. Current roost sizes are unknown, but it is unlikely that any continue to hold as many as a thousand animals. The only reported feeding observation was on the flowers of coconut (Wiles 1992b). However, many species of *Pteropus* readily forage in agroforest, thus the presence of this habitat is not harmful to this species (Buden *et al.* 2013)¹⁷.

109. The Chuuk Monarch bird (*Metabolus rugensis*), also classified as Endangered, is reported in the project area. This species has a very small population likely to belong to several small subpopulations. Although there is uncertainty surrounding the species due to a lack of recent records, available data are indicative of a decline since 1984 and this is thought to be continuing given the likely ongoing threats.¹⁸

110. It occurs at highest densities in small patches of upland native forest, but is also found in well-developed stands of mangrove, thickets, atoll strand and (rarely) plantations along scrubby slopes, often covered by *hibiscus Hibiscus tiliaceus* or along steep ridges or cliffs (Engbring *et al.* 1990, D. Scott *in litt.* 2011).¹⁹ It favors areas with a thick, leafy understory where it is found in small family groups gleaning insects, lizards and other prey from the foliage (Engbring *et al.* 1990). It appears to be strongly

¹³Wiles, G. (2020). "*Pteropus pelagicus*". IUCN Red List of Threatened Species. 2020 e.T85043053A22081930. doi:10.2305/IUCN.UK.2020-2.RLTS.T85043053A22081930.en.

¹⁴ Wiles, G. (2020). "*Pteropus pelagicus*". IUCN Red List of Threatened Species. 2020 e.T85043053A22081930. doi:10.2305/IUCN.UK.2020-2.RLTS.T85043053A22081930.en.

¹⁵ Kepler, A.K. 1994. Chuuk coastal resource inventory, August 4-14, 1993, terrestrial surveys. Unpublished report to CORIAL (Coastal, Ocean, Reef, and Island Advisors, Ltd.), Government of the Federated States of Micronesia, The Nature Conservancy, and East-West Center, University of Hawaii

¹⁶ Bruner, P.L. and H.D. Pratt. 1979. Notes on the status and natural history of Micronesian bats. Elepaio 40: 1-4 and Wiles, G. J. 1992. Recent trends in the fruit bat trade on Guam. US Fish and Wildlife Service.

¹⁷ Buden, D.W., Helgen, K.M. and Wiles, G.J. 2013. Taxonomy, distribution, and natural history of flying foxes (*Chiroptera, Pteropodidae*) in the Mortlock Islands and Chuuk State, Caroline Islands. Zookeys 345: 97-135

¹⁸ BirdLife International. 2016. *Metabolus rugensis*. The IUCN Red List of Threatened Species 2016: e.T22707227A94111958.

¹⁹ Engbring J., F.L. Ramsey and V.J. Wildman 1990. Micronesian forest bird surveys, the federated states: Pohnpei, Kosrae, Chuuk and Yap. U.S. Fish and Wildlife Service. Department of the Interior, Washington D.C.

territorial, nesting in trees with dense foliage and nesting has been recorded from April to July (Engbring *et al.* 1990). As for the Flying Fox, Pou Bay ABS is considered Critical Habitat for the Chuuk Monarch as a precaution, as it is likely that mangroves are a significant habitat for the bird.

5) ANTICIPATED IMPACTS AND MITIGATION MEASURES

a) Overview

111. This section provides an assessment of the likely impacts of the Airport to Pou Bay Bridge Road improvements 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 and mitigation measures are presented. The risk management measures will be incorporated into the project phases as follows:

- **Pre-construction phase** – the period from the preparation of this ESMP to the time that the ‘notice to proceed’ is issued. This ESMP will be included in technical specifications and bidding documents. The successful contractor shall prepare a CESMP. An Indicative Outline For Contractor’s Environmental & Social Management Plan (CESMP) is shown in Appendix D.
- **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 the Chuuk EPA. This process will be monitored and documented by the PIU with the assistance of the ICT and CIU Environmental and Social Risk Management Team.
- **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

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

- The adoption of foot paths, crosswalks, solar studs, 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.
- A requirement of the ESCP is the community and occupational health and safety (CHS/OHS) risk assessment and actionable measures compliance with WB EHS guidelines²⁰ and implementation shall be integral part of the CESMP. 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 as part of the CESMP.
- Raising the road by 300–600 mm addresses ESS1 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 environmental and social risk management standards

²⁰ <https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf>

- Increasing the number of drainage outlets, longitudinal channels, and intake catch pits minimizes pollution and flood risk. In turn, reduces adverse impacts on human health and the environment, directly supporting the objectives of ESS3 – Resource Efficiency and Pollution Prevention.
- 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)
- The LADDR confirms that there will be no land acquisition nor physical or economic displacement under the project (refer Section 4)b)i)) (ESS 5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement).

c) Pre-Construction Phase

113. **Preparation and approval of CESMP:** Prior to works commencing at the project site, the contractor will prepare and submit a site-specific CESMP (o) to the PIU. 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. The community and occupational health and safety (CHS/OHS) risk assessment and actionable measures compliance with WB EHS guidelines²¹ and implementation shall be integral part of the CESMP. 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 as part of the CESMP.

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

115. **Sourcing of construction materials:** The location of fill and base course materials has not yet been identified. Based upon the experience of other road projects in FSM, aggregate materials (sub-base, base course, concrete aggregate) will have to be imported from international sources. Sources of non-structural fill are likely to be available from local suppliers.

116. The Contractor will organise this 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.

²¹ <https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf>

- The Contractor shall confirm Commercial Supplier is permitted and approved /licensed compliance with the Part 3 of the FSM EPA Earthmoving Regulations of 1988 and applicable Chuuk regulations.
- If aggregate material is imported then State regulations will also need to be met. Invasive Pest Species:Implementation of GIIP mitigation measures (vehicle washing, sourcing weed free aggregates, fumigating aggregates etc) will ensure all GoFSM biosecurity measures are implemented minimizing the risk of invasive pest introductions. In addition, the aggregate material imported from offshore will need to meet any State and ESS requirements, which includes impacts managed through the implementation of Codes of Practice (CoP) for quarry and dredging operations and ensuring materials such as aggregate and equipment meet strict biosecurity precautions and clearance for imported materials, as well as adherence to the World Bank Group EHS Guidelines for construction material extraction²².
- In case of quarry material, the FSM States have existing quarry sites, which have been previously used for road maintenance and construction activities. These sites) will require further investigation to determine whether they can supply suitable material (both quality and quantity) to meet the needs of both Projects works. The investigation of the quarry sites will be completed before commencement of the construction works. 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, 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.
 - Supply agreements must comply with the LMP relevant for the risks to significant OSH 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.

117. **Alien and invasive species.** During mobilization there is a risk that equipment and materials bring in new and / or invasive species to Weno Island. 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 Chuukese 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/Chuuk. Where materials, equipment and machinery are sourced outside Weno, it is the importer's responsibility to ensure these arrive in Weno free from biosecurity risk material, such as soil, seeds, plant, and animal material.

118. Construction equipment where possible to be sourced locally. In the case, there are equipment and materials to be imported, these including the vessels that import them will be subjected to clearance procedures under the FSM Biosecurity Act of 2017 (Public Law No. 19-174), and Regulations and may require issuance of phytosanitary certificates from Biosecurity FSM.

119. **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 the newly installed water pipeline by CPUC. These drawings have been reviewed by the Design team and noted in the drawings and dialogue in the Design Report. Prior to

²² Source: Section 5.5.1.9 of the ESMF PRIME & SCORE.

construction activities, DoFA, DTC&I and the PIU, and the Contractor will:

- coordinate with CPUC to confirm the locations of the water supply pipeline;
- coordinate with CPUC 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.

120. **Land access Arrangements:** The following actions are required prior to work commencing:

- The contractor and PIU need to undertake consultations with stakeholders and landowners and land users prior to commencement of works.
- Consent for land use from customary landowners for the embankment works will need to be obtained by PIU and appended to the LADDR prior to commencement of works.
- Prior to works starting, the Contractor will confirm the ROW and ensure all works will remain within the right of way.
- 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.
- Limit of works will be agreed with landowners for the road and drainage upgrades in accordance with PRIME RF and SEP.

121. **Mobilization of workers and Laydown Areas:** 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 Weno for approximately 24 months. Risks to the community range can include offenses due to cultural insensitivities, transmitting diseases (such as HIV/AIDS), violence, sexual harassment and sexual exploitation and abuse (SEA/SH).

122. Prior to contractor mobilization to the site, the PIU and contractor will establish a communications protocol for the project with relevant elements of the GRM to be reflected in the contractor's CESMP. 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 Chuukese 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.
- The contractor will identify a member of their staff to act as liaison officer between the communities and contractor and manage the GRM;

123. 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 will be determined by the contractor in consultation with the PIU, the ICT and the Chuuk EPA. The contractor will obtain landowner approval in accordance with the RF 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. The designated washout area must have a sealed collection basin with associated ground protection.
- A detailed Protocol for management of temporary Land Access and Restoration for the Contractor to follow is shown below.

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

1. 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

125. **Workplace hazards and traffic management:** Road works are in public spaces, and it is easy to expose adults and children to workplace hazards such as traffic, heavy machinery and trip hazards. In order to protect the public from hazards, the contractor will ensure the following, starting in the mobilization phase:

- Adequate signage and security provided at the work sites and prevention of unauthorized people (including children) entering the work sites;
- Provision of adequate protection to the public close to the work site, including notice of commencement of works, installation of safety barriers where required and signage or marking of the work areas;
- The contractor will need to undertake a survey to understand peak times and flows and reflect the findings in the TRSMP (Traffic and Safety Management Plan) as part of the CESMP; and
- Provision of safe access across the works site to people and businesses whose access is temporarily affected during road rehabilitation activities.

d) Construction Impacts

126. 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 conduct awareness raising, training, implementation support and monitoring of compliance of activities with the approved CESMP. The 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 social and environmental safeguard requirements.

127. 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.

128. It is anticipated that the environmental and social impacts will be confined to specific locations, relatively small in scale, and temporary in nature. Construction impacts may be caused by the following activities:

- Operation of construction plants and vehicles generating dust, noise, and vibration;
- Earth movements, grubbing and excavations lead to likely erosion and sedimentation;
- Construction waste disposal, pollution from hazardous materials and wastewater management;
- Stockpiling of construction materials such as sand, gravel, and cement leading to loss of materials and water quality impacts;
- Road formation, reshaping, filling, and sealing leading to loss of materials and water quality impacts;
- Creation of roadside drains and stormwater drainage, including working in natural waterways and coastal areas;
- Heavy vehicles working in an existing road environment with pedestrians and road users leading to interactions between pedestrians and vehicles;
- Concrete batching at the laydown area / Contractor's yard generating noise, dust and stormwater contaminants;
- Local quarrying of soil, sand or gravel generating noise, dust and stormwater contaminants and occupational health and safety hazards;
- Rehabilitation of the embankment, including works in the coastal marine area of Pou Bay;
- 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;
- Construction activities generate occupational health and safety hazards and risks such as working with cement, working in noisy and dusty environments, working with heavy machinery.

i) Impacts on the Physical Environment

129. **Air quality.** The potential air impacts from road rehabilitation, drainage works,

batching plant 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, schools, community halls and places of worship. Those adjacent to the road are most at risk. The following mitigation measures are to be undertaken by the contractor:

- Dust monitoring at sensitive receptor during nearby work fronts
- 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 of all types of wastes generated.

130. Mitigation measures related to concrete batching plant will be implemented.

131. **Concrete batching:** 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.
- concrete batching plant must be the location for truck washout, and truck washout area must be a constructed and defined area with strict controls.

132. Observe evidence of dust settlement at the boundary of the compound.

133. Storage areas for chemicals and other hazardous liquids will be available.

134. **Soil erosion.** Road and drainage works will require movement of material primarily soil and aggregates on and around the road right of way. Construction activities are mostly in locations where contaminated runoff is not directly entering the marine environment, but rather through a drainage network. However, the drainage system will not significantly reduce sediment loads so the controls listed below are required to reduce sediment leaving the RoW. To prevent soil erosion during the construction of drainage infrastructure, construction activities should be minimized during rainfall events and mitigation measures as described below need to be adopted where required. The extent of disturbed areas should be minimized during drainage construction to limit erosion.

135. 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. Some 10% of the construction works are directly adjacent to the marine environment, i.e. there is no residential buffer between the road and the ocean; so, it is imperative to make these controls highly

functional to minimize soil loss.

136. The receiving environment is highly modified and has been subject to damage, conversion and routine discharges of sediment laden stormwater, therefore environmental impacts are expected to be minimal. This is further mitigated by the temporary nature of the works, small areas exposed at any time, and the general flat gradient which will minimize erosion potential. However, because rainfall is consistent and can be heavy, at any time of year, sediment mobilization is likely and temporary turbidity will result. Despite the low sensitivity of the marine environment, good sediment controls are required by the contractor to minimize the impacts.

137. The contractor will be required to prepare an erosion and sediment control plan (E&SCP) as part of their design works and CESMP to avoid or minimize sediment-laden stormwater runoff.

138. Measures to prevent sediments from moving offsite may include:

- Diversion of upstream storm water around open work areas;
- Installation of small interceptor dikes, pipe slope drains, grass bale barriers, silt fence, sediment traps down gradient of road works and upstream drainage channels;
- Soil / gravel stockpiles are to be located and contained (e.g. bunding, covered) to prevent any discharge of sediment during rain events;
- Siting of soil stockpiles at a distance of at least 20 m from water courses, open drainage channels etc.;
- 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
- Earthworks and areas to be exposed should be carefully planned and disturbances to be minimized to the maximum possible extent.

139. Additional mitigation controls are recommended during repair works on 440 ft of embankment adjacent to Pou Bay, an ABS-designated area. The predicted scale is very temporary (several months during the embankment works) for water quality issues. The secondary effects, benthic smothering via sedimentation – are anticipated to be short to medium timeframe depending on the natural estuarine processes, small geographic scale (likely <0.2 ha including water column and benthic area). The impacts would only be likely in the immediate environment because the soils/sediment are heavy and there is little current to keep it suspended. These unmitigated impacts are considered very localized and short to medium term and therefore unlikely to have a measurable effect on the ecological functioning of the estuary system.

140. The repair of the 440 ft in total for both RHS and LHS of embankment requires the restoration of the soil profile, geofabric installation and rock armoring to prevent erosion of the roadway and drain formation. To ameliorate any soil erosion impacts during construction, geofabric must be progressively installed on a daily basis over any exposed soil to minimize impacts on water quality on Pou Bay.

141. In addition:

- All earthworks and installation of rocks, embankment works, concrete formwork etc. to be completed in dry conditions.

- Water to be diverted around work areas.
- Dewatering water to be treated prior to discharge to ocean site.
- Silt curtains be installed and maintained around works in water (for installation of sheet pile or sandbags)
- No heavy machinery to operate from the ABS.
- Spill management for quick containment and clean-up of wet concrete.
- No physical disturbances, including removal of any plants, within the ABS.
- No discharges of stormwater or dewatering water from the work area (all discharges will be treated for sediment removal prior to discharge to ocean side).
- Runoff to be diverted around work areas.

142. 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 to protect the biodiversity values of Pou Bay.

143. **Waste management.** The construction activities and procurement of materials and equipment will generate waste. The contractor will be responsible for ensuring waste generation, storage and disposal is managed as per a construction waste management plan (WMP) included in the CESMP. To date, no recycling facilities are available on Chuuk, however, should these facilities become available, paper, bottles and cans should be transported to local recycling facilities. Therefore, all waste that cannot be reused will be disposed of at the licensed Chuuk EPA 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. The landfill is located at the bypass road near the Blue Lagoon resort. Further details can be obtained from the Chuuk EPA office. Waste management measures will include, but not be limited to, the following:

- Cans, litter, sludge/sediment and other debris will be collected whilst cleaning out of the culverts during construction. This waste is to be collected and disposed of at the licensed land fill.
- 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 waste shall be collected and disposed of at the Chuuk EPA licensed disposal facility.
- Construction workers shall have access to on-site toilets and hand-washing facilities.
- Wastewater from toilet facilities shall be collected and disposed of at the licensed wastewater treatment plant at Weno.
- Stockpiling, burying, burning, or dumping of solid or liquid wastes shall be strictly prohibited.
- Separate solid waste into hazardous, non-hazardous, and reusable waste.

144. **Hazardous materials.** 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.

145. Mitigation measures to be undertaken by the contractor will include being required to prepare 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 EPA within 24 hours
- Provision of training on the proper handling of fuels/hazardous substances, and containment and disposal of spills;
- 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 any oil-contaminated soils.

146. **Cultural Heritage Chance Find Procedure.** 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 the appropriate authorities shall be informed of the findings. 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.

ii) Impacts on Biological Environment

147. **Terrestrial flora and fauna** The project uses an existing road RoW footprint which has been utilized for many decades and is associated with a highly disturbed and altered semi-urban setting. All roadworks will be within the existing road right-of-way footprint with minimal impacts expected on adjacent vegetation outside of the existing road right-of-way footprint. Plant species located in the drainage areas and where slope protection works are to occur, are not significant and are either introduced species or ubiquitous native species, which are highly tolerant of disturbance.

148. Removal of plants and/or grass associated with the road and associated works footprint will have no impact on the terrestrial fauna and/or flora populations or ecosystems.

149. The endangered Chuuk Monarch bird and Chuuk Flying Fox are found nearby in the ABS-designated Pou Bay catchment. The roadworks is separated from any potential Chuuk Monarch and Flying fox habitat by substantial housing and peri urban

areas. The potential roosting and foraging habitat (forest and mangroves) for both species in the catchment of Pou Bay is well buffered from roadworks activities and their impacts e.g. road noise, vibration and dust.

150. Feeding trees for the Chuuk flying fox, particularly agro-forestry plots, will also be unaffected by road construction, as these plots are situated some distance from the road and foraging will occur during nighttime when road works activity has stopped.

151. Remnant native forest has been extensively cleared near the roadway and agroforestry plots dominate the lower reaches of the mountain terrain so foraging habitat for the Chuuk Monarch is more limited as it found less frequently in degraded lowland forest.

152. No impacts on bats or birds from the roadworks are expected because of the large buffer area, feeding trees and the extensive mangrove areas in Pou Bay. Feeding for the bats will occur at nighttime when no work is undertaken. Habitat suitable for the Flying Fox and Chuuk Monarch does not occur within the roadwork footprint, though mangroves which may be used for foraging are found close by. Given the species' preference for intact native forest and the extensive mangroves areas in Pou Bay, and the limited habitat in the project area of influence, the likelihood of the Flying Fox and Chuuk Monarch being affected by the works is considered unlikely.

Monitoring for the Chuuk Flying Fox and Chuuk Monarch bird

153. Monitoring will initially be undertaken for six months during the pre-construction phase to determine whether the endangered Flying Fox and the Chuuk Monarch species is present within the project's work area. If the species is confirmed, ongoing construction-phase monitoring will assess any behavioral changes or potential impacts associated with project activities. Where monitoring indicates emerging risks or measurable impacts, adaptive management measures will be implemented to avoid or minimize any net loss of these species throughout the project duration.

154. Any residual net loss identified through the monitoring program can be offset by establishing a robust baseline of population size, distribution, and behavior for this species. This baseline will provide the scientific foundation needed to design and implement targeted conservation actions. By generating high-quality ecological data and directing it into evidence-based conservation initiatives, the project can contribute to measurable improvements in the status of these species and support the achievement of a net-gain outcome.

155. The Contractor will be required to avoid and mitigate impacts on the Chuuk Flying Fox and Chuuk Monarch Bird as follows:

- No work permitted at night, and no lights left at night on active work sites.
- The Site inductions for workers will cover the importance of the Chuuk Flying Fox and Chuuk Monarch bird and habitat. The induction will emphasize that hunting or poaching of the flying fox is strictly prohibited.
- Temporary sites must be surveyed for the Chuuk Flying Fox and Chuuk Monarch Bird, and the site will not be permitted if the survey identifies potential adverse impacts.
- Community engagement will highlight the importance of the conservation of the flying fox and Chuuk Monarch bird habitat.

156. Mangroves are not at risk; no mangroves will be removed, and the mangroves will not be affected by temporary water quality impacts from embankment

strengthening. Water quality changes will not directly affect the Chuuk Monarch and Flying Fox as they do not rely on the marine / estuarine aquatic habitat.

157. The Project will meet the requirements of ESS6 with respect to the critical habitat designation of the Pou Bay ABS. ESS6 conditions are only triggered where project activities are expected to cause adverse impacts on the biodiversity values for which the critical habitat was identified. In this case, the Project will not result in any adverse impacts on the Flying Fox or avifauna species that underpin the critical habitat classification.

158. The only anticipated adverse effects are short-term, highly localized, and minor water-quality impacts (elevated turbidity and sedimentation) within the immediate works footprint during embankment construction. These temporary impacts do not affect the ecological features or species for which the critical habitat was designated and will be managed through standard mitigation measures.

159. The conditions are that the Borrower will not implement any project activities that have potential adverse impacts unless all of the following conditions are met (Table 8).

Table 8: Condition and response to ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resource- Chuuk Flying Fox and Chuuk Monarch Bird - Pou Bay

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 alternatives as the work must be completed on these roadworks and embankment to maintain the road which has fallen into disrepair and disrupting travel accessibility to many people on the island.
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.	Approvals will be covered in the Chuuk EPA Earthmoving permit.
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 was designated is the habitat requirements for the Chuuk Flying Fox. The bat occupies many different habitats for various needs – roosting, breeding, feeding etc. The Chuuk Flying Fox uses Pou Bay mangroves for feeding and forest for roosting. The impacts on the Pou Bay habitats are primarily temporary water quality issues from earthworks works to rehabilitate the embankment. Flying foxes are not affected by water quality changes in the marine/estuary environment. Temporary workday emissions of noise, dust and vibration are likely to be no more than background / baseline at the location of roosts due to attenuation with other urban sources of noise and distance from road to forest areas. Furthermore, the emissions are short term (several months) if they are measurable above the background levels. Feeding behaviour should not be affected because there will be no night works and no lights left on at night on the active work sites. Therefore, the works are unlikely to have a measurable effect on the feeding, breeding or roosting behaviour of the Flying Fox. Temporary activities such as laydown areas, borrow pits or quarries will be located away from the habitat of the Flying Fox to avoid impacts. The biodiversity values for which the critical habitat was designated is the habitat requirements for the Chuuk Monarch Bird where it primarily inhabits remnant native

	forests and extensive mangroves. Less frequently in degraded lowland forest. Favors areas with a dense understory, where it forages singly or in small groups, moving slowly through the foliage.²³ The Chuuk Monarch Bird population is declining as a result of habitat loss. The impacts on the Pou Bay habitats are primarily temporary water quality issues from earthworks works to rehabilitate the embankment. The Chuuk Monarch is not affected by water quality changes in the marine/estuary environment. Temporary workday emissions of noise, dust and vibration are likely to be no more than background / baseline at the location of foraging due to attenuation with other urban sources of noise and distance from road to forest areas. Furthermore, the emissions are short term (several months) if they are measurable above the background levels. Therefore, the works are unlikely to have a measurable effect on the feeding and breeding behaviours of the Chuuk Monarch Bird. Temporary activities such as laydown areas, borrow pits or quarries will be located away from the habitat of the Chuuk Monarch Bird.
The project is not anticipated 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 is not anticipated to lead to a net reduction in the population of the Chuuk Flying Fox during this short-term and localized roadworks because there will be no direct or indirect mortality.
The project will not involve significant conversion or significant degradation of critical habitats.	These works are in the road ROW and do not involve significant conversion or significant degradation of critical habitats that the Chuuk Flying Fox relies on, such as forest, agroforest and mangroves.
The project's mitigation strategy will be designed to achieve net gains of those biodiversity values for which the critical habitat was designated.	These works are in the road ROW and do not involve significant conversion or significant degradation of critical habitats that the Chuuk Monarch relies on, such as remnant forest with dense understory, mangroves and less frequently degraded lowland forest. ²⁴

²³ <https://ebird.org/species/trumon1>

²⁴ <https://ebird.org/species/trumon1>

	Because there will be no impact on the biodiversity values for which the critical habitat was designated for the Chuuk Flying Fox and Chuuk Monarch bird net gain is not considered relevant .
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.	Monitoring will initially be undertaken for six months during the pre-construction phase to determine whether the endangered Flying Fox species is present within the project's work area. If the species is confirmed, ongoing construction-phase monitoring will assess any behavioural changes or potential impacts associated with project activities. Where monitoring indicates emerging risks or measurable impacts, adaptive management measures will be implemented to avoid or minimize any net loss of these species throughout the project duration (Appendix C). Any residual net loss identified through the monitoring program can be offset by establishing a robust baseline of population size, distribution, and behaviour for this species. This baseline will provide the scientific foundation needed to design and implement targeted conservation actions. By generating high-quality ecological data and directing it into evidence-based conservation initiatives, the project can contribute to measurable improvements in the status of these species and support the achievement of a net-gain outcome.

160. **Control of Invasive Weeds:** Invasive weeds are present along the road corridor. The minor vegetation clearances and the road raising and resealing will not change the presence or distribution of weed species because works are in a very small footprint in a highly modified environment. If material from local quarries / borrow pits is to be used, seeds may be transferred to the work site from along the haul routes (or vice versa). These quarries are already in operation and generally utilizing the current roads, so the risk of additional infestation is considered low.

161. If imported aggregate is needed, bio-security controls will be required to meet the acceptable biosecurity cleanliness standards of the relevant authorities to enter FSM/Chuuk, as described in the pre-construction phase section above.

162. **Marine flora and fauna.** Potential impacts from road construction activities e.g. road raising, drainage improvements and embankment repairs include short-term losses of existing soil or additional road base soil by wind and water erosion to the receiving environment. Construction activities are predominantly in locations where sediment runoff is not directly entering the marine environment, but rather through a drainage network of existing and new proposed culverts and stormwater drains. The majority of these culverts will discharge into the highly disturbed area adjacent to the RoW between the airport and reclaimed land (Figure 4). The drainage system itself will not significantly reduce sediment loads, so the implementation of controls via an approved E&SCP in the CESMP is required.

163. In addition, there is the possibility of spills e.g. hydrocarbons which may enter the marine environment. To ameliorate these risks, the implementation of protection measures including the E&SCP, WMP and Waste Minimization Materials Management Plan (WMMP) as documented in the CESMP will be undertaken.

164. It is recognized that the embankment works will be carried out adjacent to the Pou Bay ABS and may have temporary water quality and sedimentation impacts that are expected to return to background conditions soon after construction ends. The response to ESS 6, paragraph 26 and 27 regarding impacts on protected areas has been provided in Table 10.

Table 9: ESS 6 Protected Area Response Table

ESS 6 paragraphs on protected areas	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	The Pou Bay ABS is managed under the <i>Chuuk State Protected Areas Network (PAN) Act 2017</i>. The management objectives include developing a network of protected sites combining biodiversity conservation with community-driven fisheries management as well as building resilience against climate change and protecting critical ecosystems. The embankment repair works will have minor disturbances to the edge of the Pou Bay ABS. The ESMP includes specific measures to prevent or mitigate any impacts that could compromise water quality and the benthic environment immediately adjacent. The integrity, conservation objectives, or biodiversity importance of Pou Bay will not be affected.
Paragraph 27: The Borrower will meet the requirements of paragraphs 13 through 25 of this ESS, as applicable. In addition, 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; management plans have to be formalised for Pou Bay ABS (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 (d) Implement additional programs, as appropriate, to promote and enhance the conservation aims and effective management of the area.	a) This ESMP will be reviewed by the Chuuk EPA to provide the relevant permits e.g. earthmoving permits for the construction of the road and associated infrastructure and ensure the works are legally permitted adjacent to the ABS. b) The Project plan and outcomes have been presented and discussed with the Chuuk EPA and Pou Bay community through an initial community awareness meeting. This consultation will continue to take place throughout the project lifecycle. c) Once complete, the embankment improvements will reduce erosion and associated sediment loss into Pou Bay. The small scale of temporary works and minor erosion benefits does not warrant any additional support for management of the area by the Project.

165. The mitigation measures will result in achieving the 'no net loss' of biodiversity values in the Natural Habitat of Pou Bay, as per the requirements of ESS6.

iii) Impacts on Socio-economic Environment

- **Impacts on the sensitive receptors (churches, schools, etc.)** Road construction may adversely impact sensitive receptors (e.g., schools, churches) through dust, noise, traffic disruptions, and general inconvenience. Given that these institutions experience high pedestrian and vehicular volumes during specific hours, contractors must proactively manage construction activities to minimize disruption. The following considerations are mandatory during the construction phase.
- Use of appropriate construction techniques which results in less disruption to public, especially the sensitive receptors.
- Specific consultation will be undertaken with these communities and stakeholders before and during construction activities to ensure that impacts are minimized, and community safety is ensured, especially when doing works during sensitive times, such as school and church hours.

166. **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 local schools and other high-traffic facilities, such as community halls.

167. Managing traffic during works along the Airport to Pou Bay Bridge Road Improvement Project work area will be critical given that this is the main thoroughfare on the ring road between suburbs and towns and the central business district, markets and the airport.

168. 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, will be required to 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. Coordination with church and community groups will be undertaken to avoid disruptive works during major services, funerals, weddings, and community gatherings. Emergency Access Requirements will be provided with a 24/7 contact number for the Site Supervisor.

169. 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.

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

171. The contractor's Traffic Road Safety Management Plan (TRSMP) will maintain continuous, safe, and predictable access to businesses, hotels, residences, the school, the church, and community facilities, ensure pedestrian safety, with particular attention to schoolchildren, elderly residents, hotel guests, and 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.

172. 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 Senior staff at the elementary school to ensure the safety of children. Some key issues are: Safety of staff, students and families around schools, and places of worship and community halls during the construction activities. For example, traffic controllers supplied by the contractor will be available during school opening and closing times to ensure all students, staff and families can safely enter and exit the school.
- In alignment with ESS10, daily communication with the local community 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, school routes, 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 residents, hotel guests, and delivery vehicles
- **To maintain frontage Protection for Businesses and Hotels**, the contractor will provide:
 - Customer access at all times
 - Temporary signage where visibility is reduced
 - Relocated loading/unloading zones
 - Avoidance of hotel entrance obstruction during check-in/check-out
 - 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 ring road 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 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.
- 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. Maintain parking and pedestrian access during service time and provide temporary routes if access must be modified
- 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, hotels, the school, and the church that access has been fully reinstated and document closure in the final site handover report.

173. **Noise and Vibration:** There are no noise or vibration standards in FSM so the World Bank Group ESHS noise standards will apply. Clearing roads, bulldozing, compaction equipment, 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 in an urban environment. During construction, there will be a temporary and minor adverse impact, due to the noise of heavy machinery, to businesses and homes adjacent to the road works.

174. Hence, the construction activities will be restricted during the daytime hours (as described above). 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 at the locations of material storage area(s) and concrete batching plant.

175. Measures to mitigate the effects of noise include:

- 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 hours.
- Any complaints regarding noise will be dealt with by the contractor in the first instance through the GRM.
- Noise monitoring at sensitive receptor during nearby work fronts

176. **Community health and safety.** As discussed in the pre-construction phase, 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:

177. The contractor will implement relevant elements of the TRSMP and GRM into CHSMP:

- 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 Chuukese 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
- In consultation with PMU, 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;
- Transparency and open communication with the communities on issues that affect them.

178. **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. 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. Mitigation measures include:

- 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.
- 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 behavior for the reference to Gender Based Violence, Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), alcohol restrictions, respect for Chuukese 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

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

180. 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.

181. 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).

182. 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-centered protocols.

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

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

e) Operational Impacts

185. 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.

186. **Adaptation to climate change.** The risks of impacts on the road, drainage and associated structures from climate change were addressed in design and construction. Surface flooding will no longer be routine, and the design has anticipated that this will continue for at least 30 years taking into account sea level rise and changes in rainfall frequency and intensity. Likewise, the embankment strengthening will protect the road asset from coastal erosion during the same period.

187. 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.

188. **Air quality and noise.** 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. Some localised dust issues will be resolved once the surface is sealed.

189. **Stormwater discharges and receiving water quality.** The water quality in the marine environment receiving waters is likely to be maintained or slightly improved compared to baseline for three main reasons:

- Drainage infrastructure is sized to avoid flooding, supporting the efficient removal of water and reducing the potential for contamination from ponding or pooling.
- Interceptors will capture trash, grit and oily residues from the road catchment prior to discharge, whereas stormwater from the road is not currently treated.
- Sediment loads will also be reduced as result of the road pavement works; sealed roads have less available sediment to erode compared to unsealed or poorly sealed roads.

190. Stormwater discharges will still contain some sediments and other contaminants. Several discharge locations are dispersed along the road alignment, ensuring each discharge volume and load is minimized and localized mixing zones are smaller than fewer larger discharges. Tidal and wave action will support mixing. There are no anticipated changes to the coastal habitats in the long term from these discharges since the habitats are already highly modified and contain species tolerant of disturbances, sediment and poor water quality.

191. It is the contractor's responsibility to ensure:

- Outlets and culverts are installed to avoid scouring erosion in the operational phase.
- Drains are installed at the correct fall to avoid flooding on the road and in the drains and to maximize the sediment settlement in drains prior to discharge to the marine environment.

192. It is the DTCL's responsibility to maintain the road and drainage systems to ensure these benefits continue. If drains are blocked, or not cleaned out regularly, adverse impacts may outweigh the benefits. The road maintenance activities required relate to surface structural maintenance which will be essential to retain road quality, thereby limiting erosion and sediment runoff. In terms of pollution control equipment, the oil and grit traps are very low-maintenance facilities and will only require occasional pump outs, and do not attract major maintenance obligations.

193. There is one drain discharge to the Pou Bay ABS, with roadside treatment there will be no long-term impacts on the water quality or benthic environment.

ii) Impacts on Socio-economic Environment

194. **Public access and traffic.** Following rehabilitation of the road, the performance of this primary route in the Weno island transport network will be improved. The lack of flooding, the new seal and the 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. Based on the Perception Survey undertaken with the local community, the perceived benefits from the road upgrade are likely, to a small extent:

- Increased safety and comfort to drive on, especially in terms of access during an emergency, such as a climatic event or medical issue
- Decreased travel time
- Less wear and tear on cars
- Can get children to school on time
- Increase in business along the road

195. **Community health and safety.** Traffic and pedestrian safety will be significantly improved following the installation of foot paths up to 3 ft in width, either on one or both sides of the project road, to safely separate pedestrians from vehicles. The footpaths are of varying widths to improve safety and access. Crosswalks are proposed at 15 different locations, yet to be decided, to further enhance operational pedestrian safety along the roadway by facilitating cross movement. Two of these locations will be flat top raised across the crosswalk. Solar street lighting also will be available at these sites increasing nighttime visibility and thereby reducing pedestrian risks, such as enhanced pedestrian visibility. A Community Health and Safety Management Plan (CHSMP) as part of the CESMP will be developed and implemented by the Contractor.

6) STAKEHOLDER ENGAGEMENT INFORMATION DISCLOSURE

a) Stakeholder Engagement activities and feedback

196. During the Design Team visit between March and May 2023, discussions were held with some residents to note their views and any specific recommendations to be considered for the final improvement design report.

197. During these discussions with residents along the project road, the following aspects were to be considered for improvement,

- some sections of the road had water from ocean overflowing on road during King Tide event and water logging was observed.
- requirement of a pedestrian walkway along the roadway
- waterlogging observed on road during heavy rains due to lack of drainage system as such the same need to be addressed in improvement proposal.
- Pavement surface to be adopted such that the same should not be damaged frequently.

198. A record of consultations is attached as Appendix E .

199. Following general good practice and the requirements of the PRIME SEP and ESS10, public consultations including key informant interviews (KII), perception survey and focus group discussions (FGD) were undertaken in November 2024 specifically for the development of the ESMP to determine community perception towards the project and elicit information relevant to establishing baseline conditions and understanding potential environmental and social effects (see Appendix F).

200. Consultations with stakeholders, government agencies, civil society, and communities, including women's groups, were conducted in Chuuk. The purpose of consultations at this stage was to:

- Foster partnerships with beneficiary and stakeholder communities;
- Share information on the PRIME projects and activities in Chuuk;
- 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.

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

b) Construction Phase Consultation and Grievance Redress

202. The consultation approach to be undertaken during the construction phase and the responsible stakeholders are detailed in Table 11.

203. 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; particularly in the pre-construction phase to identify if there are any vulnerable people needs
- The project's GRM;
- 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.

Table 10: Project Stakeholder Engagement and Communication Plan During Construction

Component Activities	Stakeholder Type	Stakeholders	Stakeholder Engagement Topic/ Scope	Stakeholder Engagement Objectives	Milestones	Engagement Type	Responsibility
Works Construction	Community	Owners of land and/or assets that are temporary acquired/used during construction.	- Specific one-on-one meetings with key relevant community - groups, e.g. community leaders and land owners/ occupiers, - asset owners. - Community meetings will be held to agree on conditions for work within the area of culture significance and the mangrove area which has been identified.	- Assessment of land and/or asset prior to disturbance (i.e. benchmark). - Acceptance of condition of reinstatement land/or asset after completion of works - Community satisfaction with agreed work locations around the culture significant areas	- Prior to preparatory construction activities. - After completion of construction/reinstatement of land/asset disturbed, or temporarily acquired / used. - Prior to construction, community consultation should be undertaken and agreements established.	In-person meeting/s	PIU, CIU Environmental and Social Team; Contractor
	Public Utilities	FSMTC, FSMTCC, State PUC.	Specific one-on-one meetings with key relevant public utility providers with assets impacted by the works	- Assessment of utility infrastructure prior to disturbance (i.e. benchmark). - Acceptance of condition of reinstatement utility infrastructure after completion of works.	- Prior to preparatory construction activities. - After completion of construction/reinstatement of land/asset disturbed, or temporarily acquired / used	Phone; Email; In person meeting/s	PIU, CIU Environmental and Social Team; Contractor
	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; Radio; notice board/sign; letter; drop/door knocking	PIU, CIU Environmental and Social 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 Environmental and Social Team; Contractor

c) Information Disclosure

204. 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.

7) GRIEVANCE REDRESS MECHANISM

205. The process for the GM is as follows:

206. 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 a grievance. The PRIME Project has a grievance mechanism that is detailed in the ESMF and RF.

207. In addition, because of the dominance of the commercial nature of the area affected by the road and bridge works a site specific GRM has been prepared to assist any complaints resolution with contractor during the construction activities.

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

209. GRM Requirements for Construction Phase to assist in Resolution of Any Commercial Disputes

210. Signage at All Work Fronts:

Contractor shall install and maintain clear, visible, and weather-resistant signage at every active work front.

Signage must include:

- Description of the works and expected duration
- Safe pedestrian and vehicle detour routes
- 24/7 GRM contact number and PIU focal point
- Contractor site supervisor name and phone number
- Signs must be in English and the local language, placed before works commence, and updated whenever staging changes.

211. Contractor Complaint Register

Contractor shall maintain a site-level Complaint and Incident Register that records all grievances received directly by workers, supervisors, or community members.

Minimum fields:

- Date/time received
- Complainant details (if provided)
- Nature of complaint
- Immediate action taken
- Follow-up actions and responsible person
- Date of resolution and confirmation with complainant
- Register must be available for PIU inspection at any time and submitted weekly.

212. Urgent Response Time for Blocked Access or Unsafe Diversions

Complaints related to blocked access, unsafe pedestrian diversions, or business access restrictions are classified as Priority 1 (Urgent).

Contractor must:

- Respond within 30 minutes of notification
- Rectify or make safe within 2 hours
- Notify the PIU once resolved
- If access cannot be restored within 2 hours, temporary safe access must be provided immediately.

213. Business-Related Complaints

Complaints from businesses regarding loss of access, reduced visibility, unsafe frontage, or construction-related disruption

Contractor must:

- Conduct a site visit within 24 hours
- Agree on temporary mitigation
- Document actions
- Persistent issues must be escalated to the PIU Social Specialist.

214. Documentation of Resolution and Restoration

For every complaint, the contractor must document:

- Actions taken
- Closure date/time
- Photographic evidence
- Confirmation from the complainant where possible
- All documentation must be included in the monthly GRM summary report to the PIU.

Table 11: 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 Compliant Portal: www.rebrand.ly/FSM-GRS, feedbackWB@gov.fm, complaintsWB@gov.fm. DTC&I : PIU Ph: 3202080 Email: tci@tci.gov.fm For SEAH: Chuuk: Chuuk Hospital and Department of Public Health: (691) 330-2444/7936; Email: jmarar@fsmhealth.fm; Hotline 923-2000 and Chuuk Women Council	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 endeavour to resolve the complaint/issue immediately.	Within 1 day of submission
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 sub-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 Environmental and Social 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 PMU 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 Environmental and Social 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 PMU 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	Within 1 month of grievance lodged

Step	Feedback, Queries or Grievance Process	Duration
	status (copy CIU Program Manager and Environmental and Social Team).	
6	Once the agreed corrective actions are implemented, and the PRIME/SCORE Project Manager notifies the claimant of the result in writing.	Within 1 week of resolution
7	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.

215. 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 sought within two weeks. If unsuccessful and the matter is referred to the Project Steering Committee (PSC), this should occur within a month. The PRIME/SCORE Project Manager shall report back the outcome of the resolution to the AP within one week total of the corrective action occurring.

216. 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 when appropriate – on a case-by-case basis.

217. A complaints register will be maintained by both the contractor and the State GRM focal point and will show the details and nature of the complaint, the complainant's name, the date and actions taken as a result of the investigation (outlined further below).

218. Each record is to be allocated a unique number, reflecting year and sequence of received complaints (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.

219. 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.

220. 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 outlined below), 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 notify the PRIME/SCORE Project Manager.
- (ii) The PRIME/SCORE Project Manager notifies the DTC&I PMU, the Secretary of DTC&I and CIU (Program Officer and Safeguard 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.

221. 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.

8) ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

a) Introduction

222. The environmental and social management and monitoring plan (ESMMP) contains the components crucial to effective environmental and social risk management of the Project

223. The ESMP 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

224. The ESMP 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 ESSs, PRIME instruments, international standards and best practice guidelines.

b) Implementation Arrangement and Responsibilities

225. The following section summarizes the organizational responsibilities for the Airport to Pou Bay Bridge Road Rehabilitation Project. 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 13 summarizes the organizational responsibilities for the projects.

Table 12: 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 Chuuk EPA. • After the completion of the project, Chuuk 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 Chuuk EPA or to address new/novel risks throughout the Project • Prepare the applications for necessary permits from Chuuk EPA. • 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, including Environmental and Social Specialist to support PIU 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 environmental and social commitments of the Project 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. • During construction, conduct site visits and coordinate with the

Project implementation organization	Environmental and Social Risk Management Roles and Responsibilities
	project engineers to ensure that required environmental and social mitigation measures are implemented at the construction sites, and • Coordinate with the contractors' environmental and social and safety officers to ensure that environmental and social and safety awareness trainings for workers are done.
CIU Environmental and Social 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 Environmental Health and Safety Manager (EHSM) 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.
Chuuk EPA	• 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 Pou Bay ABS
World Bank	• Review and clear CESMP for compliance against the ESMP and World Bank ESF. • Conduct 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

226. The ESMP includes the description of the potential environmental and social 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.

227. 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.

228. 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 14). 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.

229. Progress reports will be issued by the PIU and ICT consultants 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.

230. 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;

231. Preparation of quarterly progress reports for submission to DoFA and DTC&I;

232. Monitoring of environmental and social impacts effects will be undertaken daily by the Construction Supervision Contractor during construction, in accordance with the Environment Monitoring Plan in the CESMP to be prepared by the Contractor and approved by the PIU and CIU Environmental and social Team prior to commencement of construction works.

233. The PIU State Focal Point are to undertake weekly monitoring for the works site throughout the construction period (or at an alternative frequency agreed to by the PIU and Contractor if required depending upon the progress of works). Monitoring by the PIU will be based on frequent visual observations of construction activities, preparation of necessary plans and reports, engagement and consultation with stakeholders (as directed by the SEP), and reviewing and reporting on any Project-related complaints and/or grievances.

234. The CIU Safeguard Team, and EPA may also visit the site at any time to ensure adherence to the ESMP. Periodic post-construction monitoring will be carried out by DoTC&I during the Defects Notification Period which extends for 365 days after the completion of construction.

Incident Reporting

235. 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 EPA. The Site Manager is to take prompt and immediate action to minimize any impact and where necessary, liaise with all relevant authorities.

236. 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.

237. Reporting requirements are outlined in Table 15.

238. 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 (CFP)
- Occupational Health and Safety Management Plan (OHSMP)

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

- Social Interaction Plan - impacts are not unique or significant and general mitigation measures in the ESMP are sufficient to manage under the CESMP without a specific subplan.
- An Emergency Management and Response Plan is already included in this ESMP
- 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.
- No cultural heritage sites or items have been identified in the ESMP.

Table 13: Environmental and Social Monitoring & Management Plan

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
PRE-CONSTRUCTION							
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)
Workplace hazards and traffic management	The contractor will ensure the following, starting in the preconstruction phase: • Adequate signage and security provided at the work sites and prevention of unauthorized people (including children) entering the work sites; • Provision of adequate protection to the public close to the work site, including notice of commencement of works, installation of safety barriers where required and signage or marking of the work areas; • The contractor will need to undertake a survey to understand peak times and flows and reflect the findings in the TRSMP (Traffic and Safety Management Plan) as part of the CESMP; and • Provision of safe access across the works site to people and businesses whose access is temporarily affected during road rehabilitation activities.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	Government permits	• Visual inspection of permits • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal by PIU
Aggregate and Asphalt Suppliers & other construction materials Sourcing	• 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. • If aggregate material is imported, then State regulations will also need to be met. Invasive Pest Species: Implementation of GIIP mitigation measures (vehicle washing, sourcing weed free aggregates, fumigating aggregates etc) will ensure all GoFSM biosecurity measures are implemented minimizing the risk of invasive pest introductions. In addition, the aggregate material imported from offshore will need to meet any State and ESS requirements, which includes impacts managed through the implementation of Codes of Practice (CoP) for quarry and dredging operations and ensuring materials such as aggregate and equipment meet strict biosecurity precautions and clearance for imported materials, as well as adherence to the World Bank Group EHS Guidelines for construction material extraction²⁵. • In case of quarry material, the FSM States have existing quarry sites, which have been previously used for road maintenance and construction activities. These sites will require further investigation to determine whether they can supply suitable material (both quality and quantity) to meet the needs of both Projects works. The investigation of the quarry sites will be completed before commencement of the construction works.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	Government permits	EPA/KIRMA & othe FSM departments issued Permits, licenses, certificates, due diligence reports & if required site specific ESMP.	Minimal by PIU

²⁵ Source: Section 5.5.1.9 of the ESMF PRIME & SCORE.

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
Land Access Arrangements	The following actions are required prior to work commencing: - The contractor and PIU will undertake consultations with stakeholders and landowners and land users prior to commencement of works. - Consent for land use from customary landowners for the embankment works will need to be obtained by PIU and appended to the LADDR prior to commencement of works. - Prior to works starting, the Contractor will confirm the ROW and ensure all works will remain within the right of way. - 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. - Limit of works will be agreed with landowners for the road and drainage upgrades in accordance with PRIME RF and SEP. - The Contractor will be responsible for identifying suitable laydown areas, including locations for concrete batching or bitumen plant.	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 Asset inventory maintained throughout the project Grievance mechanism reporting and corresponding action	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 by PIU
Introduction of Alien Species	Construction equipment where possible to be sourced locally. In the case, there are equipment and materials to be imported, these including the vessels that import them will be subjected to clearance procedures under the FSM Biosecurity Act of 2017 (Public Law No. 19-174), 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 to DTC&I
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 Chuukese 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. 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 ICT and the Chuuk EPA. The contractor will obtain landowner approval in accordance with the RF and be approved by the PIU and ICT prior to mobilization.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	- Signatures COC - Liaison officer selected	- Verification of COC - Training records Monitoring Indicators for Management of temporary Land Access and Restoration for the Contractor to follow is shown below. - 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	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	- 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. The designated washout area must have a sealed collection basin with associated ground protection. - Contractor's on-site facilities shall (i) be contained within an adequate security fence; (ii) not interfere with the welfare of the surrounding communities with noise and dust; (iii) no release of untreated sanitary waste or grey water (iv) workshops and fuel storage areas will drain to an oil and water separator; and (v) fuel storage areas will not be located within 20 m of a water course. A detailed Protocol for management of temporary Land Access and Restoration for the Contractor to follow is shown below. 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.						

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• 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, stabilise, 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 of the Chuuk Flying Fox and Chuuk Monarch bird	• Monitoring will initially be undertaken for six months during the pre-construction phase to determine whether the endangered Flying Fox and the Chuuk Monarch species is present within the project's work area. If the species is confirmed, ongoing construction-phase monitoring will assess any behavioural changes or potential impacts associated with project activities. Where monitoring indicates emerging risks or measurable impacts, adaptive management measures will be implemented to avoid or minimize any net loss of these species throughout the project duration. • Any residual net loss identified through the monitoring program can be offset by establishing a robust baseline of population size, distribution, and behaviour for this species. This baseline will provide the scientific foundation needed to design and implement targeted conservation actions. By generating high-quality ecological data and directing it into evidence-based conservation initiatives, the project can contribute to measurable improvements in the status of these species and support the achievement of a net-gain outcome.	Part of PIU cost	PIU	DOTC&I PIU ICT	Presence of Chuuk Flying Fox and Chuuk Monarch Bird	Population data of the Chuuk Monarch bird and the Chuuk Flying fox	PIU cost
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.	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	• Verification of coordination meetings and notifications • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
CONSTRUCTION							
Impacts on the sensitive receptors (churches, schools, etc.)	- Use of appropriate construction techniques which results in less disruption to public, especially the sensitive receptors. - Specific consultation will be undertaken with these communities and stakeholders before and during construction activities to ensure that impacts are minimized, and community safety is ensured, especially when doing works during sensitive times, such as school and church hours.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT		- Verification of coordination meetings and notifications - Verification of GRM records monthly	Minimal cost to DTC&I
Complaints due to project- related impacts	The PIU and the Contractors will: - establish the approved project's 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	DTC&I PIU 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	Minimal cost (part of contractor's task)
Management of the Chuuk Flying Fox and Chuuk Monarch bird	The Contractor will be required to avoid and mitigate impacts on the Chuuk Flying Fox and Chuuk Monarch Bird as follows: - No work permitted at night, and no lights left at night on active work sites. - The Site inductions for workers will cover the importance of the Chuuk Flying Fox and Chuuk Monarch bird and habitat. The induction will emphasize that hunting or poaching of the flying fox is strictly prohibited. - Temporary sites must be surveyed for the Chuuk Flying Fox and Chuuk Monarch Bird, and the site will not be permitted if the survey identifies potential adverse impacts. - Community engagement will highlight the importance of the conservation of the flying fox and Chuuk Monarch bird habitat.	Part of Contractor cost	Contractor	DOTC&I PIU ICT	Presence of Chuuk Flying Fox and Chuuk Monarch Bird	Population data of the Chuuk Monarch bird and the Chuuk Flying fox	Minimal cost (part of contractor's task)
Soil erosion and sedimentation control	The contractor will be required to implement a SWMP and ESCP part of their CESMP implementation. - Measures to prevent sediments from moving offsite may include: - Installation of small interceptor dikes, pipe slope drains, grass bale barriers, silt fence, sediment traps, and temporary sediment basins - Soil / gravel stockpiles are to be located and contained (e.g. bunding, covered) to prevent any discharge of sediment. - Siting of soil stockpiles at a distance of at least 20 m from water courses, open drainage channels etc. - 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. - Earthworks and areas to be exposed should be carefully planned and disturbances to be minimized to the maximum possible extent. Clean stormwater should be diverted away from disturbed areas	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	- Disturbed sites use of appropriate sediment controls - Contractors CESMP (SWMP, ESCP)	- Visual observations and turbidity measurements are to be undertaken during waterway works at Pou bay during the following: - two weeks before waterway works commence - daily during the waterway work activities; and - weekly for two weeks after waterway work activities have commenced. - Visual observations and turbidity measurements to be taken weekly during waterway works at all other sites - PIU will also conduct visual observations and turbidity measurements as part of their supervision to corroborate the contractor's data. Any observed or measured changes in the nearshore environment	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
						(sediment plumes, sedimentation etc.) should be acted upon - Daily checks of ESC controls during active works. - Verification of plans daily during rainy periods	
Works in water ways including drains, culverts and embankment works at Pou Bay	The contractor will be required to implement a SWMP and ESCP part of their CESMP implementation. - All earthworks and installation of rocks, embankment works, concrete formwork etc. to be completed in dry conditions. - Water to be diverted around work areas. - Dewatering water to be treated prior to discharge to ocean site. - Silt curtains be installed and maintained around works in water (for installation of sheet pile or sand bags) - No heavy machinery to operate from the ABS. - Spill management for quick containment and clean-up of wet concrete. - No physical disturbances, including removal of any plants, within the ABS. - No discharges of stormwater or dewatering water from the work area (all discharges will be treated for sediment removal prior to discharge to ocean side). - Runoff to be diverted around work areas.	Part of contractor bid cost	Contractor	DTC&I PIU ICT	- Observation of mitigation methods - Observation of turbidity near / downstream of works - Contractors CESMP (SWMP, ESCP)	- Visual inspection of sites - Proportionate to the risks, the contractor will be required to undertake visual observations and turbidity measurements before, during and after the embankment repair activities. The PIU will also conduct visual observations and turbidity measurements as part of their supervision to corroborate the contractor's data. Any observed or measured changes in the nearshore environment (sediment plumes, sedimentation etc.) should be acted upon - Record baseline turbidity and sample daily if discharging to receiving waters (turbidity tube) https://www.teaching.com.au/product/turbidity-tube-8211-60-5cm?srsId=AfmBOoqKsQI56ok3eAFoEyG6M1nAtAjRhuVw2q_wqQhRys905kyKUR5z - Verification of plans daily during rainy periods - Review of monitoring records at least monthly in the Contractor's report.	Minimal cost to DTC&I
Disposal of excavation spoils, drain clearances and other solid wastes	The Contractor shall implement the WMMP, which covers all aspects of waste generation, storage and disposal. - Cans, litter and other debris will be collected whilst cleaning out of the culverts during construction. This waste is to be collected and disposed of at the licensed land fill. - Construction workers shall have access to sufficient general trash receptacles, with secure lids, to allow for the collection and storage of wastes separate to hazardous waste. - Residual solid wastes shall be collected and disposed of at the Chuuk EPA licensed disposal facility. To date, no recycling facilities are available on Chuuk, however, should these facilities become available, paper, bottles and cans should be transported to local recycling facilities. - 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 Weno.	Part of contractor bid cost	Contractor	DTC&I PIU ICT	- Contractor's CESMP (WMMP) - Training records	- Inspection of disposal site - inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP. - PIU and CIU to conduct inspections/ 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 social and environmental safeguard requirements.	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• Stockpiling, burying, burning or dumping of solid or liquid wastes shall be strictly prohibited. • Separate solid waste into hazardous, non-hazardous, and reusable waste						
Concrete Batching Plant (Air Quality)	The Contractor shall implement the PPCP as part of the CESMP, along with: • 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	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Contractors CESMP (PPCP)	• Visual inspection of permits • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost to DTC&I
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 fuel) and refuelling is 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 EPA within 24 hours • Provision of trainings on proper handling of fuels/hazardous substances, and containing and disposal of spills; • 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; • Contractors CESMP (including SMP/ WMMP)	• Visual inspection of sites daily during active work activities • Verification of records • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost to DTC&I
Air quality due to construction activities	The Contractor shall implement the PPCP as part of the CESMP, along with: • 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 • Dust monitoring at sensitive receptor during nearby work fronts-	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	• Dust generation • Smoke emitting equipment, • Open burning of materials • Contractors CESMP (PPCP)	• Visual inspection of sites daily during work activities. • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP. • Monitoring to occur in accordance with <i>Section Environmental, Health, and Safety (EHS) Guidelines: General EHS Guidelines: Construction and Decommissioning</i>²⁶: The IFC General EHS Guidelines require projects to follow national legislated standards or, in their absence, the World Health	Cost to contractor Dust meter PM 10 and TSP \$2500

²⁶ World Bank Group. (2007). *Environmental, Health, and Safety (EHS) Guidelines: General EHS Guidelines: Construction and Decommissioning*. Washington, D.C.: World Bank Group.

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
						Organization (WHO) Air Quality Guidelines WHO Global Air Quality Guidelines of 24 hr PM 10 of 45 ug/m³. - Note: The 24-hour mean guideline is defined as the 99th percentile, meaning only 3–4 exceedance days are permitted per year.	
Construction noise and vibration	The Contractor shall implement the PPCP as part of the CESMP, along with: - 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 WB EHS guidelines. 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 will be dealt with by the contractor in the first instance through the GRM.	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	- Contractors CESMP (PPCP) - GRM complaints	- Monitoring to occur in accordance with Section Environmental, Health, and Safety (EHS) Guidelines: General EHS Guidelines: Construction and Decommissioning ²⁷ - inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP. - The WHO 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 \$5000
Road safety, traffic management and vehicular access to private and public property	- The contractor's Traffic Road Safety Management Plan (TRSMP) will maintain continuous, safe, and predictable access to businesses, hotels, residences, the school, the church, and community facilities, ensure pedestrian safety, with particular attention to schoolchildren, elderly residents, hotel guests, and 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. 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 Senior staff at the elementary school to ensure the safety of children. Some key issues are: Safety of staff, students and families around schools, and places of worship and community halls during the construction activities. For example, traffic controllers supplied by the contractor will be available during	Part of contractors' bid cost	Contractor	DTC&I PIU ICT	- Traffic signs in vicinity of construction sites - Schedule of festivities, processions, parades, etc. - Contractors CHSMP (TRSMP, GRM):	- Verification of Traffic and Road Safety Management Plan - Visual inspection of sites daily	Minimal cost to DTC&I

²⁷ World Bank Group. (2007). *Environmental, Health, and Safety (EHS) Guidelines: General EHS Guidelines: Construction and Decommissioning*. Washington, D.C.: World Bank Group.

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	school opening and closing times to ensure all students, staff and families can safely enter and exit the school. - Inform the local community 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, school routes, 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 residents, hotel guests, and delivery vehicles To maintain frontage Protection for Businesses and Hotels, the contractor will provide: - Customer access at all times - Temporary signage where visibility is reduced - Relocated loading/unloading zones - Avoidance of hotel entrance obstruction during check-in/check-out - 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.						

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	- Always keep at least one lane of traffic open. No diversion roads will be used because the roads are not sufficient to handle the ring road traffic. - Undertake 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. - Maintain 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. - Coordinate with the church and community groups to avoid disruptive works during major services, funerals, weddings, and community gatherings. Maintain parking and pedestrian access during service time and provide temporary routes if access must be modified - Keep 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. Arrange 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, hotels, the school, and the church that access has been fully reinstated and document closure in the final site handover report.						
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 Chuukese customs, land tenure, and community protocols and behaviour around women, elders, and vulnerable persons,	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) COC sign up	- Verification of construction safety policy and 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.	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	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 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 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 • In consultation with PMU, 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				• 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. • 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.	Part of contractors' cost	Contractor	DTC&I PIU ICT	• First aid station, PPE, emergency response equipment and sanitation facilities • 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 CESMP.	Minimal cost to DTC&I

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	- 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 Chuukese 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 labor related issues to be addressed through the GRM and complaints register 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						

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
	• 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.						
Potential damage to cultural heritage	Mitigation measures include: • Review Chance Find Procedure • Implement any mitigation measures identified from pre-construction consultation • Immediate stoppage upon discovery of archaeological and cultural assets. • Inform the local authorities and the FSM National Museum about the presence. • Work not to resume until given approval by the authority.	Part of contractors' cost	Contractor	DOTC&I PIU ICT	▪ Protection and mitigation actions (if any required) • Action and documentation following an event	▪ During regular site visits • After notice of an event. • inspections and audits of the effectiveness of the contractor's implementation of the approved CESMP.	Minimal cost (part of consultant's task)
Potential social issues due to workers from other islands, States and countries.	The contractor will implement relevant elements of the GRM in to a CHSMP • Induction of the workers on community health and safety, grievance redress mechanism, and consultation and communications plan. • Implementation of protocols concerning the workers contact between the local communities; • Implementation of a communicable disease awareness and prevention program on the risk of disease spreading including STDs and HIV; • Provision of fence and warning signs to control unauthorized entry and prevent entry of the public • Workers participation in addressing GBV issues will be set in an environment where workers can openly converse with about these concerns. • Implementation of GBV awareness training program for contractors • Ensure that no child labor will be employed ensure that all workers are adults above the age of 18 years.	Part of contractors' cost	Contractor	DTC&I PIU ICT	• Implementation of workers induction, required protocols, and disease awareness and prevention program • Records of workers • Contractors CHSMP (GRM)	• Monthly verification checks of training records • Monthly GRM record checks.	Minimal cost
Improper closure of construction sites after subproject completion.	Mitigation measures include: • 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' bid cost	Contractor	DTC&I PIU ICT	• Disturbed sites, staging areas, and workers camps.	• 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

Activity / Environmental Impact	Proposed Mitigation Measure	Mitigation Cost	Implementation	Supervision / Monitoring	Aspects/ Parameters to be monitored	Means of Monitoring/ Frequency	Monitoring Cost
OPERATIONS							
Health and safety risks during ongoing maintenance	Mitigation measures include: - 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)
Routine and ongoing maintenance	Mitigation measures include: - 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 or Department of Public Works/DTC&I budget	Department of Public Works 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
Noise generation from traffic	Mitigation measures include: - Maintain shoulder and sealed road and install road safety signage to improve general safety. - Work with police to carry out enforcement of traffic regulations once the new road is constructed. - 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 14: Schedule of reporting

Report Type	Frequency of Submission	Responsibility	Submit to:
CESMP	Prior to commencement of works	Contractor	ICT, PIU and CIU, then World Bank
CESMP updates	As required	Contractor	ICT, PIU and CIU, then World Bank
Incident Reporting	As below in Section 10	Contractor (Site Manager)	ICT, PIU, CIU, then to EPA (for environmental incidents) and World Bank. OHS 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).	ICT, 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)	Engineer	PIU and CIU, then World Bank
Works Completion Report	After completion of works and reinstatement of site	Contractor	ICT
Works Completion Report	After completion of works and reinstatement of site	Engineer	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	Six monthly throughout Project implementation.	PIU Project Manager and CIU Environmental and Social Team.	World Bank

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.			
Number of households, businesses, school/church representatives, and roadside users pre-notified before works affecting access, traffic, or frontage areas.	Notice records, photos of notices/signboards, consultation log, attendance sheets.	Before start of relevant works and monthly update.	Contractor, ICT, supervised by PIU/CIU.
Number and status of access related complaints, including blocked driveways, business access, pedestrian safety, unsafe diversions, or school/church access issues.	GRM register, complaint forms, resolution records, photos, complainant feedback.	Monthly and immediately for urgent access/safety cases.	Contractor GRM focal person, ICT, PIU/CIU.
Number of community meetings/toolbox briefings conducted on access management, road safety, GRM, worker conduct, and SEA/SH awareness.	Meeting minutes, attendance sheets, photos, briefing records.	Monthly or before high-impact work sections.	Contractor, ICT, PIU/CIU.

Number of workers trained and signed on Code of Conduct, local customs/community interaction, no child/forced labor, SEA/SH prevention, and GRM procedures.	Signed Code of Conduct forms, induction records, training attendance sheets.	Before mobilization and monthly refresher/as needed.	Contractor, ICT, supervised by PIU/CIU.
Number of unresolved social environmental and social issues, including land/access disputes, business disruption, vulnerable-user concerns, worker misconduct, and pending grievances.	Monthly ESHS report, GRM log, corrective action tracker.	Monthly until closure.	Contractor, ICT, PIU/CIU.

ii) Non-Compliance/ Incident Management

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

241. 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 the ICT who is then to forward the incident to the PRIME/SCORE Project Manager, CIU and EPA. The Site Manager is to take prompt and immediate action to minimize any impact and where necessary, liaise with all relevant authorities.

242. 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.

243. Where non-compliances or non-conformances with instruments are identified, the following process applies (Table 16).

Table 15: 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. Corrective actions maintained on register and progress reported weekly to management until close out. Results and corrective actions reported in monitoring forms and six monthly reports to World Bank.
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 are maintained on register and reported weekly until it is closed t. Close out of corrective action signed off by ICT / PIU.
	ICT, PIU or CIU	Results and corrective actions reported in monitoring forms and weekly reports to ICT / PIU. Corrective actions 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 incidents caused or could be caused by non-compliance.	Construction ESHS team	Immediate notification to ICT and PIU, then World Bank. Corrective action reports 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 and PIU/CIU (at least weekly) and in progress meetings and missions with World Bank.
	Design Engineer or PIU or CIU	Corrective actions maintained on register and regularly reported until close out. Formal reporting in monthly reports to ICT and PIU. 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 are maintained on register and regularly reported until they 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.

244. **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.

245. 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.

246. 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.

247. 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 until the Contractor management and/or PIU advises otherwise.

248. 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.

249. 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);
- Chuuk EPA;
- 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).

250. 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:

251. 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;

252. Development of detailed firefighting procedures, fire fighter training, emergency drills, first aid/evacuation, and systems for warning Local Government;

253. 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;

254. Fire equipment adequate for the level of risk identified for the various facilities, which are regularly maintained and tested to ensure good working order;

255. Adequate water supplies for use in the case of fire will be established in critical areas;

256. Earthing and lightning protection will be installed to structures vulnerable to lightning strike; and

257. Storage and handling of all substances under conditions which minimize the risk of fire or toxic emissions.

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

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

260. Rainfall intensities can also be relatively high in FSM. 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.

261. Based on the works area landform and local flood risks, the Contractor shall give consideration to flow diversion options during project planning and construction phases.

262. 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.

263. Given the works to be implemented under the PRIME 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.

264. However, chance find mechanisms for identifying and reporting UXO's should be included as part of the OHS procedures.

265. The Contractor OHS Procedures 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.

266. The Contractor and all workers (including imported labor) associated with the Project are to comply to FSM National and State Covid-19 health and safety management plans, and international WHO standards, and include Covid-19 provision in the OHS Procedures (including travel restrictions for staff/workers returning home).

iii) Capacity Building and Training:

267. The current ESHS staff in the CIU, PIU, 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.

268. The following training is required:

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

iv) Implementation Schedule and Cost Estimates:

269. A total of USD 386,625 has been allocated to support ESMP implementation over the 24-month construction period. This allocation includes the engagement of a Health, Safety and Environment (HSE) Manager and one Environmental and Social (E&S) support staff, who will be responsible for day-to-day ESMP oversight, compliance monitoring, reporting, and coordination with the PIU and regulatory authorities.

270. The remaining budget primarily covers environmental and social monitoring requirements, including:

- Biodiversity expert support for Endangered and Vulnerable species monitoring
- Field-based environmental monitoring, including noise, dust, and turbidity assessments
- Consumables, field equipment, laboratory analysis, and logistics associated with monitoring activities

271. These monitoring components represent the largest share of the ESMP expenditure, reflecting the frequency of sampling, laboratory testing costs, and the need for ongoing verification of compliance with World Bank ESS requirements and national environmental regulations (Table 16).

Table 16: Estimated ESMP Implementation and monitoring Cost for Construction Contractor

Items	Unit	Unit Cost (USD)	No. of Units	Monitoring Frequency	Total (USD)
ESHS Staffing					
Environmental / Safety Officer/Community Liaison (1) - Local Hire ²⁸ included daily biodiversity monitoring	Month	3,000	24	Daily basis	72,000
Environmental, Social Health and Safety Manger (ESHSM) ²⁹	Month	10,000	24	Daily basis	240,000
Biodiversity Monitoring Expert (Intermittent) –09 Months ³⁰	Pre-construction baseline & Quarterly reports	3,000 (quarter)	09	Quarterly	27000
ESMP Cost					
EPA Fee permits etc		500	1		500
PPE		5,000			5,000
On-Site Toilets (purchase)		5,000	2		10,000
Traffic Management including safety signages		5,000			5,000
First Aid Equipment		200	5		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. Chuuk Women's Council)	6 monthly	\$1,000	3		3,000
Environmental Monitoring (Construction Phase)					
Ambient Air Quality Monitoring – 1x handheld monitoring PM10	Equipment	2,5000	1	Weekly monitoring/ if a complaint is received from the community	2,500
Ambient Noise Monitoring – 1x Class 1 sound meter	Equipment	5000	1	Prior to works commencing (baseline), Daily monitoring during activities/ if a complaint are received from the community	2,500

^{28 28} 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 labor in the ESHS related aspects. Will carry out any task assigned by the Senior ESHS manager or Project manager.

^{29 29}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.

³⁰ The biodiversity monitoring expert will be hired to establish a robust pre-construction biodiversity baseline for the Flying Fox, tailor the baseline with the final design, construction schedule, and work method statements, assess anticipated impacts on biodiversity and devise mitigation measures to be integrated in the Contractor's CESMP. During construction and till completion, on quarterly basis, the biodiversity monitoring expert will assess, track, the CESMP mitigation measures on the biodiversity and local ecosystems. The biodiversity expert will prepare biodiversity monitoring report on quarterly basis and will submit to the PIU and CIU for review. If required, the expert will participate in the site visits of PIU, CIU and WB.

Surface water quality – 1x turbidity meter, calibration solution for 24 months of operations	Equipment	2000		Weekly or daily as required monitoring during construction	2000
Reporting					
Contractor's Environmental & Social Management Plan (CESMP) - compliance	Monthly	No cost		Quarterly / Annual reporting required as part of the project	
Sub-Total (in USD)					362,500
Contingency Cost (5%)					18,125
Total (in USD)					389,625

9) CONCLUSIONS

272. The proposed road surface and drainage improvements will deliver positive outcomes for nearby communities and the broader transport network in Weno. Transport efficiency will increase through the installation of new concrete pavement, upgraded drainage, and enhanced flood-mitigation measures to strengthen climate-change resilience. Pedestrian safety will be enhanced with the construction of footpaths and formal road crossings, and vehicle safety will be enhanced through targeted road-safety upgrades.

273. The program of works are strongly supported by the community, however the safety of pedestrians, in particular school children, is required during road works.

274. Off island labor numbers are expected to be small and suitable housing exists in Chuuk to accommodate them.

275. A code of conduct outlining acceptable behaviour within the community is to be signed by all workers.

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

277. Sediment and erosion controls will be critical during roadway and embankment construction to minimize sediment discharges to the receiving marine and estuarine environments. The potential roosting habitat of the endangered Chuuk Flying Fox and the Chuuk Monarch bird —located within neighbouring mangroves or forest around Pou Bay—is unlikely to be disturbed by construction noise, vibration, or dust. The works will be highly localised, with the attenuation effects of intervening residential housing, vegetation, and the separation distance between the works and potential habitat. further reduce the likelihood of disturbance.

278. Road safety during construction will be implemented through a Traffic Management and Road Safety Plan 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.

279. With these findings, this ESMP is considered appropriate to meet the environmental and social risk management requirements of the PRIME Project, WB and Chuuk state, in respect to the management of the upgrades of the Airport to Pou Bridge Road.

Appendix A: Chuuk Airport to Pou Bay Road Land Access Due Diligence Report

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 Chuuk 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 Chuuk Airport to Pou Bay Road improvement works 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.

Subproject Description

The Chuuk Airport to Pou Bay Road improvement comprises one of four urgent priority works identified during project preparation³¹. The works comprise improving the 1.73 miles (2.5km) airport to Pou Bay bridge road in Chuuk. The existing road is a two-lane, mostly unsealed road of varying width. The road starts where the current road, outside the airport, concrete surfacing ends and continues till just before Pou Bay Bridge (Figure 1).

Figure 1: Chuuk Airport to Pou Bay Road map



The road is unpaved and deteriorated and the current vehicle speeds are well under 10 miles per hour due to the road condition. Drainage is rudimentary and the steep rise in the land to the landward side of the road that creates large volumes of runoff during heavy rains. Existing culverts are no longer operable.

The following pictures are of the existing road in November 2024 (Figure 2).

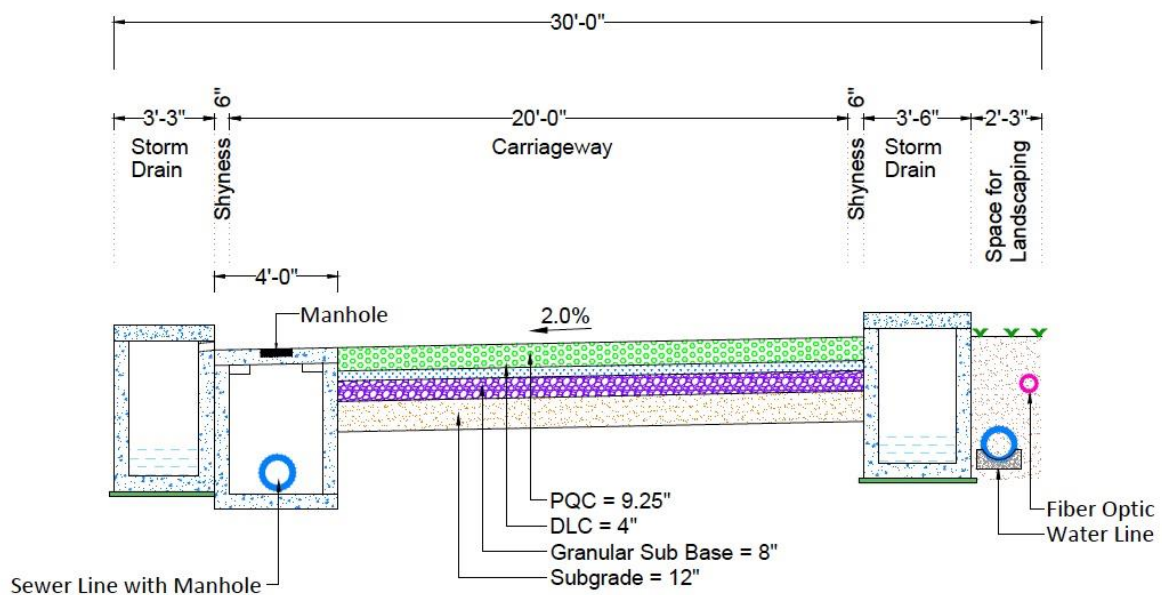
³¹ The other urgent priority works comprise the improving of the Lelu Causeway in Kosrae; replacing the Awak Bridge in U, Pohnpei; replacing two bridges in Colonia, Yap.

Figure 2: existing road captured in November 2024



The typical cross section width of the road improvements will be approximately 30'. The work includes a full width reconstruction of the existing road surface on the the existing alignment, construct longitudinal drains on both sides with cross drains to remove water to the sea at existing outflow points. Road alleviation will be adjusted slightly in places to enhance climate resilience. Footpaths will be constructed over the side drains (Figure 3).

Figure 3: Typical cross section width of the road improvements



Due diligence assessment of design on adjacent properties

Review of the designs were undertaken as part of the due diligence to assess the potential impacts of the road and drainage improvement works during construction in the project works area.

The typical road cross section is approximately 30' wide and will involve some widening of the existing road formation to incorporate drainage and footpaths. There is an existing road easement of approximate 33' width (10m in the easement agreements) established based on easement agreements with individual landowners along the entire alignment. Legally attested and signed agreements exist over the 31 Lots that cover the "End of Rock Quarry Site" CH2+600, to "Mechitiw Church" CH7+300 section of the existing road (Annex A in LADDR). These are listed by Owner name, Lot name, Lot number and Sequence number. Each of these lot owners agreed, between 1980 and 2007, to allow the roadway to be used as a public right of way (ROW) for as long as the Government required use of it for this purpose. For the section of road adjacent to the airport from Mechitiw Church to the start of the alignment there exists a registered ROW of 33'.

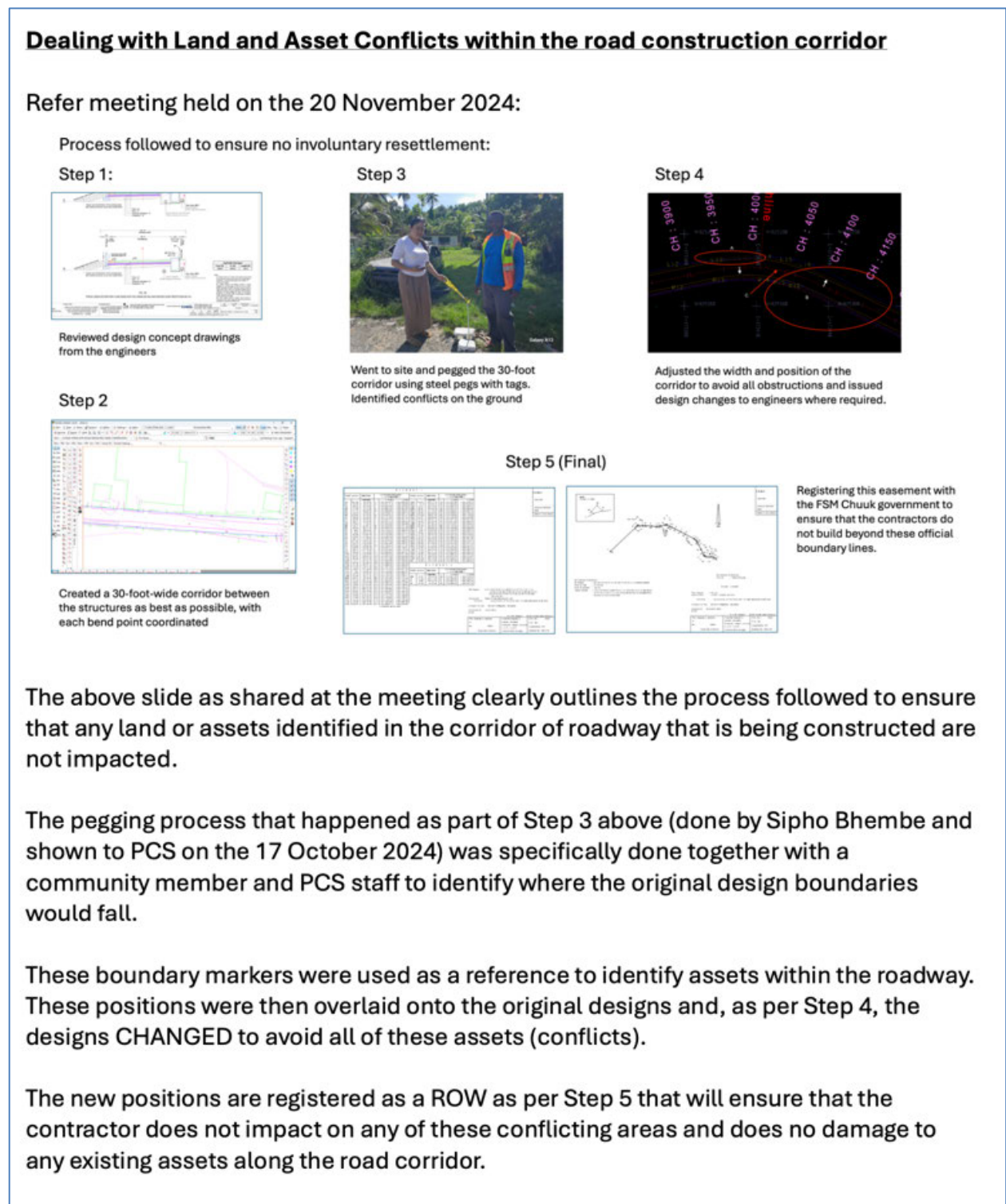
There will be some minor adjustments to the road height to enhance climate resilience features of the improvements. However, raising the existing road by any substantial amount has been avoided as this would in turn constrain access of the adjacent road users and impact the drainage of their properties.

Drainage outflows will avoid impacts on private land. The designs have incorporated large canals either side of the final road below the surface that will allow the water to be controlled

when it rains heavily or there is a king tide. These canals will empty into the ocean at points that do not require long easements over land. The drainage will take the water along the length of the road to points that coincide with the water and road coming together within a few yards and then creating large openings for the water caught in the canal to empty into the bay at low tide. Where there is no clear access to the water's edge (from ch0+000 to Kurrassa hotel), a large size stormwater junction box will be added at the first bend and water allowed to flow into this junction box and emptied into the airport canal system.

There are a number of minor structures consisting of fences within the road easement of 33'. A process of pegging the concept stage design with the indicative road works widths on the group together with consultations with affected landowners was undertaken by DTCL and the E&S consultants undertaking the land access due diligence in November 2024. The final road design has adjusted the limit of works and road widths in sections to avoid these potential impacts. At the narrowest available space, the road will narrow to approximately 23' to avoid two concrete walls on opposite sides of the road. The varying road widths to avoid structures are depicted in the works design drawings. Figure 4 depicts this process.

Figure 4: Dealing with Land and Asset Conflicts within the road construction corridor



The process followed minimizes any form of conflicts and allows the contractor at implementation stage to have clear, community supported, boundary positions for construction. These will be placed in the field by the contractor, together with intervisible pegs, before construction begins.

Restricted access to properties adjacent to the road as well as traffic flow is planned to be avoided during construction. During road works, the road will be constructed in two parts, left and right, and in separate sections along the existing road. This will have safety barriers to

protect pedestrians from diverted traffic whilst construction proceeds. Contractors will be required as part of the ESMP to provide continuous access to adjacent properties.

There are some works on the bridge embankment at the end of the road works that will require some use of land outside the road reserve of 30'. The land currently serves as an embankment for the bridge, is not being utilized, but is customary land not covered by the historical easement agreements. It is understood that there are separate customary owners for the land and for the sea. Permission will need to be obtained from the customary owners of both the land and sea portions for the use of the area for the embankment improvements. This will need to be documented and updated in the LADDR as an addendum prior to the commencement of works. This will also be reflected in the ESMP.

Photos of the LHS and RHS of the bridge embankment are shown in Figure 5.

Figure 5: LHS and RHS of the bridge embankment



During construction, the requirements for temporary use of land typically includes laydown areas for the construction site, facilities for diesel storage and materials yard. Temporary land requirements will be either leased by the contractor from a private landowner or a government land area used. The current road corridor is very congested, however, there are several open areas along the roadway that could potentially be used for a laydown site. These areas would need to be identified as part of the contractors CESMP and negotiated directly with the specific landowners.

Due diligence assessment of the position of existing ROW

The historical easement agreements demonstrating 10m wide road easement are attached as Annex A in LADDR. There are no cadastral records for the road as these were destroyed in a fire of the land records office some years in the past. The reconstructed position of the road easement is shown on the multi-level impact model MLIM which depicts the easement traversing along the centreline of the existing roadway. Newly registered ROW drawings based on the easement agreements and MLIM are attached as Annex B in the LADDR.

Due diligence assessment of design features beyond the ROW

Using the designed extremity of works, together with the reconstructed ROW drawing, it was ascertained that there is no permanent road construction beyond the ROW other than for embankment works where the road adjoins the Pou Bay Bridge at the end of the road. No

assets or income generating resources are affected and no permanent loss of land use identified.

Consent for land use from customary landowners for the embankment works will need to be obtained by PIU and appended to the LADDR prior to commencement of works.

Consultations During Design and Land Access Due Diligence

Consultations with stakeholders and local community members were undertaken by the design engineers in during the inception phase in July 2022 and the preliminary design phase in April and May 2023. This was followed by consultations undertaken by the E&S consultant team preparing the ESMP and LADDR in November 2024. Further details of the consultations are presented in Annex C in the LADDR

The design engineers presented information about the proposed design, various options for improvement which included discussions with landowners at site and received feedback regarding the local site conditions. Those participating in the consultations were keen to know the extent and width of improvement and any anticipated acquisition of land; safety features incorporated in the design; provision of accessibility to their properties along the roadway; and Inclusion of pedestrian walkway along the roadway to ensure safer movement of pedestrians along the project road. The feedback was applied to refining the preliminary design.

The consultations undertaken by the E&S consultants in November 2024 focused on clarifying the boundaries of the concept design on the ground against observed property encroachments, seek community feedback and propose design revisions to the design consultants (which have been incorporated in the design).

The predominant outcome from all consultations, both formal and informal, was strong community and government support of the expedited project implementation. As for easements, ROW and historical easement agreements, these appear to be effectively covered as annexed to the LADDR, with all persons consulted agreeing with this approach, as outlined in the Consultation Report and the ESMP Social Baseline section. Landowners were made aware all that provided feedback agreed with the current ROW and this was supported by the key government entities and representatives during the engagements. Finally, in no instance is the current ROW or roadway being widened as part of the current designs or otherwise vary significantly from the existing road footprint.

The only serious concern that was noted was in connection with the possible delay of project implementation due to perceived potential for land conflicts. This was raised by the ladies focus group and was answered by way of the following document produced and explained on site by the local Environmental and Social officer specifically for their understanding of the processes followed to minimize (if not eradicate) the possibility of this happening when construction starts.

Due Diligence Conclusion and Actions to be Included in the ESMP

Assessment of the design against the site conditions as well as ROW documentation demonstrate that an existing road ROW is in place sufficient to accommodate the permanent works and there will be no realignments involved. No loss of property is expected. However, there is need to obtain consent for embankment works and to properly disclose the ROW. The LADDR will need to be publicly disclosed in project area by the PIU as required by the Project SEP.

The following needed actions identified during due diligence to prepare the LADDR will need to be reflected in the ESMP:

- The contractor and PIU will need to undertake consultations with stakeholders and landowners and land users prior to commencement of works.
- Consent for land use from customary landowners for the embankment works will need to be obtained by PIU and appended to the LADDR prior to commencement of works.
- PIU will need to arrange disclosure of the newly registered road ROW in the local community prior to commencement of works
- Prior to works starting, the Contractor will confirm the ROW and ensure all works will remain within the right of way.
- 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.
- Limit of works will be agreed with landowners for the road and drainage upgrades in accordance with PRIME RF and SEP.

Annex's in LADDR

- Annex A Multi-Level Impact Model (MLIM)
- Annex B Registered Road Right of Way
- Annex C Consultation Records
- Annex D: An Indicative Outline for Contractor's Environmental & Social Management Plan (CESMP)

Annex A: Multi-Level Impact Model (MLIM)

EASEMENT 1									
SIDES (feet)		DIRECTIONS	CO-ORDINATES (metres) E SYSTEM UTM56 N		SIDES (feet)		DIRECTIONS	CO-ORDINATES (metres) E SYSTEM UTM56 N	
		CONSTANTS	+ 0,00				CONSTANTS	+ 0,00	
AB	2 091,51	46 15 50	A	+ 372 381,07	A2B2	478,38	333 16 00	A2	+ 374 051,56
BC	110,09	48 33 20	B	+ 372 841,74	B2C2	26,80	333 38 10	B2	+ 373 985,96
CD	66,56	59 48 00	C	+ 372 866,90	C2D2	41,37	325 19 00	C2	+ 373 982,33
DE	56,69	72 11 50	D	+ 372 884,43	D2E2	87,95	322 26 30	D2	+ 373 975,15
EF	254,89	89 05 50	E	+ 372 900,89	E2F2	87,00	311 15 20	E2	+ 373 958,81
FG	153,19	93 05 20	F	+ 372 978,61	F2G2	78,60	302 26 20	F2	+ 373 938,87
GH	382,79	94 45 20	G	+ 373 025,24	G2H2	588,10	298 07 50	G2	+ 373 918,65
HJ	314,88	93 48 30	H	+ 373 141,53	H2J2	310,23	298 08 00	H2	+ 373 760,55
JK	128,23	83 26 30	J	+ 373 237,31	J2K2	385,48	296 01 10	J2	+ 373 677,16
KL	94,18	79 15 50	K	+ 373 276,14	K2L2	214,41	294 29 30	K2	+ 373 571,56
LM	248,78	77 29 40	L	+ 373 304,35	L2M2	131,61	297 06 40	L2	+ 373 512,07
MN	60,59	84 06 10	M	+ 373 378,39	M2N2	173,83	296 50 20	M2	+ 373 476,36
NP	66,36	86 11 10	N	+ 373 396,76	N2P2	21,22	283 08 40	N2	+ 373 429,08
PQ	28,97	98 03 00	P	+ 373 416,94	P2Q2	21,65	278 03 00	P2	+ 373 422,78
QR	26,96	105 47 30	Q	+ 373 425,69	Q2R2	61,80	269 54 50	Q2	+ 373 416,24
RS	173,50	116 50 30	R	+ 373 433,59	R2S2	56,85	259 57 00	R2	+ 373 397,40
ST	131,38	117 06 40	S	+ 373 480,78	S2T2	248,59	257 45 20	S2	+ 373 380,34
TU	213,68	114 29 30	T	+ 373 516,43	T2U2	95,85	258 35 20	T2	+ 373 306,29
UV	386,86	116 01 00	U	+ 373 575,70	U2V2	132,40	263 26 30	U2	+ 373 277,65
VW	310,95	118 10 00	V	+ 373 681,68	V2W2	318,13	273 48 30	V2	+ 373 237,55
WX	589,35	118 06 50	W	+ 373 765,24	W2X2	382,59	274 45 20	W2	+ 373 140,79
XY	82,30	122 26 30	X	+ 373 923,71	X2Y2	151,88	273 05 20	X2	+ 373 024,56
YZ	92,21	131 15 20	Y	+ 373 944,89	Y2Z2	233,99	269 31 50	Y2	+ 372 878,32
ZA1	92,51	144 40 50	Z	+ 373 966,02	Z2A3	63,57	254 21 40	Z2	+ 372 907,00
A1B1	71,91	145 23 00	A1	+ 373 982,33	A3B3	59,05	239 48 00	A3	+ 372 888,34
B1C1	175,73	155 03 10	B1	+ 373 994,78	B3C3	106,19	228 33 20	B3	+ 372 872,78
C1D1	283,03	153 31 00	C1	+ 374 017,38	C3D3	2 090,85	226 15 50	C3	+ 372 848,51
D1E1	17,75	151 54 10	D1	+ 374 055,85	D3A	32,81	316 15 50	D3	+ 372 387,98
E1F1	227,66	154 30 40	E1	+ 374 058,40	AREA : 5,790 314 Acres				
F1G1	136,07	152 37 40	F1	+ 374 088,26	EASEMENT 2				
G1H1	45,89	149 31 30	G1	+ 374 107,33	SIDES (feet)		DIRECTIONS	CO-ORDINATES (metres) E SYSTEM UTM56 N	
H1J1	35,46	131 40 50	H1	+ 374 114,43			CONSTANTS	+ 0,00	
J1K1	25,72	119 00 40	J1	+ 374 122,50	E3E	44,51	135 49 30	E3	+ 372 891,43
K1L1	55,60	96 45 40	K1	+ 374 129,36	E	56,69	252 11 50	E	+ 372 900,89
L1M1	300,16	92 41 10	L1	+ 374 146,19	D	19,32	315 49 10	D	+ 372 884,43
M1N1	92,87	99 18 00	M1	+ 374 237,58	H3	50,78	45 49 20	H3	+ 372 880,33
N1P1	102,84	109 12 40	N1	+ 374 265,52	AREA : 0,037 228 Acres				
P1Q1	131,45	121 01 00	P1	+ 374 295,12					
Q1R1	32,80	211 01 00	Q1	+ 374 329,46					
R1S1	128,07	301 01 00	R1	+ 374 324,31					
S1T1	96,57	289 12 40	S1	+ 374 290,86					
T1U1	89,14	279 18 00	T1	+ 374 263,05					
U1V1	301,44	272 41 10	U1	+ 374 236,54					
V1W1	62,20	275 49 50	V1	+ 374 144,75					
W1X1	39,00	301 33 10	W1	+ 374 125,89					
X1Y1	40,78	312 30 50	X1	+ 374 115,75					
Y1Z1	50,16	329 15 50	Y1	+ 374 106,59					
Z1A2	363,43	334 46 30	Z1	+ 374 098,77					

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Reg.No.

Approved

Date

Sheet 1 of 2 sheets

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A2 B2 C2 D2 E2 F2 G2 H2 J2 K2 L2 M2 N2 P2 Q2
R2 S2 T2 U2 V2 W2 X2 Y2 Z2 A3 B3 C3 D3
and E3 E D H3

Represent EASEMENTS 1 and 2

Airport to Pou Bay Road
Moan, District of Truk
State of Chuuk
Federated States of Micronesia

Surveyed in September - October 2024
By me

Martin L. de Beer Registered Land Surveyor

Director of Public Works, Truk

Attorney General, Truk State

District Land Management Office, Truk

Reg.No.

Approved

Date

Sheet 2 of 2 sheets

SEE BELOW

EASEMENT 2

INSET
(Scale 1:1 000)



SCALE 1:3 000

Surveyed in September - October 2024
By me

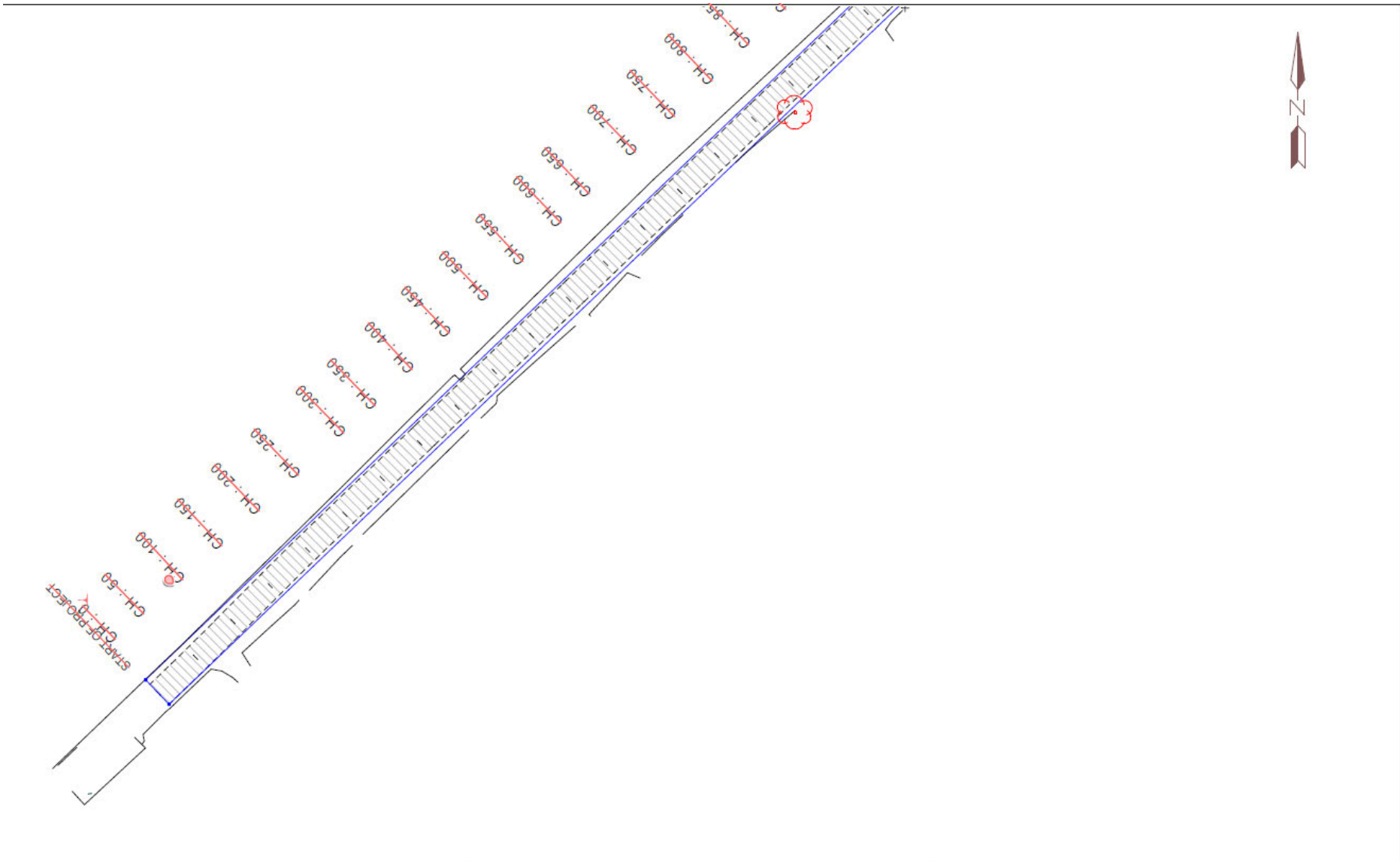
Martin L. de Beer Registered Land Surveyor

Director Public Works, Truk

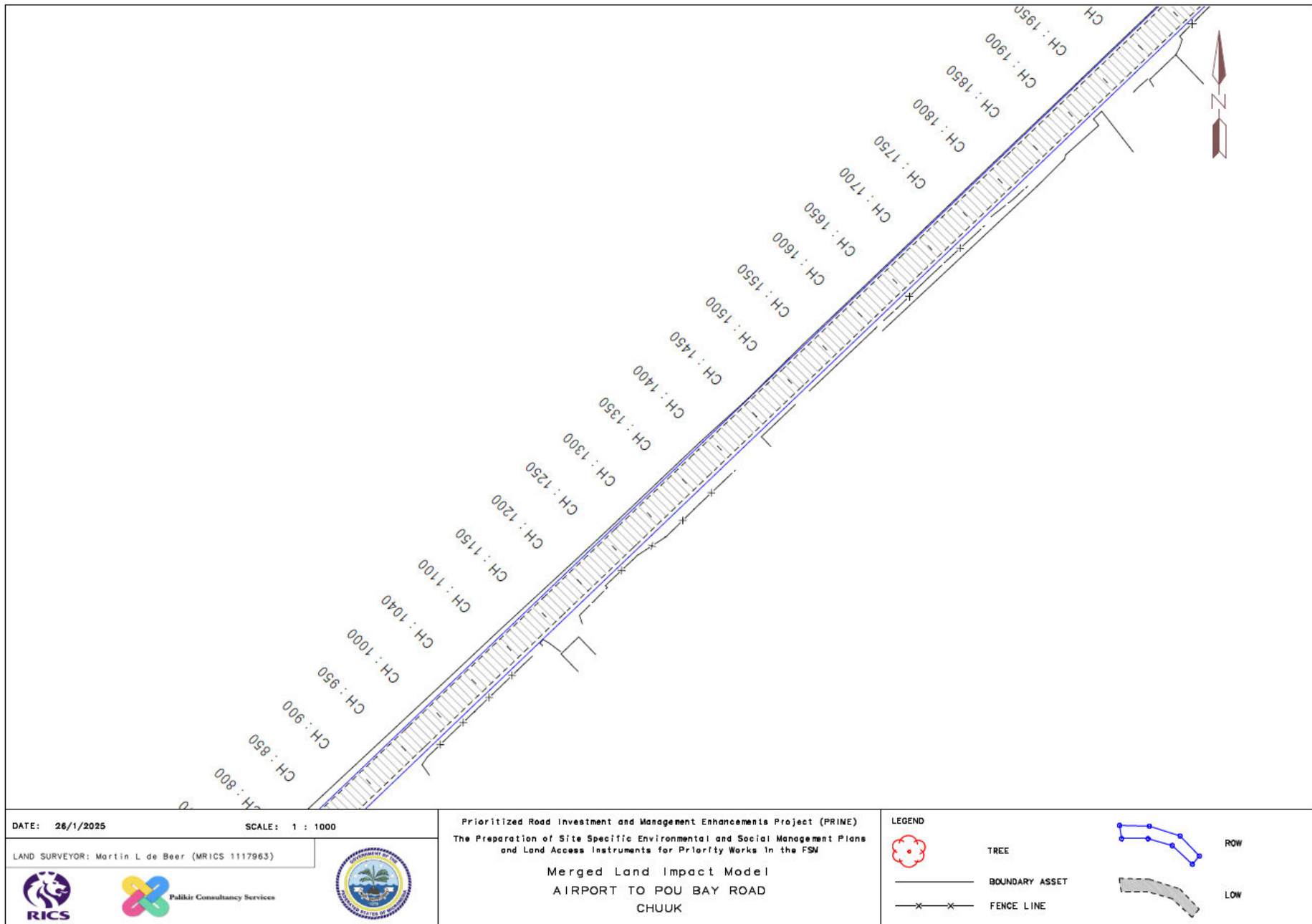
Attorney General, Truk State

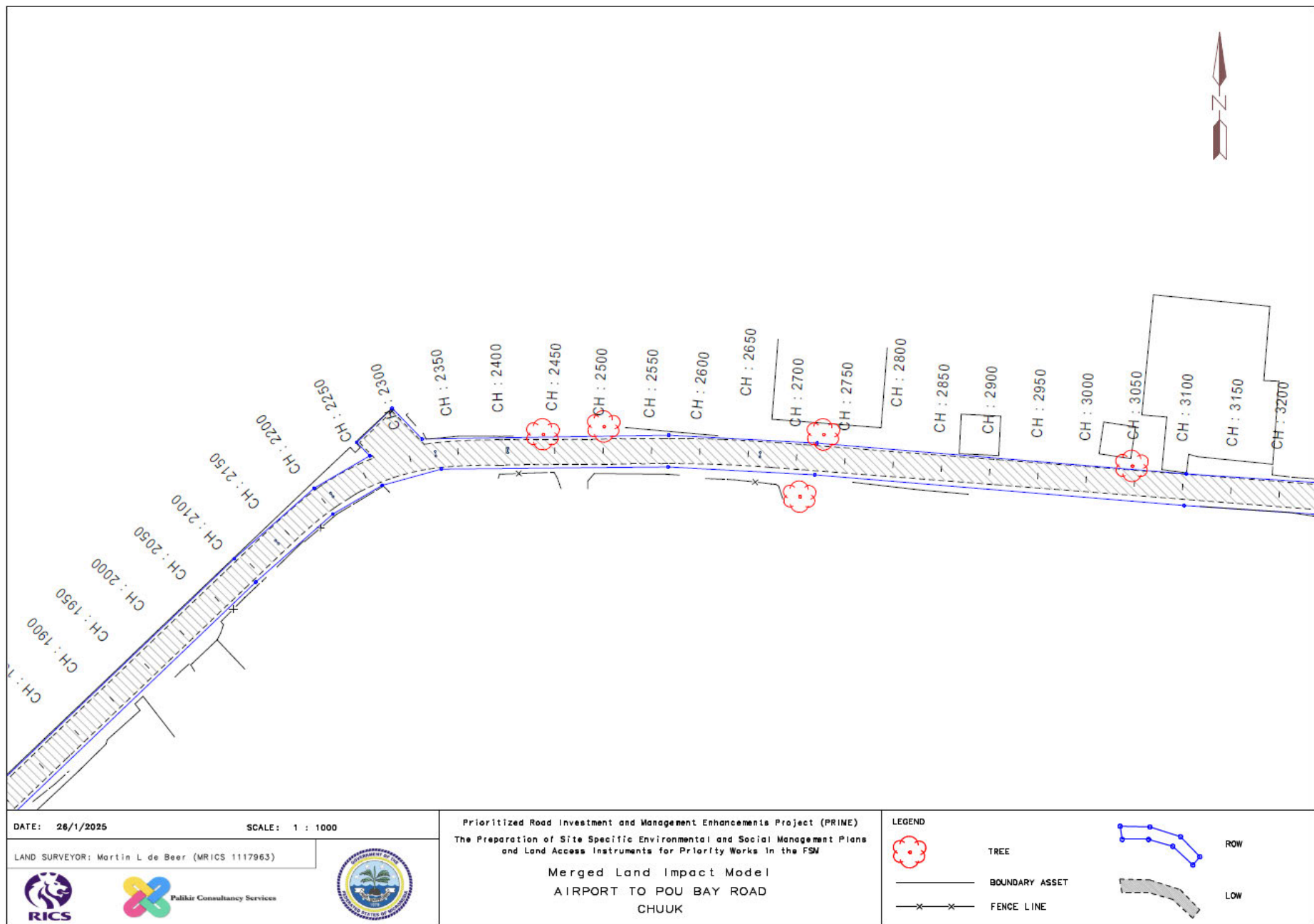
District Land Management Office, Truk

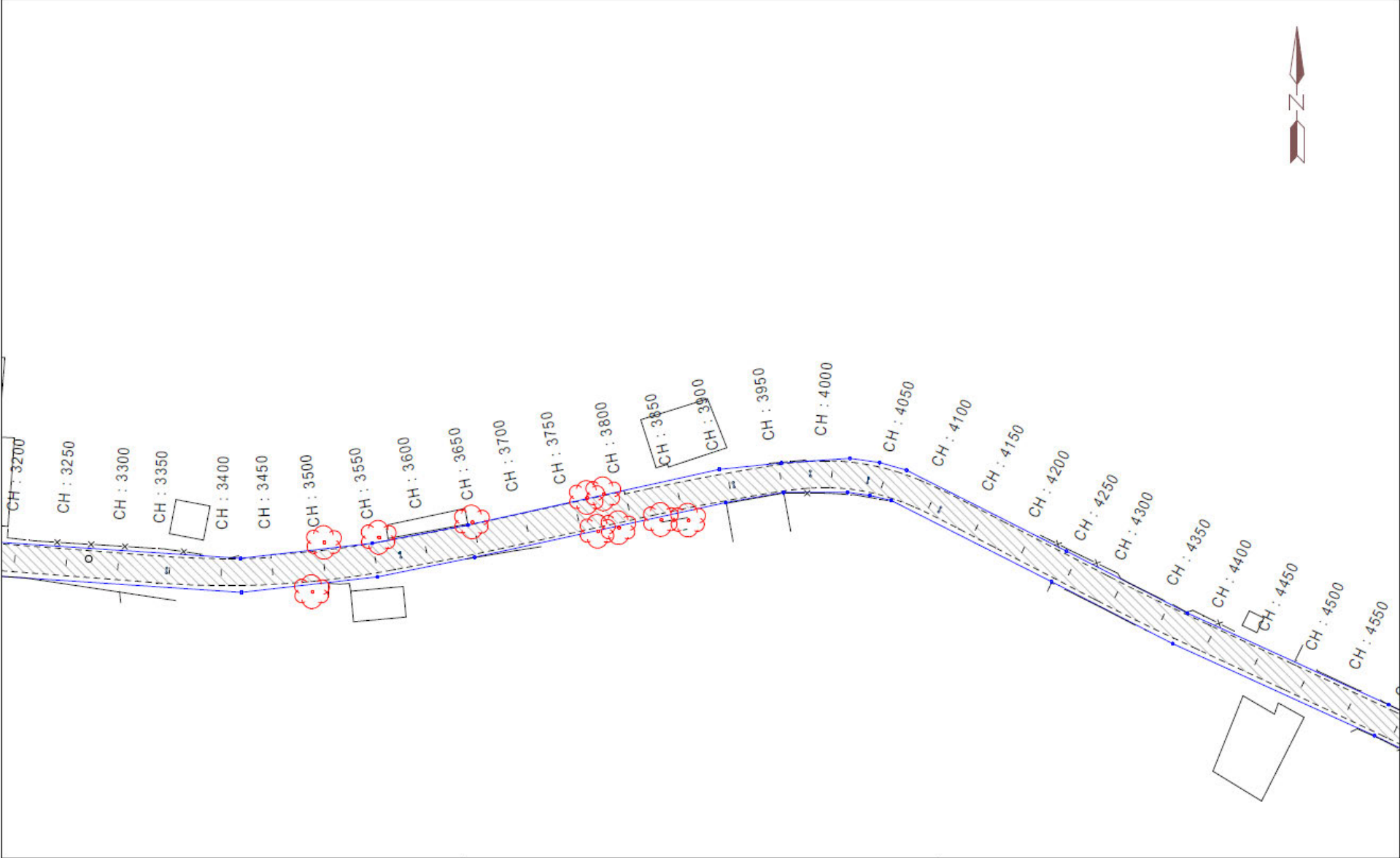
Annex B: Registered Road Right of Way



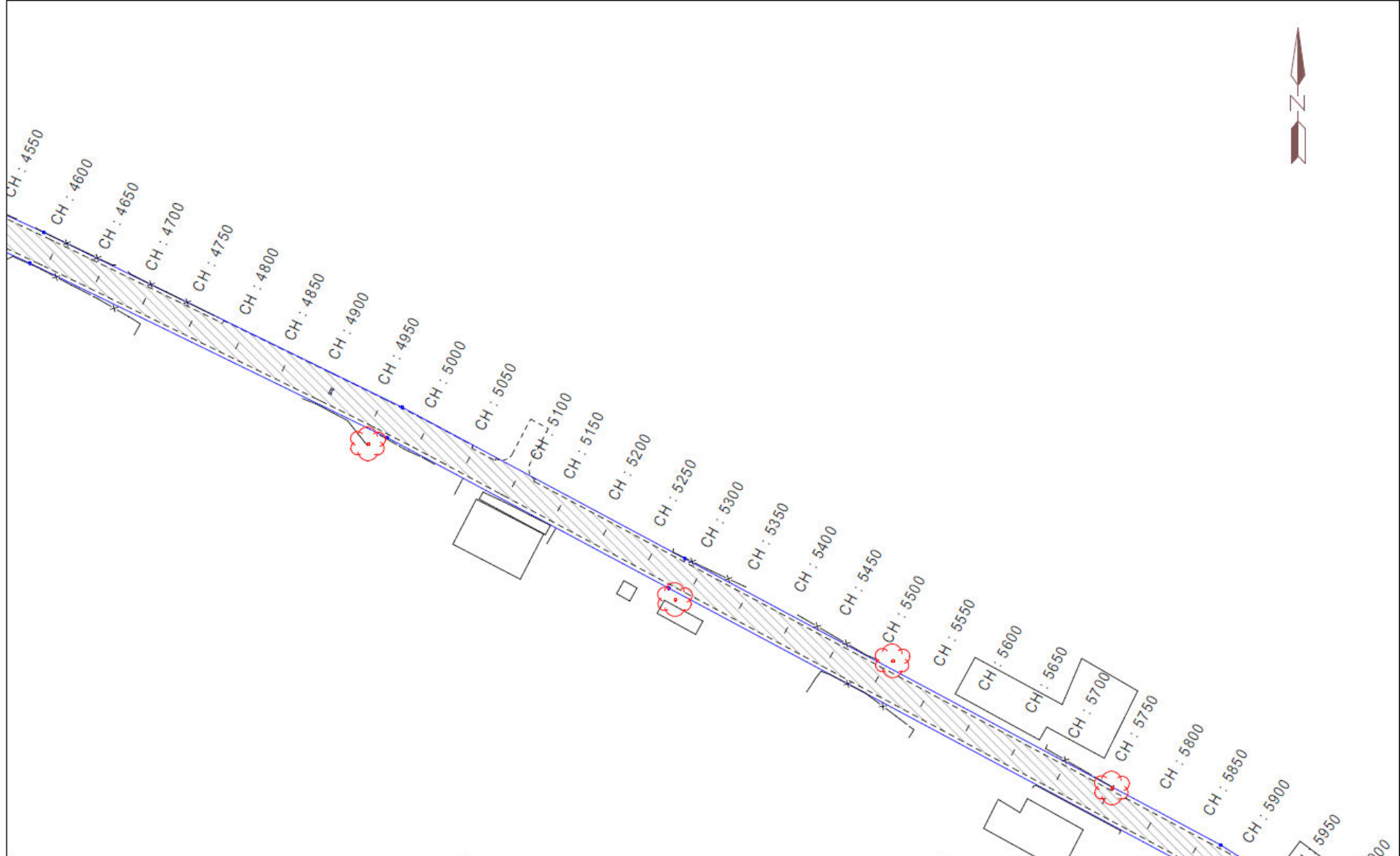
DATE: 26/1/2025 SCALE: 1 : 1000	Prioritized Road Investment and Management Enhancements Project (PRIME) The Preparation of Site Specific Environmental and Social Management Plans and Land Access Instruments for Priority Works in the FSM	LEGEND
LAND SURVEYOR: Martin L de Beer (MRICS 1117963)   Palikir Consultancy Services 	Merged Land Impact Model AIRPORT TO POU BAY ROAD CHUUK	 TREE  BOUNDARY ASSET  FENCE LINE  ROW  LOW



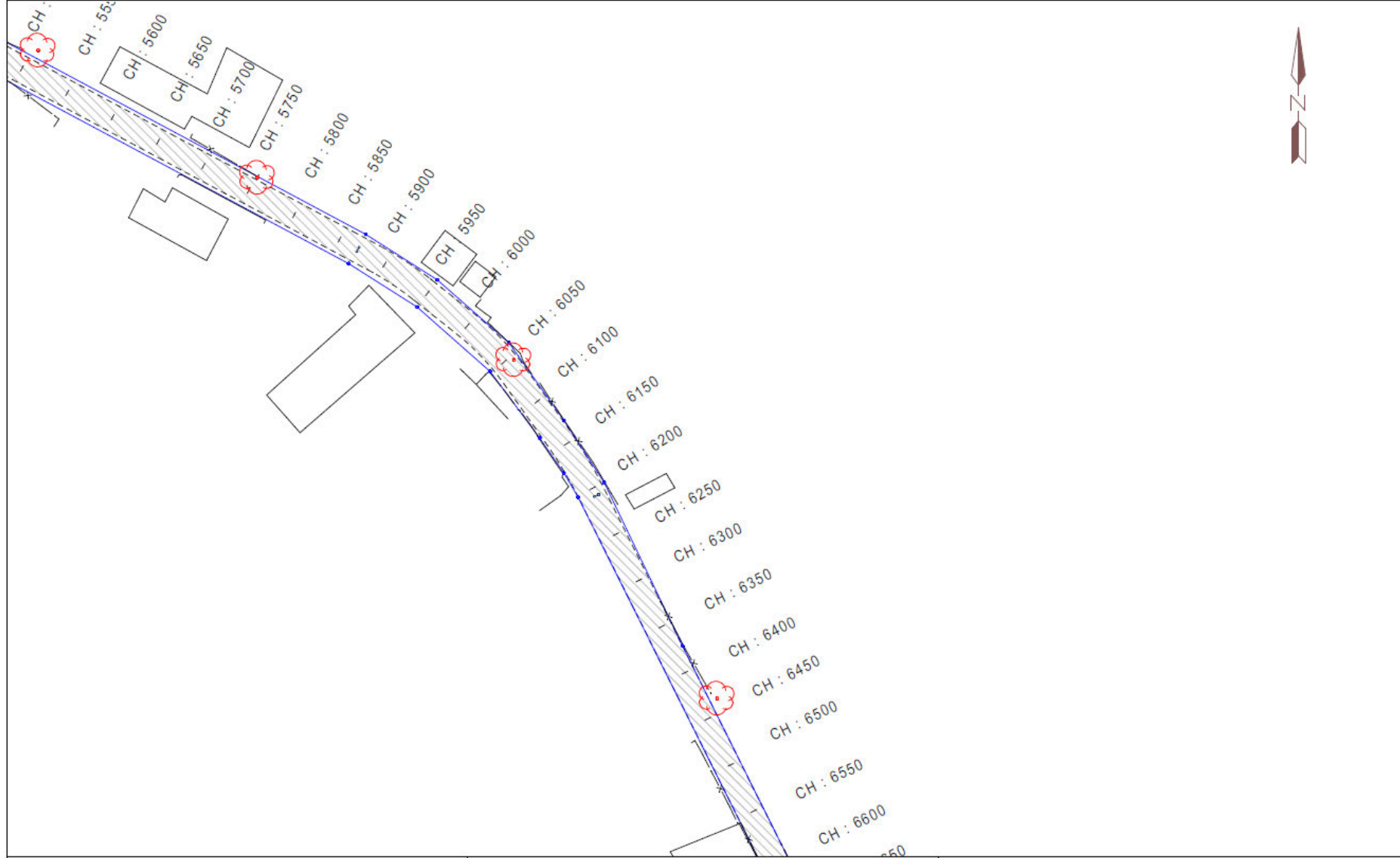




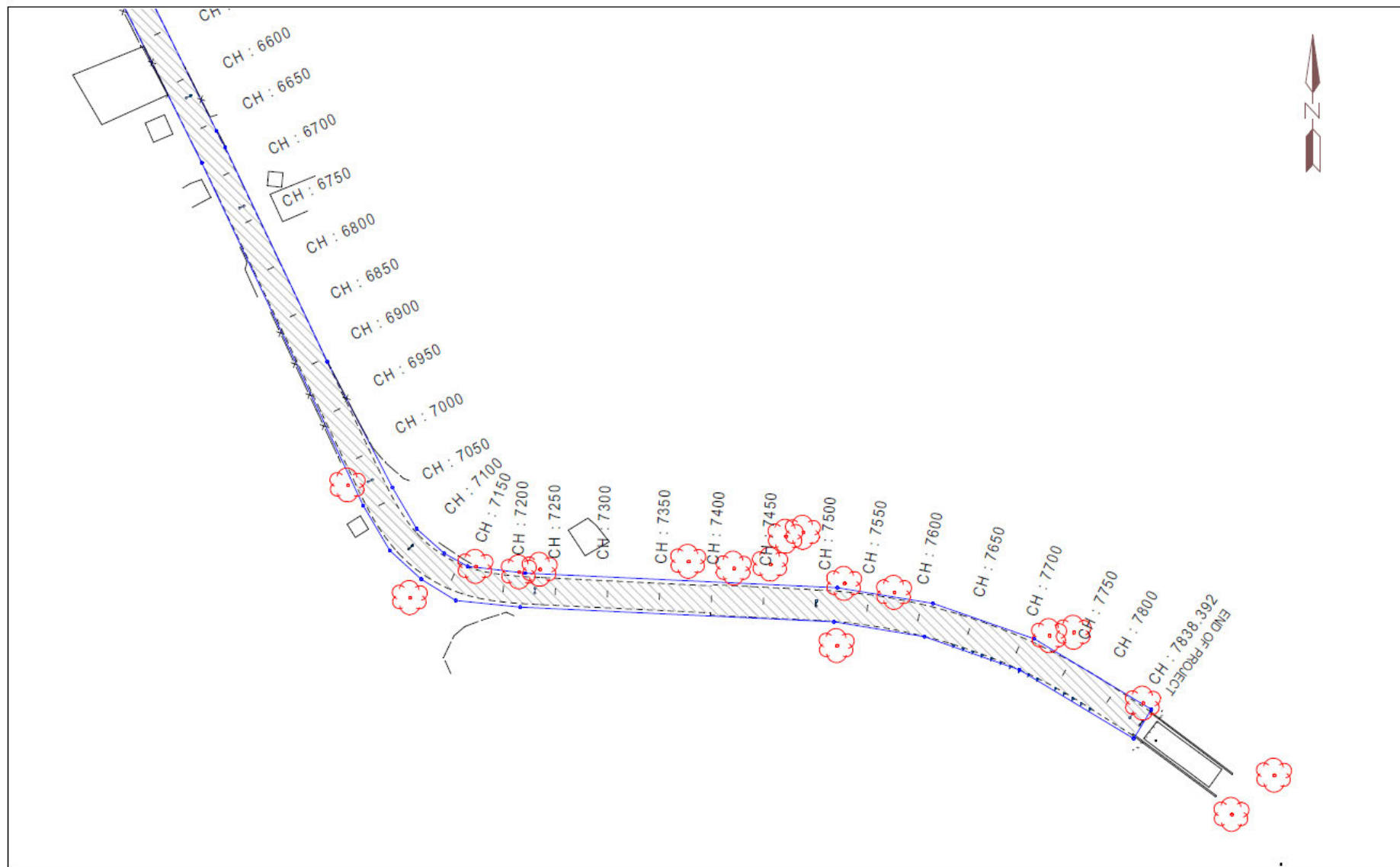
DATE: 26/1/2025 SCALE: 1 : 1000 LAND SURVEYOR: Martin L de Beer (MRICS 1117963)   	Prioritized Road Investment and Management Enhancements Project (PRIME) The Preparation of Site Specific Environmental and Social Management Plans and Land Access Instruments for Priority Works in the FSM Merged Land Impact Model AIRPORT TO POU BAY ROAD CHUUK	LEGEND  TREE  BOUNDARY ASSET  FENCE LINE  ROW  LOW
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DATE: 26/1/2025 SCALE: 1 : 1000 LAND SURVEYOR: Martin L de Beer (MRICS 1117963)   	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 AIRPORT TO POU BAY ROAD CHUUK	LEGEND  TREE  BOUNDARY ASSET  FENCE LINE  ROW  LOW
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DATE: 26/1/2025 SCALE: 1 : 1000		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		LEGEND TREE BOUNDARY ASSET FENCE LINE	
LAND SURVEYOR: Martin L de Beer (MRICS 1117963)		Merged Land Impact Model AIRPORT TO POU BAY ROAD CHUUK		ROW LOW	



DATE: 26/1/2025 SCALE: 1 : 1000

LAND SURVEYOR: Martin L de Beer (MRICS 1117963)

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
AIRPORT TO POU BAY ROAD
CHUUK

LEGEND

 TREE

 BOUNDARY ASSET

 FENCE LINE

 ROW

 LOW

Annex C: Consultation Records

The following summarizes consultations undertaken by the design engineers in during the inception phase in July 2022 and the concept design phase in April and May 2023.

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.

Inception Stage of the Project

As part of Stakeholders engagement in Chuuk State of FSM, DoTC&I officials and Consultant key professionals had meeting with various Stakeholders on 25th July 2022 at Governor's Office, Chuuk State and further followed by joint field visit with various stakeholders, including public works department on 26th July 2022 to verify various details on field. Representatives of respective agencies briefed about the infrastructure, the interaction with various representatives was useful to understand perspective of stakeholders for improvement proposal and their past experience of problems encountered with current condition of the roadway. Utility agencies appraised the current utilities along the project roadway. Representatives of respective agencies briefed about the infrastructure, and also responded with details sought by the consultant representatives.



Figure 5: Stakeholder Meeting at Office of the Governor & Joint project site visit & Engagement with PAPS

Details discussed with various stakeholders is summarized below Table

Stake Holder Agency	Discussion and Details
Department of Transportation, Communications & Infrastructure (TC&I) &	• It was informed that road the said project road, Airport to Pou Bay Bridge was part of the road designed in 70s and constructed in early 80s. • It was informed that the said project road upon been constructed by NGoFSM will be handed over to Chuuk

Department of Transportation and Public Works (DoT&PW) & Chuuk Public Utility Corporation (CPUC) & Project Management office (PMO) &	State Government and further to DoT&PW for maintenance purpose. • DoTC&I official further added that improvement proposal for road would involve improvement of drainage and pavement surface would be Rigid Pavement. • It was appraised by DoT&PW that in general easement along the PRIME road now considered for improvement is 30" with 22" for roadway and 4 „ on either side as sidewalk or open space. • It was further notified that Land Acquisition process in the project vicinity is very difficult exercise and would delay
Stake Holder Agency	Discussion and Details
Chuuk State Legislature. (CSL) & Overseas Development Agency (ODA) & Chuuk Department of Education (CDoE) & Chuuk State Planning Department & Department of Health Services (DHS) & FSM Telecom (FSMTC).	the implementation process as such Consultant should ensure improvement proposal within the exiting Easement only. • It was notified that in general Electric poles along the PRIME road are located along the edges of the Easement. • Utilities along the project road are critical aspect that would govern the design of the project road and these includes waterline and sewer line along entire length with waterline mostly on LHS and Sewer line mostly on RHS. Electric line for some length is both underground on LHS and on poles on RHS till end of airport compound boundary, however majority length is on Poles on RHS. Telecommunication lines are along with poles both on LHS and RHS in some section. • It was further appraised that drainage along the PRIME road including improvement of cross drainage structures which in present condition are in distress condition is also an important aspect to be considered in the improvement proposal. Further it was added that at some locations

	settlers due to non-drainage in their property would open sewer line manholes to let in storm water during heavy rains which is further loading the sewer treatment and pumps installed along sewer lines. • A total of 3 pump stations for sewer line are functional along project road. • It was further appraised by CPUC representative that as part of 20 million USD budget new Sewer Line and Water line project is been undertaken part of which is along project road. The survey and detailed design has been carried out by M/s SUEZ company and bidding for the same is in early stage with tender documentation and designs being finalized.
Stake Holder Agency	Discussion and Details
	• It was agreed in the meeting by all that both works need to be co-ordinated well such that implementation of new Sewer & water pipe line and PRIME road should not clash with each other and also co-ordination of consultant team with CPUC is very much essential so that design can be carried considering new designs for these utilities. • The detailed drawings of the new sewer & water lines may be available in the month of September 2022, however efforts would be made to ensure that these details along PRIME road would be made available at the earliest. . • DOTC&I also added that budgetary consideration would be made under PRIME road implementation for shifting of utilities if felt necessary based on approved design for prime road. • It was appraised that some sections of PRIME road has influence of ocean Tidal flow where section is close to Ocean on LHS. • It was appraised that major construction materials are to be imported. An aggregate quarry available would not fulfill project requirement. • As per previous experience, the cost of construction per mile is around 1.5 million USD.

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.

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 8: 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) Existing road is in terrible state with pavement surface damaged and with island having rainfall throughout the year sometimes the waterlogging makes pedestrians and vehicles impassable as such PAPs desired that improvement should be implemented at the earliest.
- 2) The existing drainage system including cross drainage structures is a failure and non-functional also desired additional cross drainage structure and existing be replaced with bigger size structures for effective functioning and

minimal maintenance.

- 3) Some sections of the road had water from Ocean overflowing on road during King Tide event and water logging was observed for around 1"-00" to 2"-00".
- 4) PAPs were keen about extent and width of improvement and likely acquisition of land involved.
- 5) PAPs desired to understand roadway width, and safety features incorporated in the design.
- 6) PAPs wanted to know provision of accessibility to their properties along the roadway.
- 7) Requirement of Pedestrian walkway all along the roadway is required to ensure safer movement of pedestrians along the project road.
- 8) Pavement surface to be adopted such that the same should not be damaged frequently.
- 9) CPUC as part of 20 million USD budget is implementing new Sewer Line and Water line project along PRIME project road. The survey and detailed design has been carried out by M/s SUEZ company and bidding for the same is in early stage it was desired that the improvement proposal for roadway and Utility design should be well co-ordinated and implementation discussed to ensure both projects implemented without much hindrance. Both CPU and Design consultant for PRIME road has exchanged initial design details with each other.
- 10) State Administration and public work department appraised that since existing project road, preceding section built by Japanese Contractor is rigid pavement the same is to be considered for improvement proposal for the PRIME road.

A detailed discussion on various aspects discussed with the stakeholders including PAPs and compliance to these observations adopted for Preliminary design report is presented in the following sections.

CONCLUSION

Consultant followed with land records office to collect Cadastral maps; however it is notified that these records were burnt in a fire in the past. As such consultant team and the ESA consultant need to work closely to ascertain extend of road reserves for the project road and evaluate additional land requirement if any for the improvement proposal formulated under Preliminary Design Report.

DoTC&I through design Consultant appointed for the project has ensured that the entire process of preparation of improvement for Airport to Pou Bay Bridge Road is discussed at all levels of improvement proposal preparation to draw maximum benefits to the end users and Participatory design approach is followed. The process adopted ensured, complete participation of State Administration Officials, Public work department officials, ESA consultants, Public Representatives from various agencies, Stakeholders, Utility agencies and PAPs for preparation of improvement proposal for the project island.

**Stakeholder Consultation Airport to Pou Bay Bridge Road,
Chuuk State on 2nd May 2023**

Sr. No	Issues Raised	Consultant Response
Presentation to the Stakeholders by Consultant Team is enclosed towards the End of this Document.		
Consultant Presentation was followed by responses to Stake Holders Comments.		
1	Stake Holder Representative wanted to know any likely impact of discharge of project road and offside storm water towards existing big longitudinal drain behind Airport Compound wall and further likely chocking of the drain and its impact.	Consultant representative responded that the storm water in present condition also discharged towards the same drain as such the outfall from the longitudinal drain towards the ocean shall be utilized for the improvement proposal design discharge. Consultant further appraised that for proper functioning of these longitudinal drains behind airport compound wall regular maintenance would be required. Further the Director of Public works, confirmed that the longitudinal drains behind Airport compound wall is currently maintained by the agency and further maintenance of these drains shall be under the scope of the agency itself.
2	The stakeholder representative wanted to understand existing Right of way and since proposed improvement proposal envisaged with similar Cross sectional width, consultant approach at locations with narrow land availability to be clarified.	Consultant representative clarified that in the stake holders meeting last year directions were given to consultant to formulate improvement proposal within 30"-00"right of way which is current road reserves for the project road. Consultant clarified that improvement was prepared accordingly. Further Consultant added that based on measurement of land between private property boundaries at site the existing widths measured was in the range of 35"-00" to 44"-00"for section running parallel to airport compound wall and further section was in the range of 25"-00" to 36"-00", as such few isolated locations where measurements were lesser than the proposed width there would be some land Acquisition that would be discussed with Safeguard consultants and State Public Works, however it was further clarified that improvement would not have any impact on the existing housing structure of the potential impacted properties and may have some impact on property boundary walls and other auxiliary structures. Director Public Works, added that when road was constructed there were only few settlements, with further increase in settlements over the period of time some settlers have encroached the road reserves. With the proposed improvement now formulated as per directions it would be ensured that state agency through legal process would

		make available necessary land in narrow sections.
3	Stakeholder representative, wanted to understand that since project road FRL is now finalized taking into consideration future climate change aspects, how likely ponding of water in existing properties will be addressed.	Consultant representative explained that the storm water management for the project road involved addressing requirement for both surface road storm discharge and offside catchment from hills and land towards the roadway by means of drain network which would include both longitudinal and cross drainage structure. Further added that since based on improvement proposal quick collection and discharge to nearest outfall for storm water now planned, ponding of water observed due to lack of drainage infrastructure would be prevented as part of the improvement proposal. Further Director Public works requested that consultant should ensure culverts planned should have minimal impact on existing properties. Consultant representative added that during review of Concept Design drawings at site consultant has ensured that natural existing drains and outfall towards the Ocean shall be utilized in the improvement proposal as such this would have likely minimal impact on existing properties for planning desired outfalls.
4	Stake Holder Consultant wanted to understand what improvement was planned for existing Culvert structures and will they be retained	Consultant representative clarified that existing cross drainage structures condition and sizes were documented, and it was noted that existing 7 cross drainage structures are choked and inadequate. Upon careful review of catchment area contributing discharge the existing structures are now proposed to be replaced with better and bigger size new structures. Further new 6 cross drainage structures are added as part of improvement for better handling of storm water and as per site specific requirements.
5	Stake holder representative wanted to know type of pavement adopted for the improvement proposal	Consultant representative clarified that since in existing portion of roadway till airport constructed with rigid pavement, consultant as per previous discussion in stakeholders meeting has now considered Rigid Pavement for improvement proposal. Further added that Rigid pavement requires minimal maintenance with 30 years design life accounted in the improvement proposal.
6	Stake holder representative wanted to understand if natural water can be utilized rather than disposing to Ocean	Consultant representative clarified that as per discussion with locals along the project road it was appraised that ground water table is much higher and some locations within few feet of excavation groundwater are encountered. As such consultant has not accounted any recharge pit or rain water harvesting measures as part of improvement proposal, however in countries where there is scarcity of water such measures are adopted to ensure natural resources as better utilized.

7	Stake holder representative desired that there should be proper co-ordination with CPUC for new waterlines and sewage line designed under ADB funding, and separate contract.	Consultant representative assured that they would try to co-ordinate with concerned agency to ensure better integration and implementation of both the projects. Stakeholder representative requested to know timeline for implementation of CPUC utilities. The representative of CPUC mentioned he is not aware of timeline and necessary details shall be provided upon verifying with appropriate authorities.
8	Stake holder representatives wanted to understand improvement proposal on following aspects, A) Recommended width of pedestrian walkway. B) If recommended width suitable for Wheel chair. C) Width of the carriageway D) If any provision for parking of vehicles along the project road. E) Provision of Guardrail along project road	Consultant representative responded to these queries as below, A) Consultant appraised that width of the pedestrian walkway considered is 3'-06" based on limited width available for improvement proposal. B) It was clarified that the width recommended was sufficient for wheelchair users. C) It was clarified that width recommended based on limited space for improvement was 21'-00" as carriageway width for two way traffic movement, however post markings and shyness adopted the travel way width available for each direction would be 10'-00". D) Consultant clarified that Guardrails shall be adopted at culvert structure locations and at locations governed by site condition for improving safety. Further to be noted Crash barrier provided when alignment passing along ocean and lagoon on both sides.
9	Director Public works desired that presentation copy be shared to circulate among public and other representatives who could not make it to the meeting	Consultant representative assured that a copy of the same shall be made available and further gave a copy of the same to PIU-DoTC&I representative to share with all concerned individuals.

Further to Concept Design Report Presented by consultant on 2nd May 2023, a review meeting with Steering Committee member's observation and comments on Proposal was discussed on 4th May 2023, where Director Public Works presented their comments and recommendation to be adopted for Preliminary design.

A copy of Consultant presentation wherein State Officials added their comments for discussion is included at the end.

10	Slide No. 6 : a) Drainage improvement is needed to address the constant water presence in the area. (Mainly smaller streams now flowing on Roadway surface in absence of drains in Existing Condition)	Consultant representative further explained details already considered in the improvement proposal under Concept Design Report as below, a) It was explained that the storm water management system currently planned and as shown in various Typical Cross sections as part of Concept Design Report include
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	b) Construction of side drain (concrete swale or other) is recommended to improve water flows. c) Access of vehicle to and from the adjacent lot should be considered	longitudinal drain and cross drainage structures. The proposed longitudinal drains on both sides would ensure to capture storm water from offside area coming towards the roadway and also the parcel storm water would be eventually collected in these storm drains through openings in form of holes in longitudinal drains. The Cross Drainage Structures would facilitate discharge of storm water through natural channels and also discharge of Longitudinal drains towards outfall point in Ocean. Consultant clarified that current disposal Mechanism and locations would be used to dispose storm water on Ocean side. Further clarified that these surface flows in existing conditions shall be resolved based on storm water management scheme adopted for improvement proposal and in future the roadway would not be inundated by storm water. Further to the query from state representatives consultant clarified that no longitudinal drains provided in TCS-4 when section passing with ocean on one side and lagoon on other side as the surface drainage would be discharges directly into Ocean and Lagoon. Further to a query on land parcels beyond roadway inundated by storm water, Consultant representative clarified that the scope of the project is limited to roadway and provisions to
		capture storm water generated by adjoining properties however if these property needs to be regarded it should be taken up separately by State. b) As discussed in “a” above. c) Consultant explained that the Footpath/Drain will not be elevated throughout and at locations with parking areas and driveways these footpath (Drain Top) would be flushed to ensure easy movement of the vehicles. State Representatives were satisfied with consultant’s clarification above.
11	Slide 10:	a) As explained in Sr. No. 10 “c” above.

	a) No curb. Design should be sloping for the vehicle to access the area at the right side for parking. b) No storm drain in the left side. Excavation is not allowed due to existing high voltage cables. c) No sidewalk in the left side. no walking on side of the airport wall for safety reason. d) Use the existing hole at airport wall for water runoff. e) Sewer line location should be at the residential side. Provide cleanouts for maintenance. f) Storm drain at the right side will have no use since the flow of water will be towards the left side of the road. crowned road is recommended. g) Carriageway is 22ft same as existing road.	b) Consultant representative clarified that in the concept design report storm drain (Lined Channel) was not considered and what was shown in TCS-1 was Sewer Line on LHS (suitable position as felt by consultant) with top covered with concrete slab with manhole flush with carriageway. c) Consultant representative clarified that 2 „-00” paver block recommended is as a paved shoulder between Carriageway edge and the saucer drain recommended under TCS-1. d) Consultant representative clarified that the proposal has accounted the same for disposing surface storm water and further the longitudinal drain provided in RHS (Capturing Offside catchment storm runoff) shall be discharged to existing Channel behind Airport Compound wall by means of Cross drainage structures. e) Consultant representative clarified that, consultant would review location of sewer line proposed and PRIME consultant has accounted the Sewer line in LHS just to maintain distance away from Drinking Water Lines. However the final design of the same shall be evaluated with CPUC design. f) Consultant clarified that the RHS storm drain was recommended in design to capture storm water from offside catchment beyond roadway as such the storm drain would be
		required. Carriageway camber slope is recommended towards drain in LHS as surface runoff was accounted to be disposed in LHS drain. g) Consultant representatives clarified that revised Cross Section for TCS-1 was presented in 2nd May 2023 presentation (Slide 12) Wherein based on space availability at site the TCS was recommended with revision to utilize natural topography and with width of carriageway being 22”-00” as such the same would be now form part of design for preliminary design drawings. State Representatives were satisfied with consultant’s clarification above.

12	Slide No. 12: a) No curb. Design should be sloping for the vehicle to access the area for parking. b) Sewer line location should be at the residential side. c) Crowned road is recommended. d) Carriageway is 22ft same as existing road.	a) As explained in Sr. No. 10 "c" above. b) As explained in Sr. No. 11 "e" above. c) Consultant clarified that Carriageway sloping towards LHS was adopted in design as against normal crown on both sides as the drains are recommended on both sides and the RHS drain would capture storm water from offside catchment area and LHS would facilitate collection of surface runoff and small catchment beyond roadway contributing any runoff. d) Consultant clarified that in present cross section under TCS-2 consultant has recommended 21'-00" as carriageway width, further it was explained that improvement proposal was developed within 30'-00" roadway width as was recommended by state for improvement proposal during stake holder meeting held in 2022. The cross sectional elements which includes space for Utilities, Storm drain on both LHS and RHS, the available width for carriageway would be only 21'-00" and has no room to accommodate additional 1'-00". Further it was deliberated by state representatives that depth of storm drain can be increased to reduce the width for drains proposed, to which consultant clarified that if drain depth increased the outfall towards to ocean would not be feasible.
		Upon further discussion Consultant was given directions to adopt Carriageway width as 22'-00" by increasing overall improvement width as 31'-00". State Representatives were satisfied with consultant's clarification above and consultant representative assured to revise cross sectional width as discussed above to be adopted in Preliminary design.
13	Slide 14: a) No curb. Design should be sloping for the vehicle to access the area at the right side for parking. b) sewer line location should	a) As explained in Sr. No. 10 "c" above. b) As explained in Sr. No. 11 "e" above. c) Consultant explained that storm water runoff from land area in RHS would be captured in the Longitudinal drain in RHS and surface runoff of the

	be at the residential side. c) crowned road is recommended d) carriageway is 22ft same as existing road.	roadway shall be disposed directly into ocean in LHS for section under TCS-3 as such crown was not adopted for roadway carriageway. d) As explained in Sr. No. 12 “d” above State Representatives were satisfied with consultant’s clarification above
14	Slide 16: a) Sewer line location should be at the right side. b) Crowned road is recommended c) Carriageway is 22ft same as existing road.	a) As explained in Sr. No. 11 “e” above. b) Consultant explained that With Utility duct in RHS, Surface runoff from roadway cannot be disposed towards Lagoon in RHS as such entire carriageway surface runoff was considered to be disposed towards Ocean side. c) As explained in Sr. No. 12 “d” above State Representatives were satisfied with consultant’s clarification above
15	Slide 21: a) What is reconstruction? remove and replace of old culvert is recommended. b) What is new construction? c) Out fall from the culvert should reach the shoreline by constructing pipeline(HDPE OR RCP) with manholes.	a) Consultant Clarified that Reconstruction means construction of new culvert with size determined by catchment and design runoff envisaged as such the terminology intends reconstruction of new culvert at the same location. b) Consultant explained that based on field evaluation and site requirement there would be additional new cross drainage culvert
	d) Proposed size of culvert should be supported by calculation and design information. e) Incorporate wing wall and apron in the design of culvert where ever applicable to prevent soil erosion and direct water flow. f) When the proposed road is higher than the existing ground level at the residential area, catch basin is recommended to drain the stagnant water to the nearest road drainage or culvert.	structures are proposed as such New Construction was indicated for such additional Culverts considered as part of the improvement proposal where 3 nos. such new Culverts proposed in Concept design and now upon field verification another 3. No new Culverts proposed. As such total culverts now forming part of improvement proposal would be 13 Nos. which involve 7 Existing culverts proposed to be reconstructed with new bigger culverts and additional 6 No. new Culverts. c) Consultant agreed that disposal shall be as recommended with Pipe drains. However further post meeting the issue was discussed with concerned Hydraulic expert and it was clarified that flow from Culverts can be more efficiently passed through the rectangular covered drains instead of

		pipe drains without hindering effective functioning of longitudinal drains and culvert discharge. It was further clarified that with pipe drains and manhole for maintenance if considered the outfall invert level will be below the ocean water level further leading to backflow from the ocean. d) Consultant agreed that recommended size and type shall be supported by catchment area calculation and discharge generated in the preliminary stage design report. e) Consultant agreed provision of suitable measures as desired and shall form part of preliminary design details to be submitted in next stage. f) Consultant clarified that storm water management design details formulated in concept design has accounted quick and effective disposal of runoff both from roadway and offside area. State Representatives were satisfied with consultant's clarification above
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Photographs during engagement with Stakeholders and PAPs

Photos of Stakeholder Consultations, 30 April – 4 May 2023

Airport to Pou Bay Bridge Road, Chuuk



Consultations with Local Residents along Project Road during Site Visit, 30 April – 1 May 2023, Airport to Pou Bay Bridge Road, Chuuk



Consultations with Local Residents along Project Road during Site Visit, 30 April – 1 May 2023, Airport to Pou Bay Bridge Road, Chuuk



Consultations with Local Residents along Project Road during Site Visit, 30 April – 1 May 2023, Airport to Pou Bay Bridge Road, Chuuk



Stakeholder Consultations with State Agencies, 2 May 2023, Chuuk State Government Conference Room



Stakeholder Consultations with State Agencies, 2 May 2023, Chuuk State Government Conference Room



Consultations with Chuuk Public Utilities Corporation (CPUC), 4 May 2023
CPUC Conference Room



Second Round of Consultations with DTCPW, 4 May 2023, 10:00-
12:00 DTCPW Conference Room

Consultations during Due Diligence

The following summarizes consultations undertaken by E&S consultants in November 2024.

Public Consultations

Stakeholder Consultation took place on November 20, 2024, in the Governor's Conference Hall, Chuuk from 9:45 am to 1:00 pm. Flyers were posted.



Chuuk Airport to Pou Bay Bridge Road Project

Announcement of a Stakeholder Engagement

November 20, 2024, Chuuk State Auditorium, Weno, 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 Chuuk for the upgrade of the 1.55-mile road from the airport to the Sapuk area on Weno Island. This project will address a number of current issues faced by people using this roadway that connects them to vital services such as the hospital and schools and main government and commercial areas of Weno, 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 19-23, 2024 and will be facilitating an engagement with interested businesses and residents along this section of road as well as key leadership personnel, and will be undertaking other site visits and field work to prepare the final design and implementation phase of this project.



With this st... Edit ... Move with text ... and potential solutions ... final project design and

implementation where practical.

You are invited to attend the Public Meeting

Date: November 20, 2024, 9:00 am to 12:30 pm.

Venue: Chuuk State Auditorium, Weno

Any questions and comments are welcome and can be addressed to:

Weno Mayor's Office: Rendosi Kiyoshi, Phone: 330 – 2598, Email: salientin@outlook.com

Figure 1: Airport to Pou Bay Bridge Community Consultation Flyer

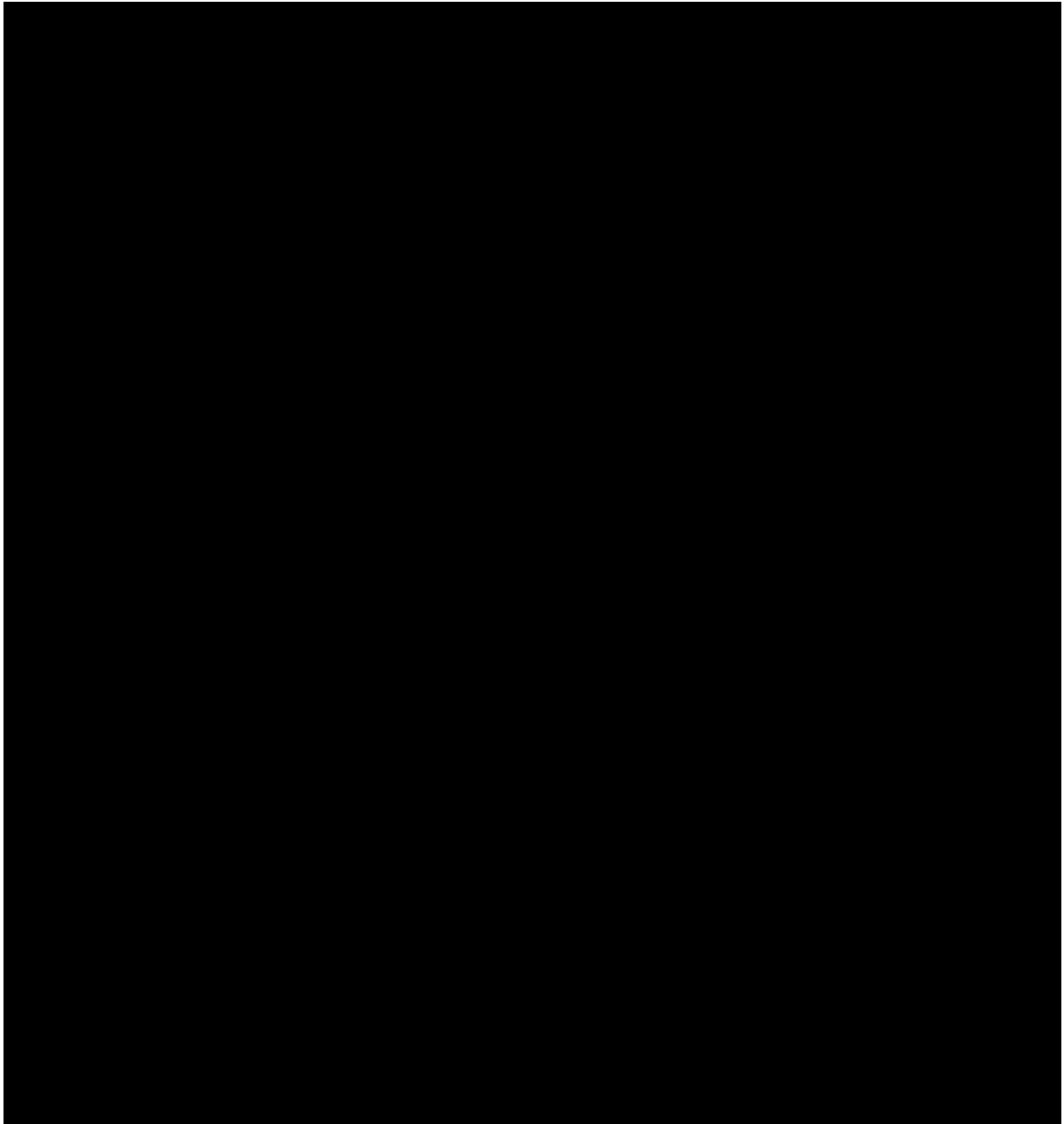


Figure 2: Airport to Pou Bay Bridge Community Consultation Attendance Sheet

Chuuk Community Meeting and Perception Consultation – Airport to Pou Bay Bridge

Governor’s Meeting Hall, Weno, Chuuk

CONSULTATION MINUTES

Meeting Note Taker: Olivier Wortel, National Environmental and Social Consultant, PCS

Date/Time: November 20, 2024, 9:45 am to 12:45 pm

Welcoming and Overview

National Environmental and Social Consultant Wortel opened the meeting at 9:40 am, Chuuk 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 Airport to Pou Bay Bridge Road improvement project, including any concerns and issues that exist. Mr. Wortel invited a local Pastor Perry Killion, himself a resident within the subproject site, to give an opening prayer to bless the meeting and the food.

Pastor Killion then delivered a prayer in the local language, and the meeting was formally started.

Introductions

Wortel started by introducing himself as the National Team Leader and Environmental and Social Consultant on the project, representing Palikir Consulting Services (PCS), and that the team present were well-versed in social and environmental knowledge and that such sociological and ecological factors needed to be more fully integrated into the final project design for the Airport to Pou Bay road. Wortel then asked the International Consultants sitting at the presentation table to introduce themselves.

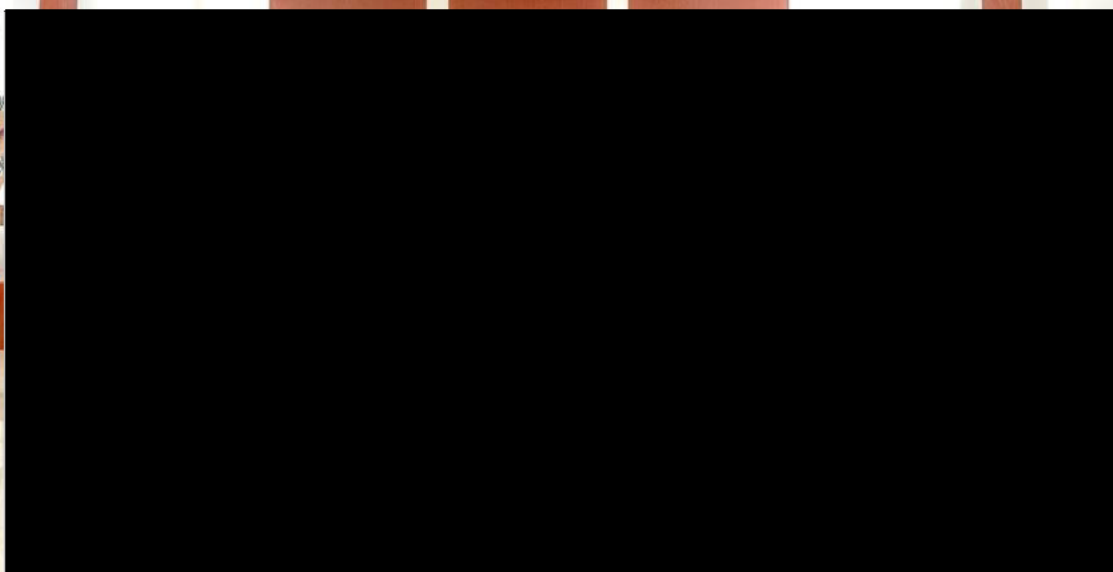


Then, the Chuuk State Chief of Planning and Budget, Mr. Renados Kyoshi, spoke on behalf of the community members and government personnel present, speaking in the vernacular language, where he thanked everyone for attending the ESMP consultation, provided a short history of the project and previous activities, and expressed the State's continued support to expedite the project ground-breaking and civil works.

Mr. Roger Mori, Special Assistant to the Governor, then spoke and stated that this project was a priority not only for the World Bank and national government, but also for Chuuk state. Mori added that the state was eager to move forward with the project, and welcomed the ESMP process and hoped that the team would have a successful mission.

Thereafter, and before he started his presentation, Dr. Lees (International Environmental Expert) asked all those present to go around the room and introduce themselves, and after everyone introduced themselves, the consulting team went into the presentation.

Participants



1. Tos Nakayama – Director of Department of Transportation & Public Works
2. Renados Kyoshi – Chief of Chuuk State Planning Office
3. Alvin Mori – Fiscal Officer, US Compact Project Management Office
4. Edoy – Epinup Community Representative
5. Aser Nifon – Inspector, Chuuk State Planning Office
6. Wilfred Soumwei – Inspector, Chuuk State Planning Office
7. Albert Francis – Distribution Manager, Chuuk Public Utilities Office
8. Junior Nomau – Management Officer, Department of Public Health
9. Berlyn P. Killion – Retiree, Community Representative
10. Rockin Soram – Village Advisor, Weno Municipal Government
11. Perry P. Killion – Senior Pastor/Technician, Logan Memorial Church
12. Roselie Ashley Mamaligsa – Administrative Assistant, Cash & Carry
13. Kez Ezra – Land Specialist, US Compact Project Management Office
14. Roger Mori – Special Assistant R&D, Office of the Governor
15. Reno Rufes – Mayor, Siis Municipality
16. Brad Mori – Director, Chuuk EPA
17. Tommu Otis – Mayor, Fonoton Municipality
18. Martin DeBeer – International Team Leader and Land Legal Expert, RGC
19. Tracey Taylor – RGC Administrator
20. Sekap Esah – Senator, Chuuk State Legislature

21. Rico A. Rico – FSM PRIME and SCORE Project Officer
22. [REDACTED] – Business Owner/Landowner
23. Marsha Lyn Mori – REACH Coordinator, FSM REACH Program
24. Kimson Santiago – Security, Chuuk State Legislature
25. Kriskitina Kanemoto – PCS National Environmental and Social Specialist
26. Clarice Graham – PCS National Environmental and Social Specialist
27. NR Rupert Rufus Petewon – Admin. Officer, Department of Public Affairs
28. [REDACTED] – Community Representative
29. Lona – Secretary, Office of the Governor
30. Andrew Ray – Water Quality Specialist, Chuuk EPA
31. Shiva Dhakal – Social Expert, FSM Central Implementation Unit
32. Alvaro Hoyos – Communications Specialist, FSM Central Implementation Unit
33. Nowell Petrus – Grant Assistant, Chuuk Office of ODA
34. Dr David Lees – International Environmental Expert
35. Dr Rosemary Falatoese – International Social Expert

Airport to Pou Bay Bridge Road 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 (ESS) lens for all aspects of the Airport to Pou Bay road design and construction phases.

Dr. Lees noted that for design, all environmental and social aspects are considered and in particular, that the final recommended design for the project would ensure that no private lands, buildings, trees or other structures currently along the existing road corridor would not be tampered with or moved in any way, and that it was a specific effort by the team to ensure that all people's lands and structures would be respected and the road corridor would reflect this.

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 environmental and social 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.

At the end of the presentation, Mr de Beer facilitated questions from the attendees and each of the consultants were given opportunity to respond.

Mrs Falatoese further reiterated the need for a robust GRM to be instituted as part of the SSESMP. This opened a positive and robust discussion and led to several inputs from

the community and their understanding of the cultural methods needing to be honoured as part of the due process of redress.

Mr Dhakal was given opportunity to speak.

No objections were raised to the road project proceeding.

Figure 3: Airport to Pou Bay Bridge Consultation Presentation

PRIORITIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMENTS (PRIME) PROJECT

Chuuk Perception Survey

PRIME Project Overview

- The World Bank is providing financial support to a technical assistance project for a PRIORITIZED ROAD INVESTMENT AND MANAGEMENT ENHANCEMENTS (PRIME) PROJECT to improve the **climate change resilience** of FSM's Road Network
- The project work for Chuuk involves the upgrade of the road from the Airport to Pou Bay Bridge to ensure connectivity around the island. This project ends at the bridge approach. It does not include works to the bridge.
- The Department of Public Works & Transportation (DPW&T) is the focal point for implementation of the project in Chuuk. This review is led by PCS supported by Route Geographics Consultants.

Proposed Project Site - Chuuk

The current state of the road

- Existing road is in poor condition with pavement surface damaged from rainfall throughout the year. Sometimes the substandard potholes makes it impossible for pedestrians and vehicles
- Poor existing drainage system with inadequate cross drainage structures - need larger culverts to deal with storm waters. Some households open the sewer manholes during flooding to let in storm water which can overflow the sewer treatment and pumps
- Some sections of the road suffer overtopping from the sea during King Tides
- Utilities: water and sewer line run along entire length. Electricity lines - underground until the end of the airport compound and then as poles. Telecommunication lines along the road; and 3 sewer pump stations.

Proposed Project Construction Corridor - Chuuk

- A design review was conducted to ensure that the road corridor does not impact any structures, boundary fences or hedges, or lands being used to generate income
- There will be no need for involuntary resettlement or land acquisition

Processes followed to ensure no involuntary resettlement

Step 1: Initial assessment
Step 2: Detailed assessment
Step 3: Design review
Step 4: Consultation with affected communities
Step 5 (Final): Final assessment and approval

Expected benefits of the upgrade

- The life expectancy of the new road is expected to be at least 20 years
- The climate-resilient sealing of the road, similar to the Wano town roads, will provide quality-of-life improvements
- Existing utility services include water will also be relocated to a dedicated utility corridor as part of the civil works
- Any significant ecological and/or cultural sites will be mapped and avoided in the upgrade process. The major one is Pou Bay
- Further consultations will occur throughout the process, especially with relevant affected persons and to keep stakeholders informed

Additional benefits to be included

- Guardrails will be adopted at culvert structure locations and at locations governed by site conditions to improve safety
- A pedestrian walkway all along the roadway - required to ensure safer movement of pedestrians
- Existing culverts proposed to be reconstructed with larger culverts and an additional 6 new culverts - the reconstruction of the natural existing drains and outfall towards the ocean will mean there is minimal impact on existing properties
- Proposed longitudinal cross drainage drains on both sides of the road will capture storm water and offsite catchments from the hills and land. This will facilitate discharge through natural channels and the outfall to the ocean. Ongoing regular maintenance will be required for these drains

Construction

Road works will last approximately 6 months and there will be some inconvenience for commuters while this is underway. However, this will be minimised as much as possible. For example:

- Some nuisance effects will be experienced by nearby residents and commuters during construction, including: dust, traffic delays, vibrations and noise
- Some disruption to traffic during construction. This will be managed by a temporary detour
- Pou Bay is a large expanse of water with fishing interaction between the bay and the open sea. It is important to maintain the water quality by avoiding/preventing any unplanned discharges from the construction works
- These will be controlled through the Environmental and Social Management Plan (ESMP), implemented by the contractor and supervised by the consultants, to ensure such effects are kept to an acceptable level

Safeguards

- Implementing these works will follow both international and national best practices
- Negative impacts from all phases of the project - i.e. environmental and social impacts - will be minimized
- The design and construction of the road from the Airport to the Pou Bay Bridge will reflect the concerns of affected communities with preventative and mitigation measures built into project activities
- Environmental concerns will be mitigated through the Environmental and Social Management Plan (ESMP)

ESMP

- Environmental and Social Management Plan (ESMP) is part of the conditions imposed on the contractor
- It is part of the tender document and so is contractually binding
- It requires the contractor to give preference to hiring local people. These can be female who are offered the same pay as men for the same job
- It contains a Grievance Redress Mechanism. Contractor must put up a large signboard giving name and mobile phone number of contractors representative to be contacted for complaints.

Perception Survey

- We would like to hear your concerns and potential solutions regarding commuting along the Airport to Pou Bay Bridge road, impacts of climate events on households; considering local solutions that will encourage greater social and environmental resilience
- These responses will be considered and factored into the Project design and implementation where applicable and practical
- We would like to hand out some survey forms. You do not need to put your name. This is a "blind" survey. Please indicate if you are male or female
- This survey is completely voluntary. If you do not want to do it that is fine; if there are any questions you do not want to answer, just leave blank
- Now that we have given an overview of the works we would like to hear your views
- We are here to listen to you !

Sunset over Pou Bay

Thank You !

Focus Group Discussions

Focus Group Discussion with Community Women's Representatives, Chuuk

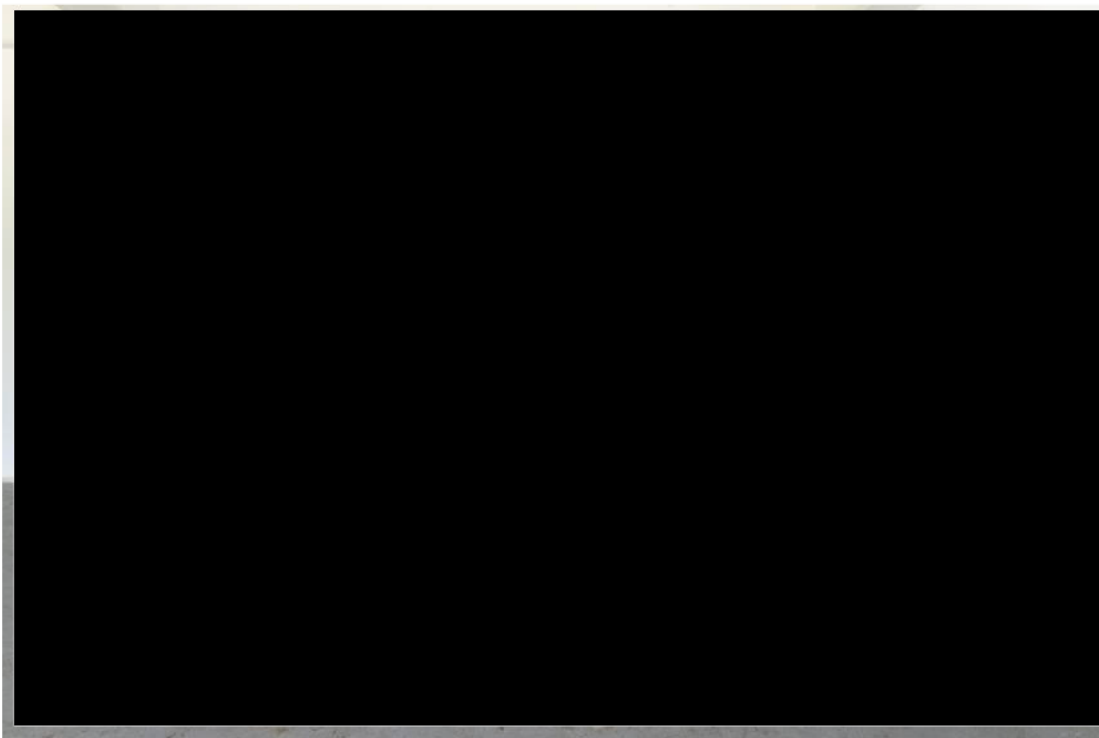


Figure 4: Attendees FGD Women's Representatives, Chuuk (14nos)

Participants

1. Rosemary Falatoese – International Social Expert
2. Rayleen Sananap – PCS National Specialist
3. Kris Kanemoto – PCS National Specialist
4. Kisalyn Singeue – Community Youth Representative
5. Kieko Kanemoto – Business Officer, Saramen Chuuk Academy
6. Jacinta Lippwe – Gender Based Violence Coordinator, Chuuk Women's Council (GBV Program)
7. Lidayjane Serious – Finance Officer, Chuuk Women's Council
8. Lestina Berdon – GBV Counselor, Chuuk Women's Council (GBV Program)
9. Siperia Dichon – GBV Counselor, Chuuk Women's Council (GBV Program)
10. Sally Poll – Healthy Living Coach, Chuuk Women's Council (CHIP Program)
11. Lydia Monuker – Life Style Program Assistant, Chuuk Women's Council
12. Marissa Wengu Reyes – Partner, Cross Roads FSM LLC (Aggregates Supplier)
13. Jasmin Aramzaso – Partner, Cross Roads FSM LLC (Aggregates Supplier)

14. [REDACTED] – Community Representative
15. Alynn Bisalen – Teacher, Saramen Chuuk Academy
16. [REDACTED] – Community Representative

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 Weno island who have an interest in the project, so that those voices could be heard in a culturally appropriate forum. Following is some of the key feedback received:

Concerns about different agendas at different levels, that may not be aligned to community needs, including national and state governments, development partners and various design consultants.

- Would the project planning and implementation be stalled due a lack of capable contractors on the island?
- Two of the participants moved to Chuuk two months prior to start a business to support infrastructure projects, including aggregates, construction materials, and other equipment, and there is a commercial interest from a women-owned business.
- 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.
- After the ESMP is completed, will the road designs be completed?
- Are we representing all women on Weno Island? Will there be further awareness and consultations?
- What will be the approach or mitigation strategy for Adjacent Land Owners (ALOs) who may want to stop the project due to perceived land issues (this refrain was reiterated several times, based on past experience with road improvement projects in and around the community)?
- 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 are vulnerable households, including women-led and HHs with children with disabilities, along the project route.

At the close of the FGD session, PCS Environmental and Social Specialist, Kris Kanemoto 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. There were no further comments or questions and the meeting was closed.

End. 



Figure 5: Airport to Pou Bay Bridge Women's Focus Group Discussion Attendance Sheet

Appendix I – Consultation Project Design Issues Matrix

Site: Airport to Pou Bay Road, Chuuk					
Project Design Issues					
		Problem Description	Solution Description		Design Action
				Relevant Output document	
1	Public Consultation, women's group consultation	Most kids have to cross the street to get to school, so sidewalks, crosswalks, signage and protective railing	Provision of road safety features to increase the safety of the road, particularly for crossing children	ESMP, E-TMP	Sidewalks, crosswalks, road tables and signage introduced in accordance with AASHTO standards
2	Public Consultation, Business Owner	Water, power, lighting are all important and these should not be disrupted and should be improved wherever possible.	Provision for relocation/upgrade of utilities as needed under the road wearing course	ESMP Appendix G	Provision for utility Works made in BoQ
3	Public Consultation, Business Owner	Restoration of access to property when the project is completed	Provision for restoration of driveway access throughout the project, all driveways were recorded and catered for in the measured works	ESMP	Provision under drawing details

4	Public Consultation, Land Owner	Flooding during rains, and how long it takes for the water to go down, how will this project address this	Provision for expanded longitudinal drainage and outflow tidal drainage flaps	ESMP Section 5.1.1.a	Provision under drawing details
2	Public Consultation, Land Owner	Adjacent Land Owners (ALOs) who may want to stop the project due to perceived land issues	Update the road alignment and outfall location details to ensure project improvements stay within the RoW	Design Inputs Matrix Annex 1, LADDR	Updating of Design to fit within the ROW

Appendix B: Observations during Engineers Design Visit - June 24

The project road considered for improvement under this contract i.e. Airport to Pou Bay Bridge roads, is located on Weno Island of Chuuk State. The project road is abutting to the compound wall of the Airport Runway on the LHS and commercial activities on RHS (Figure 6 - A). The pavement surface from about Ch. 1770'-0" to the end is severely damaged due to a lack of maintenance and drainage issues, leading to the slow movement of traffic and at times with heavy rains it is barely passable.

As it rains on the island almost throughout the entire year, there are times when heavy rain leads to some sections of the project road being submerged by up to 300mm in the absence of good drainage (- B and C).

Long sections of the road run parallel to the ocean with housing fronting the ocean, whilst on occasions, small sections of road run directly adjacent to the ocean (Figure 12 – D). There are 7 existing culverts along the project road, and most of them are choked, damaged and have inadequate hydraulic capacity (- E and F).

In summary, the existing culverts are not functional and under-designed for the current route. They are badly damaged and will not be reusable as part of a new design or road rehabilitation.

Observations captured during Road Design Engineers' site visit, October 2024



A: Airport Boundary Wall in LHS of Project Road from Ch. 0 to Ch. 2250



B: Waterlogged road near CH. 2900'



C: Waterlogged road near CH. 5570'



D: Project road stretch beside the ocean



E: Culvert at Ch. 1428 filled with solid waste



F: Choked culvert at CH. 4303

Appendix C: Determination of “Net Gain” Program for the Endangered Chuuk Flying Fox and Chuuk Monarch

Background

The biodiversity values for which the critical habitat was designated is the habitat requirements for the Chuuk Flying Fox. The bat occupies many different habitats for various needs – roosting, breeding, feeding etc. The Chuuk Flying Fox uses Pou Bay mangroves for feeding and forest for roosting.

The impacts on the Pou Bay habitats are primarily temporary water quality issues from earthworks works to rehabilitate the embankment. Flying foxes are not affected by water quality changes in the marine/estuary environment. Temporary workday emissions of noise, dust and vibration are likely to be no more than background / baseline at the location of roosts due to attenuation with other urban sources of noise and distance from road to forest areas. Furthermore, the emissions are short term (several months) if they are measurable above the background levels.

Feeding behaviour should not be affected because there will be no night works and no lights left on at night on the active work sites.

Therefore, the works are unlikely to have a measurable effect on the feeding, breeding or roosting behaviour of the Flying Fox.

The biodiversity values for which the critical habitat was designated is the habitat requirements for the Chuuk Monarch Bird where it primarily inhabits remnant native forests and extensive mangroves. Less frequently in degraded lowland forest. Favors areas with a dense understory, where it forages singly or in small groups, moving slowly through the foliage.³²

The Chuuk Monarch Bird population is declining as a result of habitat loss.

Temporary workday emissions of noise, dust and vibration are likely to be no more than background / baseline at the location of foraging due to attenuation with other urban sources of noise and distance from road to forest areas. Furthermore, the emissions are short term (several months) if they are measurable above the background levels.

Therefore, the works are unlikely to have a measurable effect on the feeding and breeding behaviours of the Chuuk Monarch Bird.

The effects of a 24-month construction program on the roosting and breeding behaviour of the Chhuk Flying Fox and Chuuk Monarch are uncertain and may influence population numbers. The Project currently has no information on the location of roosts; how many individuals or colonies are within the project area of influence. Accordingly, it cannot be definitively stated that the impact will be negligible; a minor adverse effect remains possible, consistent with the precautionary principle.

The steps to establish whether “net gain” is required is listed below:

Step 1. Collect sufficient data in the preconstruction phase to confirm presence and location of roosts and numbers of individuals in the project area of influence, conclude sensitivity to the proposed work program and identify any new/additional mitigation required for the Pou Bay Road Upgrade Project.

Step 2. If 'no/negligible impact' is confirmed, works can go ahead with the existing mitigation measures in place. This would conclude that there are 'no adverse impacts' associated with critical habitat and therefore the achievement of 'net gain' is not relevant to the Project. (no additional cost).

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. Longitudinal studies (24-month period) and publication to increase the body of knowledge, support for NGO or EPA advocacy, community awareness raising.

ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources requires, where a project has an adverse impact on critical habitat, *'the project's*

³² <https://ebird.org/species/trumon1>

*mitigation strategy will be designed to achieve **net gains** of those biodiversity values for which the critical habitat was designated*. For this project, that is the net gain in biodiversity values associated with the Chuuk Flying Fox and Chuuk Monarch..

Under ESS6, '**net gains**' are '*additional conservation outcomes*'. These can be met through offsets, or additional programs in situ to enhance habitat and protect and conserve the biodiversity values for which critical habitat was designated.

The POU Bay Road Project mitigation strategy will be designed to achieve net gain through the integration of a robust and appropriately designed, long-term biodiversity monitoring and evaluation program aimed at assessing the status of the Chuuk Flying Fox and Chuuk Monarch.

International Best Practice: In some jurisdictions e.g. the EPBC Act (1999) In Australia, this approach is called an 'indirect offset' or 'other compensatory measures'.

Indirect offsets

- These 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 Flying Fox population and Chuuk Monarch in Chuuk.

- 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 organisation
- apply the best and most up-to-date research standards available for the protected matter.

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 Flying Fox and Chuuk Monarch population at Chuuk.

Community awareness programmes aimed at the conservation of flying foxes and Chuuk Monarch can also be undertaken in communities where Flying Fox and Chuuk Monarch populations 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 is listed below:

Step 1. Collect sufficient data in the preconstruction phase to confirm presence and location of roosts and numbers of individuals in the project area of influence, conclude sensitivity to the proposed work program and identify any new/additional mitigation required for the Pou Bay Road Upgrade Project.

Methodology

a. bat specialist (local or international, with support from local NGO or university or EPA staff) uses scientific methodology for locating roosts, counting individuals and identifying flight paths around the site as per Annex A.

b. Report - survey methodology, results, conclusions on potential impacts of the Pou Bay Road upgrade.

Step 2. If 'no/negligible impact' is confirmed, works can go ahead with the existing mitigation measures in place. This would conclude that there are 'no adverse impacts' associated with critical habitat and therefore the achievement of 'net gain' is not relevant to the Project. (no additional cost).

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. Longitudinal studies (24 month period) and publication to increase the body of knowledge, support for NGO or EPA advocacy, community awareness raising.

Publication of the study in an appropriate/reputable scientific / environmental management journal.

Survey Example - Fruit Bat Monitoring – Annex A

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 below.

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.

- 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	<u>Heavy rain</u>

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, l eaves 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 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.

- 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			Roost Count #2		
	Observer #			Observer #		
	1	2	3	1	2	3
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) _____
Temperature (° F) _____	Start Time _____	End Time _____
Field QA (initials)		

Appendix D: An Indicative Outline For³³ 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),
- Environmental and Social Commitment Plan (ESCP),
- Labor 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.

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:

- Chuuk Environmental Protection Act (1993)
- FSM EIA Regulations (1989)
- Chuuk Foreign Contractors Employees Minimum Wage Act (2009)
- Chuuk Littering Act (1991)
- Chuuk Clean Environment Act (2018)
- FSM EPA Earthmoving Regulations (1988)
- Applicable World Bank EHS Guidelines (General Guidelines)

Where national law differs from WB requirements, the **more stringent requirement applies**.

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.

4. KEY MANAGEMENT PLANS (MINIMUM REQUIREMENTS)

The Contractor must prepare the ESMP recommended sub-plans

5. SPECIFIC MITIGATION MEASURES

- a. Pre-Construction
- b. Construction Phase
- c. SEA/SH Prevention

6. WORKER MANAGEMENT & OHS

- a. Worker Induction
- b. Worker Grievance Mechanism
- c. Accident Prevention

WORKER MANAGEMENT & OHS

- a. Worker Induction
- b. Worker Grievance Mechanism
- c. Accident Prevention

7. COMMUNITY HEALTH, SAFETY & ENGAGEMENT

8. EMERGENCY RESPONSE PROCEDURES

9. MONITORING & REPORTING

10. COMPLETION & SITE REINSTATEMENT

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.

Appendix E: Record of Consultations

Chuuk Community Meeting and Perception Consultation – Airport to Pou Bay Bridge Governor’s Meeting Hall, Weno, Chuuk

CONSULTATION MINUTES

Meeting Note Taker: Olivier Wortel, National Environmental and Social Consultant, PCS

Date/Time: November 20, 2024, 9:45 am to 12:45 pm

Welcoming and Overview

National Environmental and Social Consultant Wortel opened the meeting at 9:40 am, Chuuk 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 Airport to Pou Bay Bridge Road improvement project, including any concerns and issues that exist. Mr. Wortel invited a local Pastor Perry Killion, himself a resident within the project site, to give an opening prayer to bless the meeting and the food.

Pastor Killion then delivered a prayer in the local language, and the meeting was formally started.

Introductions

Wortel started by introducing himself as the National Team Leader and Environmental and Social Consultant on the project, representing Palikir Consulting Services (PCS), and that the team present were well-versed in social and environmental knowledge and that such sociological and ecological factors needed to be more fully integrated into the final project design for the Airport to Pou Bay road. Wortel then asked the International Consultants sitting at the presentation table to introduce themselves.

Figure 9-3: Governor Special Assistant Mr. Roger Mori welcomes participants

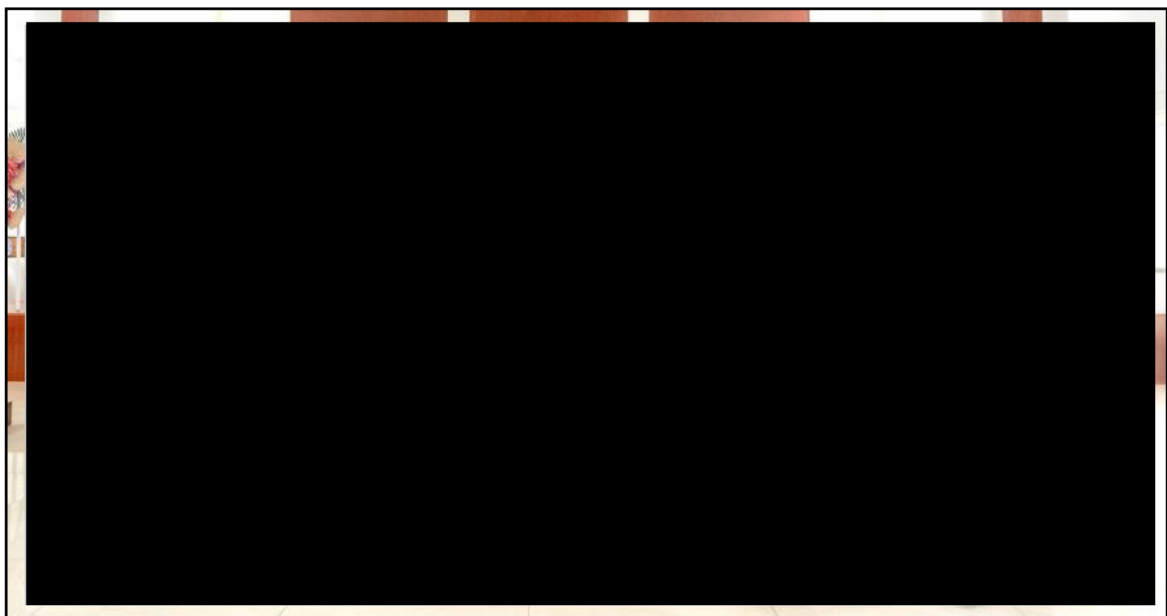


Then, the Chuuk State Chief of Planning and Budget, Mr. Renados Kyoshi, spoke on behalf of the community members and government personnel present, speaking in the vernacular language, where he thanked everyone for attending the ESMP consultation, provided a short history of the project and previous activities, and expressed the State's continued support to expedite the project ground-breaking and civil works.

Mr. Roger Mori, Special Assistant to the Governor, then spoke and stated that this project was a priority not only for the World Bank and national government, but also for Chuuk state. Mori added that the state was eager to move forward with the project, and welcomed the ESMP process and hoped that the team would have a successful mission (see Figure 9-3 above).

Thereafter, and before he started his presentation, Dr. Lees (International Environmental Expert) asked all those present to go around the room and introduce themselves, and after everyone introduced themselves, the consulting team went into the presentation.

Figure 9-4: Photo of Participants



36. Tos Nakayama – Director of Department of Transportation & Public Works
37. Renados Kyoshi – Chief of Chuuk State Planning Office
38. Alvin Mori – Fiscal Officer, US Compact Project Management Office
39. Edoy – Epinup Community Representative
40. Aser Nifon – Inspector, Chuuk State Planning Office
41. Wilfred Soumwei – Inspector, Chuuk State Planning Office
42. Albert Francis – Distribution Manager, Chuuk Public Utilities Office
43. Junior Nomau – Management Officer, Department of Public Health
44. Berlyn P. Killion – Retiree, Community Representative
45. Rockin Soram – Village Advisor, Weno Municipal Government
46. Perry P. Killion – Senior Pastor/Technician, Logan Memorial Church
47. Roselie Ashley Mamaligsa – Administrative Assistant, Cash & Carry
48. Kez Ezra – Land Specialist, US Compact Project Management Office
49. Roger Mori – Special Assistant R&D, Office of the Governor
50. Reno Rufes – Mayor, Siis Municipality
51. Brad Mori – Director, Chuuk EPA
52. Tommu Otis – Mayor, Fonoton Municipality
53. Martin DeBeer – International Team Leader and Land Legal Expert, RGC
54. Tracey Taylor – RGC Administrator
55. Sekap Esah – Senator, Chuuk State Legislature
56. Rico A. Rico – FSM PRIME and SCORE Project Officer
57. [REDACTED] – Business Owner/Landowner
58. Marsha Lyn Mori – REACH Coordinator, FSM REACH Program
59. Kimson Santiago – Security, Chuuk State Legislature
60. Kriskitina Kanemoto – PCS National Specialist
61. Clarice Graham – PCS National Specialist
62. NR Rupert Rufus Petewon – Admin. Officer, Department of Public Affairs
63. [REDACTED] – Community Representative
64. Lona – Secretary, Office of the Governor
65. Andrew Ray – Water Quality Specialist, Chuuk EPA
66. Shiva Dhakal – Social Expert, FSM Central Implementation Unit
67. Alvaro Hoyos – Communications Specialist, FSM Central Implementation Unit
68. Nowell Petrus – Grant Assistant, Chuuk Office of ODA

69. Dr David Lees – International Environmental Expert

70. Dr Rosemary Falatoese – International Social Expert

Airport to Pou Bay Bridge Road Perception Survey Presentation

Perception Assessment Methodology

136. 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.

137. A social research methodology was utilized 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.

iv) Data sources

138. A combination of primary and secondary data was used to develop this present baseline.

139. **Secondary Information** – This included:

- (i) the 2010 FSM Population and Housing Census; 2013 HIES and Poverty Profile of FSM
- (ii) Other relevant public domain information.

140. **Primary information** – Two meetings were held in Chuuk; a public meeting where a presentation was provided covering the proposed project for the Road upgrade to the Pou Bay Bridge, followed by a survey filled in by the respondents regarding their daily lives and challenges in terms of the current road, project expectations and any potential concerns; and a focus group comprised of women community representatives from the project corridor, including several female business owners.

v) Survey

141. The survey was translated and presented in Chuuk dialect where necessary for the ease of the participants attending and responding. Content included:

- (i) **Information provision** – presentation materials were used to describe key aspects of the proposed project.
- (ii) **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 enabled open ended questioning to draw out succinct yet valuable nuances pertinent to the social and economic characteristics of Chuuk.
- (iii) **Local ownership**: The consultations encouraged survey respondents and their community with an initial sense of ownership of the proposed road upgrade project – considering their concerns and inputs, such as sidewalk location, signage, safety etc.
- (iv) **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.

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 (ESS) lens for all aspects of the Airport to Pou Bay road design and construction phases (see Figure 9-5 below).

Dr. Lees noted that for design, all environmental and social aspects are considered and in particular, that the final recommended design for the project would ensure that no private lands, buildings, trees or other structures currently along the existing road corridor would not be tampered with or moved in any way, and that it was a specific effort by the team to ensure that all people's lands and structures would be respected and the road corridor would reflect this.

Dr. Lees then stated that the output of this road 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 environmental and social 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.

At the end of the presentation, Mr de Beer facilitated questions from the attendees and each of the consultants were given opportunity to respond.

Mrs Falatoese further reiterated the need for a robust GRM to be instituted as part of the SSSEMP. This opened a positive and robust discussion and led to several inputs from the community and their understanding of the cultural methods needing to be honoured as part of the due process of redress.

Mr Dhakal was given opportunity to speak.

No objections were raised to the road project proceeding.

Expected benefits of the upgrade

- The life expectancy of the new road is expected to be at least 20 years.
- The climate-resistant sealing of the road, similar to the Wairoa town roads, will provide quality-of-life improvements.
- Existing utility services include water will also be relocated to a dedicated utility corridor as part of the civil works.
- Any significant ecological and/or cultural sites will be mapped and avoided in the upgrade process. The major one is Rewi Bay.
- Further consultations will occur throughout the process, especially with relevant affected persons and to keep stakeholders informed.



Additional benefits to be included

- Guardrails will be adopted at culvert structure locations and at locations governed by site conditions to improve safety.
- A pedestrian walkway all along the roadway - required to ensure safer movement of pedestrians.
- Existing culverts proposed to be reconstructed with bigger culverts and an additional 6 new culverts - the reconstruction of the natural existing drains and outfalls towards the ocean will mean there is minimal impact on existing properties.
- Proposed longitudinal cross drainage drains on both sides of the road will capture storm water and offside catchments from the hills and land. This will facilitate discharge through natural channels and the outfall to the ocean. Ongoing regular maintenance will be required for these drains.

Construction

Road works will last approximately 6 months and there will be some inconvenience for commuters while this is underway. However, this will be minimised as much as possible. For example:

- Some nuisance effects will be experienced by nearby residents and commuters during construction, including dust, traffic delays, vibrations and noise.
- Some disruption to traffic during construction. This will be managed by a temporary detour.
- Pou Bay is a large expanse of water with flushing interaction between the bay and the open sea. It is important to maintain the water quality by avoiding/preventing any unplanned discharges from the construction works.
- These will be controlled through the Environmental and Social Management Plan (ESMP), implemented by the contractor and supervised by the consultants, to ensure such effects are kept to an acceptable level.

Safeguards

- Implementing these works will follow both international and national best practices.
- Negative impacts from all phases of the project - ie environmental and social impacts - will be minimized.
- The design and construction of the road from the Airport to the Pou Bay bridge will reflect the concerns of affected communities with preventative and mitigation measures built into project activities.
- Environmental concerns will be mitigated through the Environmental and Social Management Plan (ESMP).

ESMP

- Environmental and Social Management Plan (ESMP) is part of the conditions imposed on the contractor.
- It is part of the tender document and so is contractually binding.
- It requires the contractor to give preference to hiring local people. These can be female who are offered the same pay as men for the same job.
- It contains a Grievance Redress Mechanism. Contractor must put up a large signboard giving name and mobile phone number of contractors representative to be contacted for complaints.



Appendix I – Consultation Project Design Issues Matrix

Site: Airport to Pou Bay Road, Chuuk				
Project Design Issues				
		Problem Description	Solution Description	Design Action
1	Public Consultation, women's group consultation	Most kids have to cross the street to get to school, so sidewalks, crosswalks, signage and protective railing	Provision of road safety features to increase the safety of the road, particularly for crossing children	Sidewalks, crosswalks, road tables and signage introduced in accordance with AASHTO standards
2	Public Consultation, Business Owner	Water, power, lighting are all important and these should not be disrupted and should be improved wherever possible.	Provision for relocation/upgrade of utilities as needed under the road wearing course	Provision for utility Works made in BoQ
3	Public Consultation, Business Owner	Restoration of access to property when the project is completed	Provision for restoration of driveway access throughout the project, all driveways were recorded and catered for in the measured works	Provision under drawing details
4	Public Consultation, Land Owner	Flooding during rains, and how long it takes for the water to go down, how will this project address this	Provision for expanded longitudinal drainage and outflow tidal drainage flaps	Provision under drawing details
2	Public Consultation, Land Owner	Adjacent Land Owners (ALOs) who may want to stop the project due to perceived land issues	Update the road alignment and outfall location details to ensure project improvements stay within the RoW	Updating of Design to fit within the EROW

Appendix II – Focus Group Discussion with Community Women’s Representatives, Chuuk

An FGD with key women and youth were invited to participate in a discussion on the project after the broader public consultation, on 22 November 2024, at the Kurrassa Meeting Hall (see Figure 9-6 below).

Figure 9-6: Photo of Attendees for the FGD Women’s Representatives, Chuuk



Participants

17. Rosemary Falatoese – International Social Expert
18. Rayleen Sananap – PCS National Environmental and Social Specialist
19. Kris Kanemoto – PCS National Environmental and Social Specialist
20. Kisalyn Singeue – Community Youth Representative
21. Kieko Kanemoto – Business Officer, Saramen Chuuk Academy
22. Jacinta Lippwe – Gender Based Violence Coordinator, Chuuk Women’s Council (GBV Program)
23. Lidayjane Serious – Finance Officer, Chuuk Women’s Council
24. Lestina Berdon – GBV Counsellor, Chuuk Women’s Council (GBV Program)
25. Siperia Dichon – GBV Counsellor, Chuuk Women’s Council (GBV Program)
26. Sally Poll – Healthy Living Coach, Chuuk Women’s Council (CHIP Program)
27. Lydia Monuker – Life Style Program Assistant, Chuuk Women’s Council
28. Marissa Wengu Reyes – Partner, Cross Roads FSM LLC (Aggregates Supplier)
29. Jasmin Aramzaso – Partner, Cross Roads FSM LLC (Aggregates Supplier)
30. [REDACTED] – Community Representative

31. Alynn Bisalen – Teacher, Saramen Chuuk Academy

32. [REDACTED] – Community Representative

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 project communities, and others from Weno island who have an interest in the project, so that those voices could be heard in a culturally appropriate forum. Following is some of the key feedback received:

Concerns about different agendas at different levels, that may not be aligned to community needs, including national and state governments, development partners and various design consultants.

- Would the project planning and implementation be stalled due a lack of capable contractors on the island?
- Two of the participants moved to Chuuk two months prior to start a business to support infrastructure projects, including aggregates, construction materials, and other equipment, and there is a commercial interest from a women-owned business.
- 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.
- After the ESMP is completed, will the road designs be completed?
- Are we representing all women on Weno Island? Will there be further awareness and consultations?
- What will be the approach or mitigation strategy for Adjacent Land Owners (ALOs) who may want to stop the project due to perceived land issues (this refrain was reiterated several times, based on past experience with road improvement projects in and around the community)?
- 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 are vulnerable households, including women-led and HHs with children with disabilities, along the project route.

At the close of the FGD session, PCS Environmental and Social Specialist, Kris Kanemoto 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. There were no further comments or questions and the meeting was closed.

Appendix III –House-to-House Briefings and ROW Sign-Offs – Airport to Kurrassa

After these consultations, there was a key stakeholder group of ALOs that did not have land easements in place and that were engaged in Home-to-Home briefings to hear about the project, to address and concerns and answer questions, and to sign off on the road Right of Way (ROW) to allow the project to proceed. This activity was undertaken by PCS staff, the FSM PIU and Chuuk State Government representatives. Ultimately, all of these stakeholders revealed no major issues with the project and signed off on the ROW documents for this section of road without issue or grievance.

Figure 9-8: Sample Signed ROW for Project w/out Grievance

#8



**GOVERNMENT OF THE
FEDERATED STATES OF MICRONESIA**
Department of Transportation, Communications & Infrastructure
P.O. Box PS-2, Pohnpei, FM 96941
Tel.: (691) 320-2845 Fax: (691) 320-5353

Right of Way Disclosure and No Objection to Works

I, the undersigned herein under:

Name: ANGELL TON

Contact #/ID: 390-2143 / 932-5429

Address: Weno Tras

As the legitimate occupant of the land, I hereby declare that I have witnessed the attached Right of Way (RoW) registered by the Government of Chuuk State and support this ROW to be used by the Department of Transport, Communications and Infrastructure, FSM National Government (DTCI) to be utilized for construction work of the **Airport to Pou Bay Road Works** for 3 years for the benefit of the general public with this RoW.

This statement is duly made without any pressure from anyone.

Place: Tras, Winia

Date: 03/13/25

Please, date this mutual agreement is signed

Party giving the permit: <u>[Signature]</u> Signature of the Land Occupant	Party receiving the permit on behalf of National Government: <u>[Signature]</u> Signature of Officer of DTCI Rico A. Rizo
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Signature of Witnesses

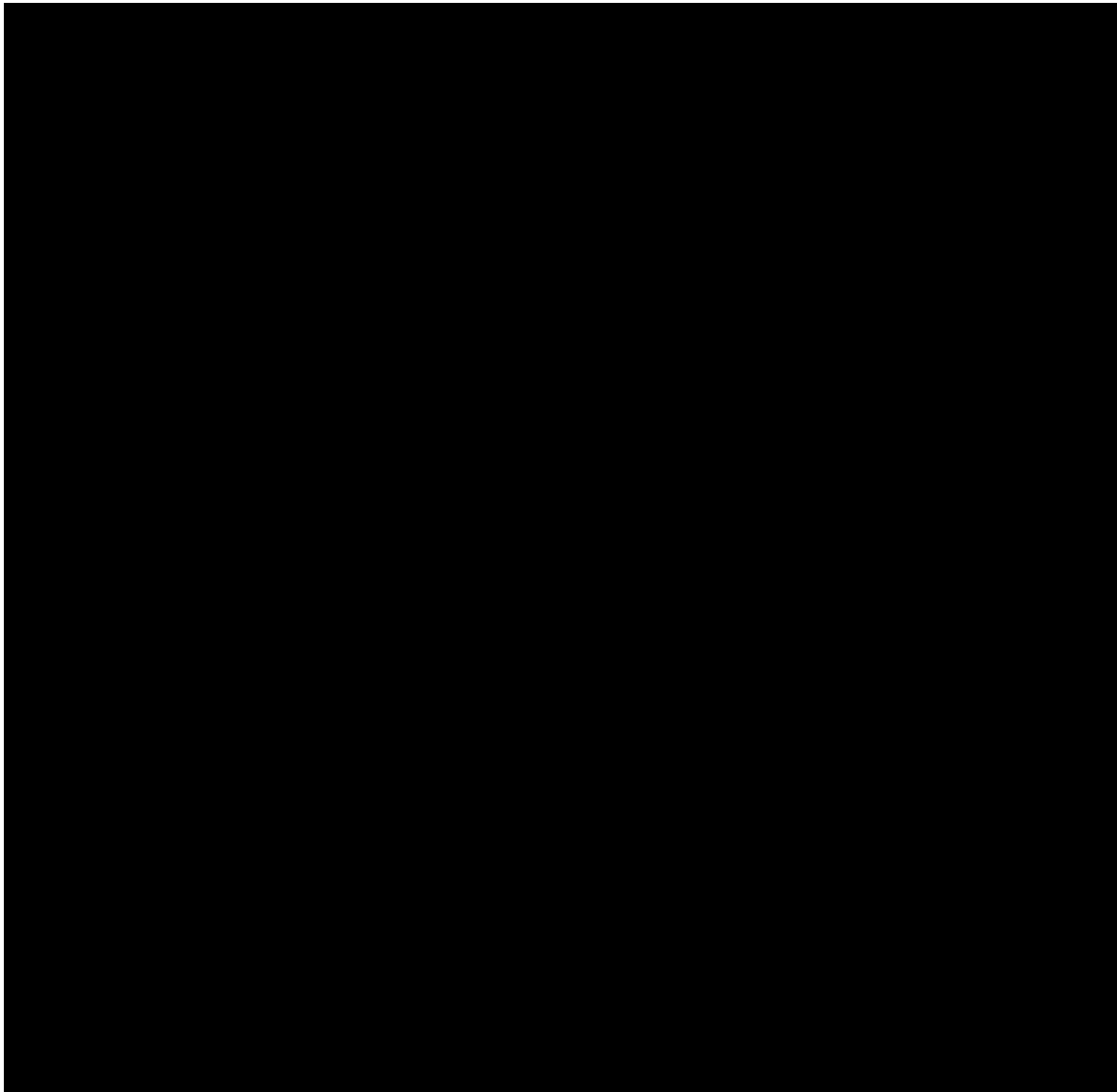
Tos Nakayama [Signature]

Dir. Public Works

Director of Public Works

Attachment: Right of Way of Existing Main Road to be replaced and photo.

Participating ALOs



There was a total of 19 ALOs – either private homeowners, business owners, or both – who participated in the ROW signing, from the period 13-22 March, 2025, filling the gaps for this particular section of the roadway, without issue, and under no duress, who participated and signed the documents. There were few, if any documented issues or grievances, and as with the other stakeholder engagements, the ALOs were unanimously in support of the impending improved road works to come.

End.

Appendix F: Perception Assessment Methodology for Social Survey

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 utilized 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.

(i) Data sources

A combination of primary and secondary data was used to develop this present baseline.

Secondary Information – This included:

- (i) the 2010 FSM Population and Housing Census; 2013 HIES and Poverty Profile of FSM
- (ii) Other relevant public domain information.

Primary information – Two meetings were held in Chuuk; a public meeting where a presentation was provided covering the proposed project for the Road upgrade to the Pou Bay Bridge, followed by a survey filled in by the respondents regarding their daily lives and challenges in terms of the current road, project expectations and any potential concerns; and a focus group comprised of women community representatives from the project corridor, including several female business owners.

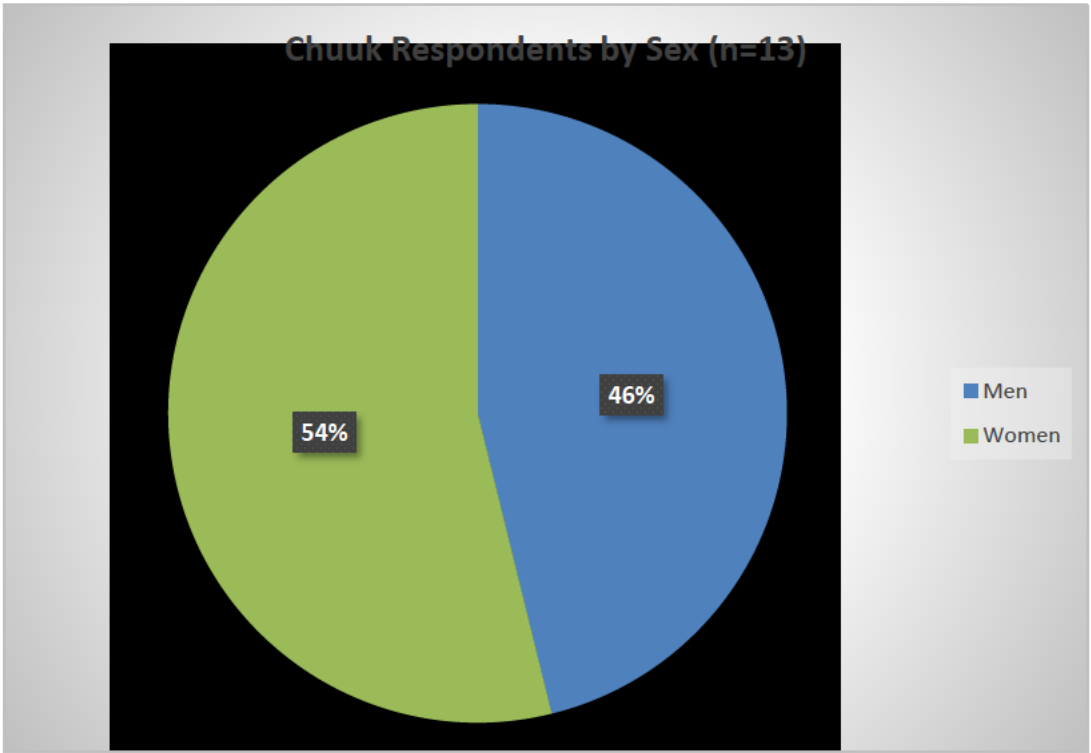
(ii) Survey

The survey was translated and presented in Chuuk dialect where necessary for the ease of the participants attending and responding. Content included:

- (i) **Information provision** – presentation materials were used to describe key aspects of the proposed project.
- (ii) **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 enabled open ended questioning to draw out succinct yet valuable nuances pertinent to the social and economic characteristics of Chuuk.
- (iii) **Local ownership**: The consultations encouraged survey respondents and their community with an initial sense of ownership of the proposed road upgrade project – considering their concerns and inputs, such as sidewalk location, signage, safety etc.
- (iv) **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.
- (v) A total of 14 local respondents, seven men and seven women, were surveyed, including those respondents who lived near or along the proposed road upgrade and who were also available at the time of the survey.

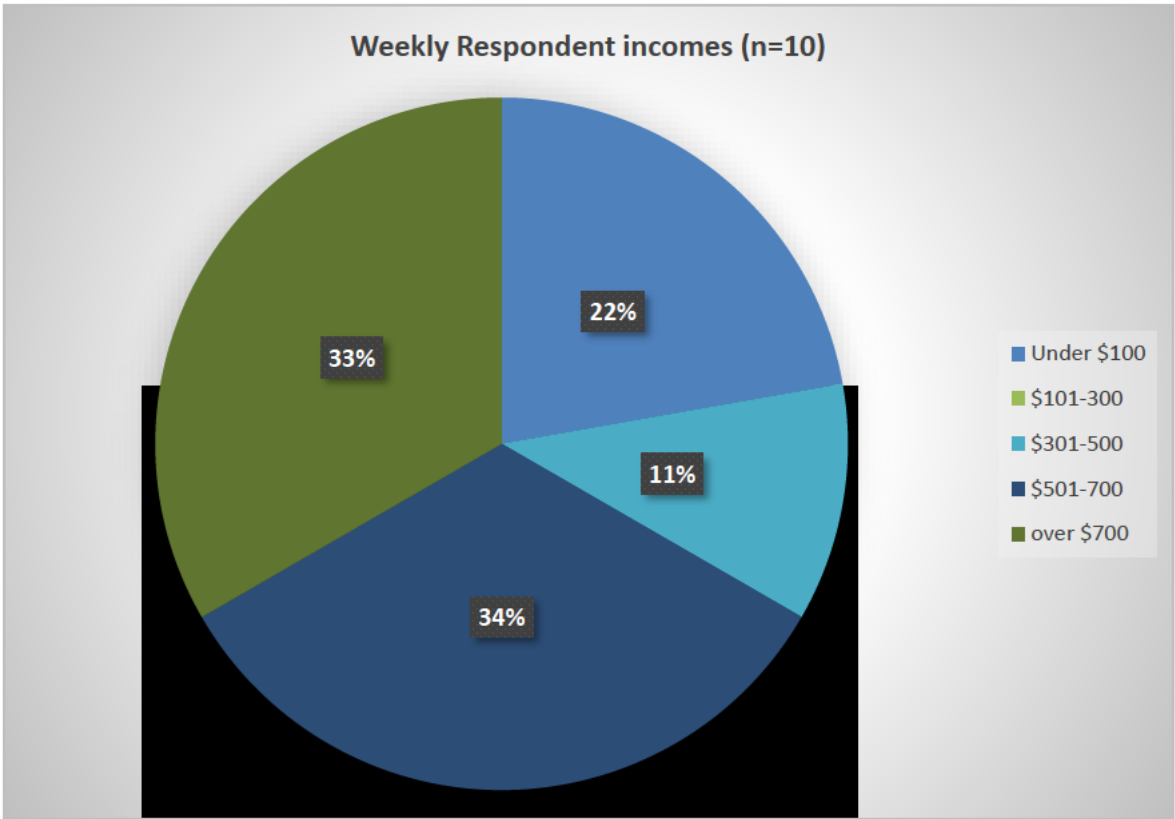
These respondents were aged between 18 and 65 years. Head of households is recorded as seven male and two female (22%). The number of respondent household members varied significantly between three people to 18 (Figure 1).

Figure 1: Chuuk survey respondents by sex



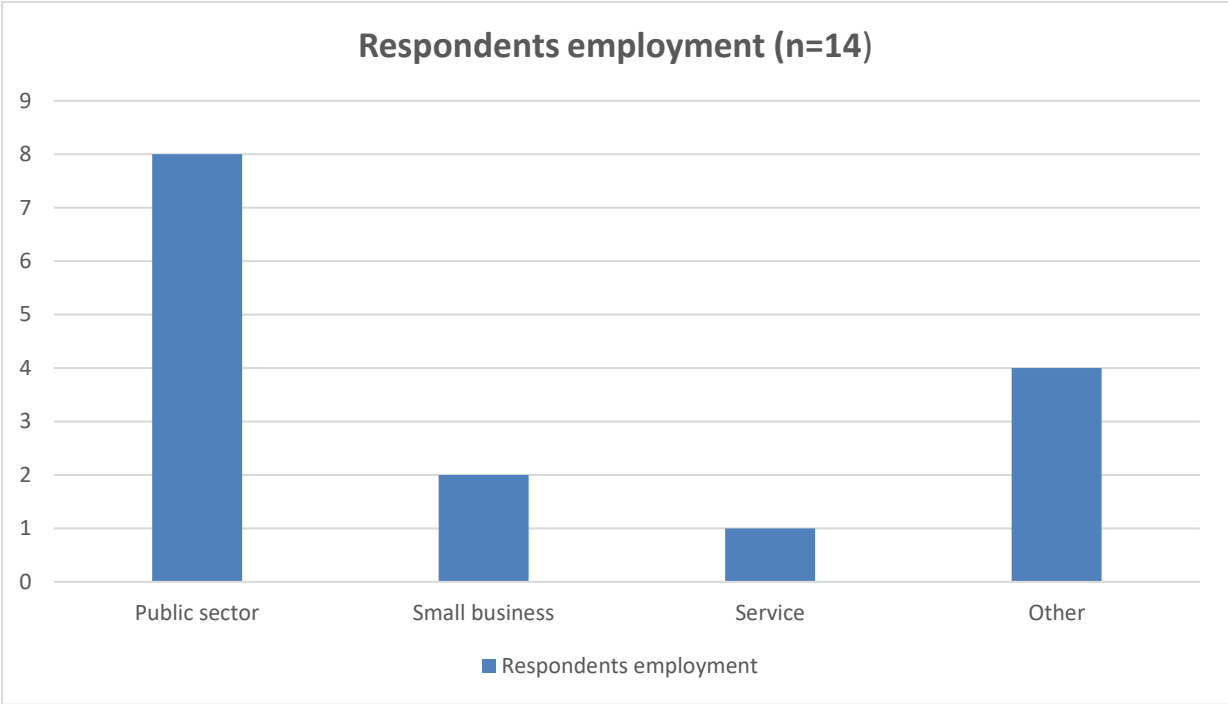
(vi) Respondent weekly income ranged between less than \$100 for 22% of respondents through to 67% earning over \$500 a week (Figure 2).

Figure 2: Chuuk weekly incomes



(vii) The high number of public sector employees may offset the poverty level. Over 60% of public sector workers in the public sector have tertiary level education compared to only 12.6% among workers producing for their own consumption (Figure 3).

Figure 3: Chuuk Survey respondent employment status



(viii) All respondents worked in different roles. The ‘other’ category included a retiree, a construction industry worker, and two working for NGOs.

The stretch of road to Pou Bay Bridge is situated on government land and respondents (86%) indicated that they recognized this. All respondents noted that the current road 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 road can be blocked for various times, minor damage for shorter periods and more extensive damage for longer periods.

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