



**Government of the Independent State of Samoa
Land Transport Authority**

**ENHANCING THE CLIMATE RESILIENCE
OF THE WEST COAST ROAD PROJECT**

Package 1:

**Lot (1) Malua to Afega Km 11.9 to 18.5;
and Lot (2) Afega to Saina Km 18.5 to 24.5**

Bidding Documents

Volume 4 Environmental & Social Management Plan

Report

Enhancing the Climate Resilience of West Coast Road
Environmental and Social Management Plan (ESMP)

Prepared for: Land Transport Authority (Client)

By: Roughton International Ltd in association with PLT Consultants Ltd

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GLOSSARY AND ABBREVIATIONS

Abbreviations	Description
AP	Affected Person(s)/Affected Party(ies)
ARAP	Abbreviated Resettlement Action Plan
BECA	Beca International Consultants Limited
CEP	Contractor's Environmental Plan
CEAR	Comprehensive Environmental Assessment Report
CEHZ	Coastal Erosion Hazard Zone
CESMP	Contractor's Environmental and Social Management Plan
CFHZ	Coastal Flood Hazard Zone
CI	Compliance Inspector
CIM Plan	Coastal Infrastructure Management Plan
COEP	Code of Environmental Practice
CPM	Contractor's Project Manager
CRWCR	Enhancing Climate Resilience of West Coast Road
CST	Construction Supervision Team
DC	Development Consent
DCA	Development Consent Application
DCP	Dynamic Cone Penetration
DCR	Design Completion Report
EA	Executing Agency
EAR	Environmental Assessment Report
EIA	Environmental Impact Assessment
ECOP	Environmental Code of Practice for West Coast Road
EMP	Environmental Management Plan
EPC	Electric Power Corporation
ESMP	Environmental and Social Management Plan
ET	Environmental Team
GRM	Grievance Redress Mechanism
GOS	Government of Samoa
IA	Implementing Agency
ICB	International Competitive Bidding
IPA	Isikuki Punivalu & Associates Limited
LARF	Land Acquisition Resettlement Framework
LTA	Land Transport Authority
MA	Monitoring Agency
MNRE-LMD	Ministry of Natural Resources and Environment - Land Management Division
MNRE	Ministry of Natural Resources and Environment
MOF	Ministry of Finance
MWCD	Ministry of Women and Community Development
MWTI	Ministry of Works, Transport and Infrastructure
NCB	National Competitive Bidding
PCCSP	Pacific Climate Change Science Program
PCM	Project Component Manager
PEAR	Preliminary Environmental Assessment Report
PEO	Project Environmental Officer
PPCR	Pilot Programme for Climate Resilience
PSC	Project Supervising Consultant
PSE	Project Supervising Engineer
PUMA	Planning and Urban Management Agency
PUM Act	Planning and Urban Management Act 2004
PUM Regs.	Planning and Urban Management (Environmental Impact Assessment) Regulations 2007
RI/PLT	Roughton International Ltd/PLT Consultants Ltd

ROW	Right Of Way
RP	Resettlement Plan
SCF	Strategic Climate Fund
SDS	Strategy for the Development of Samoa
SE	Site Engineer
SEO	Workplace Safety and Environmental Officer
SES	Workplace Safety and Environmental Supervisor
SPCR	Strategic Program for Climate Resilience
STN	Station
SWA	Samoa Water Authority
TMP	Traffic Management Plan
TOR	Terms of Reference
WB	World Bank
WCR	West Coast Road

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EXECUTIVE SUMMARY

Enhancing the Climate Resilience of the West Coast Road Project (CRWCR) is a project by the Government of Samoa (GOS) funded by the World Bank (WB) through the Strategic Climate Fund (SCF) with the development objectives to (i) improve the climate resilience of the WCR; and (ii) enhance local capacity to develop a more climate resilient road network. These development objectives support Samoa's national development strategy specific to the transport sector, with a vision of 'sustainable, safe, secure and environmentally responsible transport network that supports Samoa's economic and social development and contributes to improving the quality of life for all Samoans'. This is achieved through improving design and management practices in consideration of environmental and socio-economic factors based on plans developed in consultation with communities and key stakeholders.

The CRWCR project is located on the north western coast of Upolu Island, the second largest island in the Samoa group. The WCR project stretches from the village of Saina (Faleata district) on the outskirts of the Capital Apia to the village of Satapuala (Aana Alofi #3 district) at the Faleolo Airport, covering a total number of 23 villages with an approximate distance of 24km. The WCR is the main arterial route and is a key infrastructure component of Samoa's Economic Corridor connecting the Capital Apia to the Faleolo International Airport and the Mulifanua Wharf for the ferry that connects Upolu Island to Samoa's bigger island Savaii.

The WCR Project is categorised as a Category B based on the screening criteria of the World Bank's Environmental Safeguards Policies and Guidelines provided in the Operational Policy 4.01. This ESMP identifies the principles, approach, practices, procedures and methods that meet resource consents and designation conditions, relevant legislation, the ECOP guidelines, and the environmental objectives of the MNRE-PUMA. These encompassing factors will be used to mitigate, control, and minimise the environmental and social impacts of all construction and operational activities associated with the project.

The scope of this ESMP includes information on mitigation, monitoring, and implementation costs (in accordance with WB Operational Policy 4.01 Environmental Assessment and Samoan environmental legislation). The majority of potential adverse impacts will occur during the construction phase of the WCR reconstruction. However, given that the reconstruction of the WCR primarily involves the rehabilitation of the existing pavement and drainage works within the 20m road reserve, mitigation measures should be able to alleviate or lessen any potential negative impacts. The key potential impacts that are being mitigated are:

- Solid waste generation.
- Hazardous materials handling and storage.
- Noise and vibration disturbances from machinery and construction activities.
- Air pollution from dust and equipment.
- Traffic disruption during construction activities.
- Transport of equipment and materials from the suppliers, contractor's yard, and quarry.
- Disposal of waste materials.
- Safety hazards for workers, local communities and users of the WCR where construction activities are occurring.
- Freshwater demand and potential source.
- Wastewater discharges.
- Construction camp establishment and dis-establishment.

This ESMP is designed to address these issues through:

- Implementation of this ESMP through the Contractor's ESMP.
- Regular supervision and monitoring of the implementation of the ESMP.

CHAPTER 1 INTRODUCTION

1.1 Background

Samoa, being an island state located in the Pacific Ocean, is particularly vulnerable to the effects of climate change, rising sea levels and increasing rainfall intensities. The majority of the population as well as industries and other economic activities are located near to the coast due to the geographically small size of the islands. This leaves much of the population and key infrastructure vulnerable to the sea.

Samoa's road network is of critical importance to the country's economic development (World Bank Report, November 2012). It provides for the day-to-day well-being of its people by increasing their access to economic activities and social services. Approximately 70 percent of Samoa's population lives within one kilometre of the coast, and critical infrastructure, such as hospitals, schools, places of employment, tourist infrastructure, port facilities, power plants, airports, and roads, are located primarily in the coastal zone. Expected climate change effects - the combination of rising sea level and more intense tropical cyclones - place these coastal infrastructure and communities at high risk.

The Samoa road network faces a range of vulnerability issues, in particular:

- (i) coastal exposure to sea-level rise, storm surge, wave action during cyclones and tsunamis;
- (ii) inland flooding and landslips during extreme rainfall events;
- (iii) damage from earthquakes; and
- (iv) accelerated pavement deterioration due to extreme weather and rising water tables in some locations.

The West Coast Road (WCR) is the primary artery on the main island of Upolu and provides a vital land transport link connecting Samoa's capital city Apia and the Port of Apia with Faleolo International Airport, the Mulifanua inter-island ferry wharf (the main gateway to Samoa's second island, Savai'i), and communities and industry along the north-west coast. It also provides overseas visitors with their first impression of Samoa as they travel to Apia from the International Airport, and is therefore, of strategic national importance. Its upkeep is critical for continued economic development as more than 50 percent of Samoa's population and most of its industry is currently located along the WCR corridor (see Figure 1: Samoa Location Map, and Figure 2: Location of the Proposed West Coast Road Rehabilitation Project).

The WCR follows, and in places, is immediately adjacent to, the coast. In some locations the road is within five meters of the water, and more than 50 percent of the WCR is less than three meters above mean sea level, with approximately 10 percent less than two meters. It is vulnerable to high rainfall events (leading to surface flooding, deterioration of the road surface and road closures), and extreme high sea levels (for instance during severe tropical storms) that can lead to accelerated erosion of the road profile, structural damage and road closures. In addition, the road surface is at risk, particularly at its eastern end, by a high water table, which exacerbates deterioration of the road pavement. The existing carriageway is two-lane, generally seven meters wide, with unsealed (or very narrow) road shoulders. It has numerous culverts, no major bridges, and a sealed bituminous surface in varying condition. For almost half of its 30 km length, the condition of the WCR is rated as poor to fair.



Figure 1: Samoa Location Map



Figure 2: Location of the Proposed West Coast Road Reconstruction Project

1.2 Objectives of Enhancing the Climate Resilience of the West Coast Road Project (CRWCR)

The World Bank-funded Enhancing the Climate Resilience of the West Coast Road Project (CRWCR) has two development objectives:

- (i) Improve the climate resilience of the West Coast Road; and
- (ii) Enhance local capacity to develop a more climate resilient road network.

This ESMP focuses on the first objective which will be achieved by improving sections of the WCR to strengthen its resilience to climate change and extreme weather events. It is expected

that the WCR improvements will serve as a pilot project for reducing the vulnerability of the Samoa road network to climate events.

1.3 Environmental and Social Management Plan Scope and Objectives

The CRWCR is a Category B project under WB environmental and social screening guidelines and requires the development of a site specific ESMP. Due to the nature of the project being a road reconstruction focusing on enhancing an existing road alignment, it is expected that environmental impacts will be site specific, few in number, largely reversible, and readily addressed through mitigation measures designed and implemented.

The objective of the ESMP is to provide a framework for managing the WCR reconstruction works in a manner that incorporates the principles of environment sustainability in its approach, procedures, and methods while minimising potential adverse effects on the local community and the environment.

To achieve this objective, the ESMP outlines the mitigation measures required for avoiding or minimising the potential impacts of the WCR reconstruction works and provides a monitoring program to confirm effectiveness of the required mitigation measures. The roles and responsibilities for key stakeholders are clearly defined for all stages of the project works and execution of project works. The ESMP also provides the details of how the community and stakeholders are to be engaged and the mechanisms for on-going consultation and communication.

Section 2 of this document defines the scope of the ESMP, and is limited to the works described therewith addressing impacts and mitigation measures identified at each stage of the project's implementation including detailed design, construction and operation. This ESMP will be included in the bidding documents for construction contractors and form the basis of the Contractor's ESMP. The mitigation measures identified in this ESMP form the minimum requirement for reducing impacts on the environment and the communities along the WCR as a result of works associated with the project.

1.3.1 Environmental and Social Safeguards Document Hierarchy and Development

A Land Acquisition Resettlement Framework (LARF, 2012, rev. 2015) was prepared for the CRWCR project outlining the key steps and procedures for screening of environmental and social impacts. The LARF identifies the principles, approach, procedures and methods to be used to control and minimise the environmental and social impacts of all construction and operational activities associated with the project.

It also contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts.

The LARF also defines roles and responsibilities, and provides guidance for the Ministry of Finance (MOF) as the Executing Agency (EA), the Land Transport Authority (LTA) as the Implementing Agency (IA), and the Ministry of Natural Resources and Environment (MNRE) as the Monitoring Agency (MA), for developing the environmental and social safeguards documents in compliance with respective WB operational policies (OP/BP4.01, OP/BP4.12) and

Samoan government environmental requirements as defined in the Samoa Code of Environmental Practice (COEP).

This ESMP is intended to update and consolidate the Preliminary EMP prepared for the WCR Rehabilitation (BECA, 2003), the Draft EMP for the WCR Drainage project (BECA, 2010), and the Environmental Code of Practice (ECOP) for the WCR project (IPA, 2012). It also complements and incorporates the findings of the project’s Preliminary Environmental Assessment Report (PEAR), (BECA, 2010), the Environmental Assessment Report (EAR), (IPA, 2012), and the Social Beneficiary Survey for Enhanced Road Access Project and Enhancing the Climate Resilience of the West Coast Road Project (CB Group, 2015). This ESMP is a companion document to the Abbreviated Resettlement Action Plan (ARAP) for the WCR project (RI/PLT Consultants, 2016; rev. 2017).

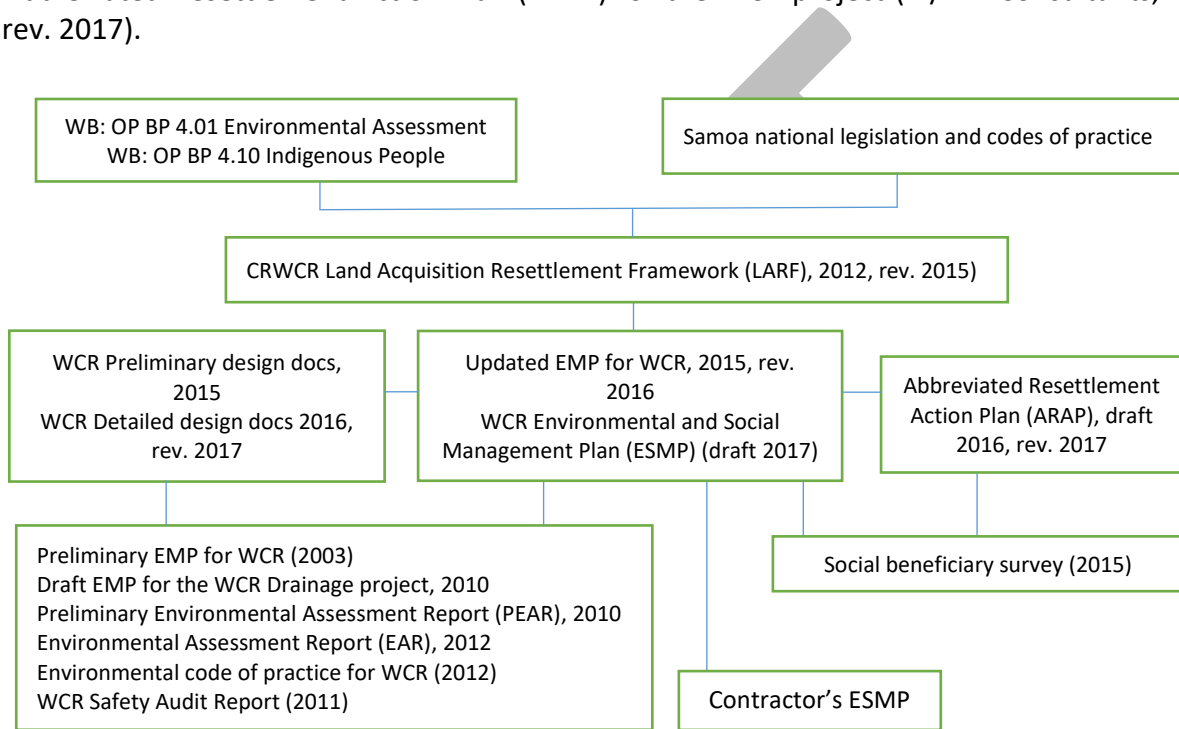


Figure 3: Environmental and social safeguard document hierarchy

The ESMP is a dynamic document which is updated as and when project scope, detailed designs or further information becomes available (e.g. as a result of consultation with stakeholders and the general public), thus creating a hierarchy of documents as the project progresses. The diagram above (Figure 3: Environmental and Social Safeguard Document Hierarchy) shows the hierarchy and development of these documents culminating in the development of the Contractor’s ESMP which specifically details how the contractor will implement requirements of the ESMP. Issues, impacts and mitigation measures identified in superseded documents are incorporated into subsequent versions unless they have been addressed through design or other means, in which case this is identified in the ESMP. The Contractors are required to comply with this ESMP and use it to identify what mitigation measures need to be implemented. The Contractor’s ESMP will document implementation and specific measures that will be used based on their construction methodology (if different from that identified in Section 2).

The ESMP will form part of the LTA’s application for Development Consent (DC) and shall be implemented in accordance with that consent. The finalised ESMP should be included with the detailed design report, drawings, specification, and other Tender Documents for the Enhancing the Climate Resilience of the WCR (reconstruction of the pavement, drainage works and drainage easement creation), to aid the Contractors in their bid preparation.

1.4 Environmental and Social Management Plan (ESMP) Methodology

The methodology adopted to develop this ESMP is as follows:

- Review of WB OPBP4.01, WB OPBP4.10 and the Samoa COEP.
- Review of the WCR environmental and social safeguard documents, including the Preliminary EMP for WCR (Beca, 2003), the draft EMP for the WCR drainage project (Beca, 2010), Preliminary Environmental Assessment Report (Beca, 2010), the Environmental Assessment Report (IPA, 2012), the COEP prepared for the WCR (IPA, 2012), the Updated EMP for the WCR (RI/PLT, 2016), WCR Safety Audit Report (Road Safety International, 2011), and the EMP/ESMP Terms of Reference (Contract Ref. CRWCR1.2.1).
- Review of other related documents and reports including the Integrated Environmental and Social Management Plan – Faleolo International Airport (APW), Pacific Aviation Investment Programme (PAIP) – Samoa, and Samoa’s State of the Environment Report 2013 (MNRE).
- Site visits and reconnaissance of specific vulnerable areas.
- Draft EMP update (RI/PLT, 2015) prepared based on documents reviewed including preliminary design report,
- Meetings with WB representatives; review comments and feedback to date on environmental and social safeguard documentation; liaise with the Planning and Urban Management Agency (PUMA), a division of the Ministry of Natural Resources and Environment (MNRE) regarding specific and general requirements for WCR.
- Consultation with village representatives in collaboration with LTA, MNRE and MWSD.
- 2nd Draft the WCR EMP update (2016) based on information review and consultation with WB, LTA and MNRE/PUMA.
- Submit to the LTA, PMU/WB and GoS (MNRE/PUMA) for review prior to consultation, update according to comments and feedback from all parties.
- Encompassing WCR ESMP based on feedback from WB, incorporating environmental and social measures addressed in the DCR.
- Consultation along WCR village communities conducted by LTA/MNRE/RI-PLT.
- Incorporate outcomes as required from consultation into final WCR ESMP to be included in the Bidding documents.
- Submit to LTA, GoS (MNRE/PUMA) and WB for final review.

This ESMP is a dynamic document that can inform the detailed designs and provide the basis for development of contractors ESMPs or future EIAs. LTA is responsible for ensuring the ESMP is up to date and reflects current WB and Government of Samoa environmental and social safeguards objectives, scope and components.

Prompts for review of the ESMP and potential updates include:

- Changes in design details and construction methodologies for the different packages and various project components.
- New information with potential impacts as well as unforeseen or un-documented impacts identified or arises through a technical study or consultation, which places constraints on design and construction methodologies.

- Significant scope changes (either removal of an activity or addition of tasks) which are not readily addressed within the available assessment and management information of the ESMP. Details of ESMP implementation and how specific mitigation may be applied to a specific task should be documented in the contractors' ESMPs and would not result in changes to the ESMP.

A number of WCR related documents, detailed designs and supporting assessment reports have been reviewed in compiling information regarding the scope of the project and identifying potential effects and mitigation measures. Some of these reports are still in draft form and changes may impact on the type and scale of potential effects and opportunities to avoid these impacts or potential mitigation measures that may need to be implemented. Any changes in these documents should prompt a review of this ESMP and be updated accordingly. These documents include the finalised detailed design and the draft ARAP Report.

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CHAPTER 2 CRWCR DESCRIPTION OF WORKS

2.1 Overview of Works

The CRWCR project will implement measures to strengthen the climate resilience of the economically critical WCR, which is a key GoS objective under the Strategic Program for Climate Resilience (SPCR). The WCR reconstruction works as outline in the DCR (Chapter 3) will improve the WCR road pavement between the village of Saina and Faleolo International Airport (approximately 24km) by:

- raising on average to 2.24m minimum above mean sea level and strengthening vulnerable sections of the WCR – overlay and reconstruction/widening;
- providing 3.5m sealed carriageway on both sides of the existing road centreline, plus sealed 1.5m shoulders on both sides;
- providing safety measures in particular signage, speed humps, road crossings and bus stops,
- replenish existing seawalls (total length 2,175m) and construction of new rock revetment between Stn 10+990 and 11+050 (60m), and between Stn 11+110 and 11+190 (80m), to a height on average of 3.00m minimum above mean sea level to protect the road and reduce coastal erosion;
- improving existing longitudinal and cross drainage, improving existing drainage easements and outfalls, and the creation of new drainage easements and outfalls through private properties; and
- facilitating and accommodating the relocation and provision of utility services.

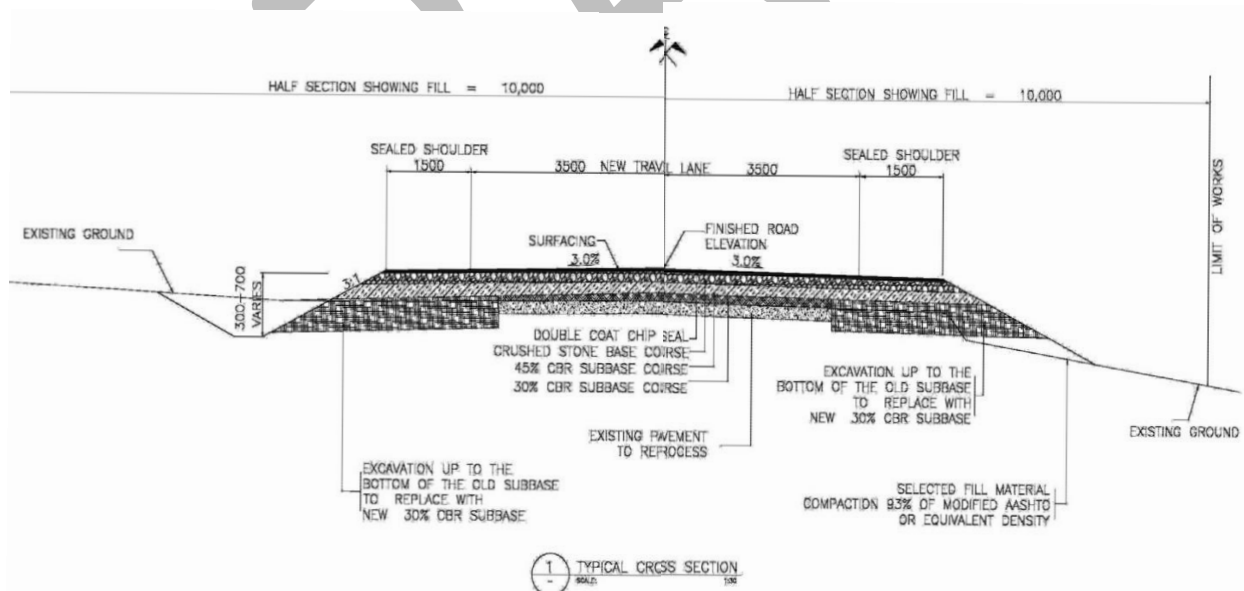


Figure 2.1: Typical Pavement Cross-Setion

Source: DCR, 2016

These investments will serve to:

- reduce road closures during extreme weather events and high sea levels;
- reduce surface flooding and impounding of water, which contributes to road deterioration and adversely impacts roadside communities;

- (iii) reduce road deterioration due to runoff and increasingly high water tables, and generally improve pavement quality to reduce future maintenance requirements;
- (iv) contribute to increased road safety by providing marked sealed shoulders for pedestrians and dedicated bus stops and road signage; and
- (v) location/relocation of underground service lines away from the sealed road pavement, dedicated road crossing trench for services, power poles at a safe distance away (clear zone) from the road carriageway, all help with improving road safety, reduce road closures, and reduce road deterioration.

Packaging of the works contracts (July 2016) were considered in view of the available funds to upgrade the entire WCR to the standard specified in the original design report. Table 2.2 below presents the packages that would break the project down into manageable (funding) lots while maintaining the climate resilience requirements of the project. These small packages are also likely to give local Contractors more opportunities while at the same time possibly discourage big international companies from bidding.

Table 2.1: Work Packaging

Package	Location	Distance	Works	Procurement	Funding
1	Ch0.5 - 24.5	24km	Footpath 'geocell' (Ch:0.5 to 12.5), outfalls (Ch:0.5 to 24.5), all seawalls (Ch:0.5 to 24.5), mangroves planting	NCB	CRWCR, Estimate: ST 7,494,596
2	Ch12.5 - 19.5	7km	Road works and drainage	NCB	CRWCR, Estimate: ST 13,702,130
3	Ch19.5 - 24.5	5km	Road works and drainage	NCB	Other sources, Estimate: ST 8,885,796
4	Ch05 - 12.5	12km	Road works and drainage	ICB	Other sources, Estimate: ST 18,438,867
Revised Package 2 (Ch:10.7-18.5 – Afega Bridge). Coastal protection works for the project are between 10+990 and 11+190, so with the funding available it is proposed to include these works within these projects / packages. Revised Package 3 (Ch:18.5 – 24.5). As advise via email from LTA (Malcolm Esera) on the 25/5/17.					

Source: DCR, 2016

2.1.1 Existing West Coast Road

The West Coast Road from Saina village to Faleolo Airport is approximately 24km in length and passes through 23 coastal villages, with residential, educational, religious and commercial developments abutting on both sides. These include at least 60 churches and 16 schools. There are supermarkets, small businesses and one hospital. Houses surrounded by lawns and gardens are set well back from the road with the exception of a few where the property closely adjoins the edge of the roadway. There is 1 monumental tomb site at Malie village, 2 grave sites, 12 village bathing pools, 1 turtle pond and 1 fish nursery pond adjacent to the road with a few very near the edge of the unsealed shoulders. The existing road on average is about 6m wide paved carriageway with unpaved narrow shoulders. There are no constructed footpaths with pedestrians walking on the unsealed shoulder and the adjacent grassed areas. The road is constructed with a sealed bituminous surfacing that is currently in varying condition, with

significant defects in some areas. The condition of the road is rated as poor to fair for almost half of its length, whereas other sections of the road are in better condition.



Photo 2.1: WCR – Present condition and proximity to the sea

The major defining topographic feature is the coastline on the northern side of the road. The existing centreline alignment traverses about 70 curves, all with radius not less than 120m. The vertical alignment is generally flat terrain with gentle gradients, the maximum being no steeper than 4%.

From local roads, access roads and driveways on the 24 kilometre length, there are approximately 470 points of vehicular access to the West Coast Road. Three are considered major intersections namely: the turnoff to the Airport, the junction with the Cross Island Road at Fasito'otai and the junction at Faleula with the road to the inland side of Apia.

Safety measures such as road signs and pavement markings are present throughout, although in varying conditions and visibility, with speed humps almost every kilometre at places approaching schools and churches, restraining the speed of vehicles and providing a measure of safety to pedestrians and other road users.

High rainfall events and extreme high seas often lead to flooding and accelerated deterioration of sections of the road, structural damage and road closures, and rising sea levels caused by climate change will worsen this problem in the future. The onset of Climate change may also gradually increase rainfall intensity in the region, leading to further problems with the deterioration of the road. There are about 70 existing cross-drainage structures comprising pipes, box culverts and one minor bridge at Afega village. Fifty-five per cent are for surface drainage and 45% for defined waterways in addition to surface drainage. There are about 28 drainage outfalls requiring easements. A further risk to the road is posed by the high water table at the eastern end, leading to accelerated deterioration of the surface. Drainage details are recorded in the Design Completion Report Section 7 on Drainage Design.

Frequently, sections of the WCR are inundated with water after heavy rainfall. The primary cause of the perceived poor drainage of the WCR is that water is not evacuated from the road surface into the drains. Principally, this is because of the current arrangement and lack of maintenance. This is the prevailing condition during quite ordinary rainfall meaning that inadequate drainage capacity is not the real constraint viewed on a day to day basis, be it that the existing drainage is not necessarily large enough for heavy rainfall. The design studies amply demonstrate that the existing drains are too small and almost all require replacement with larger size.

A number of utilities use the West Coast Road, within the roadway, deviating from the roadway, and crossing the road. The identified utility owners are the Electric Power Corporation (EPC), the Samoa Water Authority (SWA), BlueSky (telecommunications) and DigiCell Telecommunication. The utilities have buried cables, fiber optic lines, hydrants, manholes and plastic pits, poles, overhead wires and street lights. The topographic survey has located about 600 posts of mixed use for power and telecommunication along the whole stretch of the project road.

The expected challenges that will be faced by the proposed WCR rehabilitation works, as evident by the recently completed Vaitele Street Road Widening project, is that a clear understanding by all stakeholders, including the residents and the business owners is needed on the following to avoid disagreements and disputes:

- the location of the existing physical road boundaries (and the relationship with adjacent private lands) – cadastral survey carried out to confirm the 20m road reserve boundary and where government land ends and private properties begin;
- historical survey markers – clear identification of survey markers along the WCR primarily the 20m road reserve, existing drains and easements;
- the location of the road easement, clarifying that in many places the easement extends beyond the physical road boundaries into perceived private properties; and
- the status of existing drainage easements and the associated land tenure with most of the properties along WCR being held under customary ownership.

2.1.2 Design Methodology

The DCR (Chapter 9) noted that the choice of design controls and criteria are influenced by the functional classification of the road; nature of the terrain; design vehicle loading; traffic volumes expected on the road; design speed; density and character of the adjoining land use; and economic and environmental considerations.

The WCR by classification is a National Road providing a vital transport link between Samoa's capital city of Apia and the main airport at Faleolo to the west, and further to the Mulifanua ocean ferry wharf, which is the gateway to Samoa's biggest and second most populous island, Savaii. Accordingly, a national road should provide a high level of service for long distance traffic, but because of 23 villages and their residents distributed along the WCR with houses, churches, schools, and small businesses as well as stray animals, there are concerns on road safety, and the full standards of a national road cannot be applied.

A Road Safety Audit (RSA) of WCR was undertaken in June 2011 to assess the road safety needs of the road users and safety deficiencies of the road. The report presented key findings on

safety concerns including a recommended design speed of 60 km/h. This recommended speed was therefore adopted for the WCR designs.

The design life of 20 years was adopted based on the importance of the road to the overall socio-economic development of Samoa, and this 20 year period was used in the climate resilience assessments and the pavement design.

An analysis of all the field test results and the design traffic loading was carried out for rehabilitating to determine the treatments that could be considered for the WCR.

Considerations of the observed physical characteristics of the WCR in line with the principles of sustainable development were also factored in the design.

2.1.2.1 Principles

In general road rehabilitation or upgrading works for existing roads, and the road alignment planning, design, and associated earthworks for new roads shall:

Table 2.2: Design Principles

COEP 2 PRINCIPLES	DESIGN CONSIDERATIONS
Avoid as far as is practicable the disturbance, and or the resettlement of, villages, or individual buildings including houses	Road alignment to follow existing road centreline and limit of work to be within the 20m road reserve. Drainage easements to avoid buildings, houses and other structures where possible.
Avoid areas of land, foreshore, wetlands, waterways or other areas of habitat which have been set aside for the conservation of flora and fauna, and biodiversity	Review of relevant reports, identification of conservation sites, and site reconnaissance with measures included in the design to avoid and protect these areas
Avoid sites of archaeological, heritage, historical, traditional, and cultural importance	Review of relevant reports, identification of protected sites, and site reconnaissance with measures included in the design to avoid and protect areas of importance
Avoid wherever possible National Parks, eco-tourism areas, foreshore reserves, forest reserves, nature reserves, riverbank reserves, traditional reserves, water catchment reserves, wetlands, and heritage and archaeological sites	Review of relevant reports, Identify areas and natural habitats of importance – keep design footprint within the 20m road reserve, and where required measures to protect the identified vulnerable areas
If road user safety is not compromised, relax specified design standards in areas of steep and heavily vegetated slopes, sensitive coastal areas, and roads which could be part of a Scenic Roads Programme	Review relevant reports, Identify areas along the WCR where these can be considered in line with the road alignment and geometrics for safety
Incorporate design features for the general improvement of environmental quality	Identification of areas requiring improvement and incorporate appropriate features for enhancement
Incorporate design features for the protection and enhancement of coastal margins and other areas that require particular sensitivity	Design for minimal deviation from existing road alignment with protective measures for vulnerable areas
Incorporate measures and design features for the mitigation of adverse environmental effects.	Identification of possible environmental impacts and design measures to address these impacts

2.1.2.2 Sustainable Development

To maximise the goals of sustainable development, during the planning and design phase for road construction, the designer shall:

Table 2.3: Sustainable Development

SUSTAINABLE DEVELOPMENT	DESIGN CONSIDERATIONS
Take into account the issues and concerns of affected communities and stakeholders	Consultation carried out with affected communities and stakeholders taking into account salient issues and concerns
Decide, in consultation with stakeholders, the values which should be given priority	Decision making process involving stakeholders
Identify and discuss any mitigation measures which could have a major cost implication	Mitigating measures identified and cost-benefit analysis to be fully understood
Consider in the design, construction methods which will minimise environmental risk while taking into account the goals of sustainable development. The most practicable methods for minimising the release of sediment and other pollutants into the environment shall be selected	Preparation of a comprehensive ESMP and other relevant environmental and social assessment documents based on the ECOP and WB Operational policies on environmentally and socially sustainable developments
Specify that construction phases are sequenced, timed, and managed to minimise disturbance to the environment. This includes the minimisation of the extent of the area to be worked, and any areas of bare earth exposed at any one time	Preparation of ESMP and specifying the packaging, sequencing, timing and managing of activities, and incorporated in the bidding documents for the Contractor to use as a guide for preparation of their ESMP and works program
Specify that the programme of construction shall be prepared to show that areas to be revegetated are completed progressively as sections of the work are completed	Preparation of ESMP to include specification for revegetated areas and to be included in Bidding documents for Contractors to use as a guide in their ESMP
Identify and set out the relevant clauses of the contract requirements and construction details that ensure environmental standards and guidelines are implemented	Bidding documents to include the relevant clauses in support of environmental standards and guidelines
Provide in the contract documentation the operational and maintenance procedures to preserve the mitigation measures in good condition and effective operation	Include in the bidding documents requirements for operational and maintenance procedures

2.1.3 Climate Proof Design

The DCR (Chapter 6) noted that in the context of the WCR, climate resilience can be defined as:

- (1) Maintenance of function in the face of external stresses imposed upon it by climate change, and
- (2) Design to improve the sustainability of the road leaving it better prepared for future climate change impacts.

An assessment has been carried out on the vulnerability of the WCR with respect to both historical climate variability and projected anthropogenic (man-made) climate change.

An integral component of sustainable development is to reduce climate-related risks. Hence, a risk-based approach to climate change adaptation was adopted for design to manage both the current and future risks associated with the full spectrum of atmospheric and oceanic hazards. Climate proofing is a term ‘coined’ for identifying risks to a development project as a consequence of climate variability and change, with the aim of ensuring that those risks are reduced to acceptable levels through long-lasting and environmentally sound, economically

viable and socially acceptable changes implemented at one or more of the project stages: planning, design, construction and operation.

It is possible for a road project such as WCR to avoid most of the damage costs attributable to climate change, and to do this in a cost-effective manner, if climate proofing is undertaken at the design stage of the project. In order to ensure that these are reduced to acceptable levels, a risk-based approach considers the climate risk profile for which the WCR is based on, namely:

- the increasing frequency of heavy rainfall; and
- rising sea level affecting low lying coastal sections of road close to the shore.

2.1.4 Drainage Works

The DCR (Chapter 5) summarises that the designs have been developed and prepared to incorporate best practice for sustainable drainage, and to comply with the Environmental Code of Practice (ECOP). Particular considerations have included:

- **Natural Watercourses.** Culverts on natural watercourses have been designed to preserve or improve environmental conditions as far as possible. The natural watercourses are usually tidal. Therefore, the culvert inverts are set to allow the natural tidal movement in and out at the mouth of the stream with consideration to avoid or minimise 'tidal locking'. This will retain the saline environment for sensitive locations where there is mangrove, etc. The culvert size has been chosen to reduce flow velocity during the tidal cycle to minimise transport of sediment. Setting the inverts lower also allows for deposit of natural bed material in the invert of a culvert barrel as explained in Section 2.8.1.1. of the DCR
- **Pollutants.** Runoff from roads contains a cocktail of pollutants, especially the first flush of rainfall following a dry period. The pollutants include hydrocarbons, rubber, animal faeces, rust and corrosion from vehicles, litter, etc. These are an insidious source of pollution to the inshore marine environment additional to climate change induced stresses such as acidification and bleaching of coral. The design minimises the pollution load by the use of swales, earthen ditches and catchpits. Swales in particular attenuate the flow and encourage runoff to infiltrate the ground rather than discharge directly to the sea, the vegetation will provide some biological treatment and infiltration will filter out more of the pollution. The catchpits allow the drain to be blocked to allow clean-up in the case of a major accidental pollution incident such as spillage because of a road traffic accident.

2.1.5 Pavement Works

The DCR (Chapter 10) noted that the existing WCR pavement was found to be in need of strengthening throughout. An assessment of all the factors was carried out to determine the best option for pavement treatment including traffic survey, visual characteristics of WCR in particular drainage, deflection survey, rut depth, dynamic cone penetrometer (DCP) tests, trial pits and laboratory tests, as well as quarry assessment.

Analysing all the field test results and the design traffic loading to determine the treatments that could be considered for rehabilitating the WCR resulted in the selection of three possible treatments:

- A bituminous overlay
- A granular overlay

- Reconstruction of the pavement

Consideration of the possible treatment options concluded that construction or overlay with granular material, with a bituminous surface treatment, is more economical than asphalt overlay, which would need to be of thickness 150 mm or greater on almost 10 km of the road. The Austroads granular overlay design chart which has been used successfully in South Pacific countries was used as the preferred method for detailing the preferred option, except where extrapolations would have been excessive, when the Roughton International chart was used. Thickness comparisons using the method of the UK Transport Research Laboratory were tabulated.

The Austroads system allows for gradual increases in pavement thicknesses as deflections increase, rather than step changes based on subgrade and traffic class in the TRL system. For this reason, the Austroads system produces a more refined design.

The investigation and analysis of the different options presented above has influenced the recommended pavement option. Typically, overlay design was adopted over the width of the existing pavement, and reconstruction design was applied for the pavement widening and shoulder construction.

Table 2.4 Recommended Option

Section		Overlay	Reconstruction/Widening			Surfacing
			Sub-base	Base	Total	
0.500	1.340	155	255	125	380	DSD
1.340	4.600	280	350	125	475	DSD
4.600	5.600	300	360	135	495	DSD
5.600	5.800	390	260	135	395	DSD
5.800	7.450	0*	260	135	395	DSD
7.450	10.240	390	260	135	395	DSD
10.240	12.400	230	290	135	425	DSD
7.450	10.240	0*	260	135	395	DSD
13.040	13.895	0*	260	135	395	DSD
13.895	15.400	0*	230	135	365	DSD
15.400	16.000	375	230	135	365	DSD
16.000	17.695	375	230	145	375	DSD
17.695	19.200	210	290	145	435	DSD
19.200	20.900	310	260	145	405	DSD
20.900	21.400	350	270	155	425	DSD
21.400	22.900	250	270	155	425	DSD
22.900	24.700	450	365	155	520	DSD

* Reconstruct Pavement Full Width

For the WCR as noted by the DCR (Chapter 10), a significant proportion of the widening will not be necessary as the proposed 1m verge will not apply to minimise costs and to limit the works to within the 20m road reserve as much as possible. However, some widening is still required due to altered horizontal alignment and the widening required in increasing the road and shoulder width. Where this widening is required, the pavement thicknesses shown in Table 2.1 Recommended Option, in the “Reconstruction / Widening” column should be used (reproduced from Table 10-7 of the DCR).

2.2 Alternatives

2.2.1 Do Nothing

If this option was followed, there would be no discernible improvements to the existing road, with a deteriorating road surface subject to continuous pothole patching after heavy rain events, unpaved road shoulders that compromise pedestrians' safety and a poor performing drainage system along the length of the West Coast Road. This would provide a short term reduction in capital improvement costs but in the long term would result in increased maintenance costs.

2.2.2 Relocate West Coast Road Inland

The Government of Samoa is developing a systematic approach to strengthen the WCR's resiliency to climate change which includes the long-term solution of relocating the WCR further inland in response to the threat of rising sea levels which, after several decades, may eventually submerge the WCR. While the relocation of the WCR inland is likely to be necessary in the long-term, it is not practical in the short-to medium-term for several reasons. First, it is unlikely that the existing road would be submerged by rising sea levels within its 25-year upgraded design life. Second, a detailed feasibility study carried out under the World Bank-funded Second Infrastructure Asset Management Project (SIAM-2) has shown that constructing a new inland route would be an extremely expensive option. Third, relocating the WCR further inland would involve complex land issues that would cause significant delays requiring several years to resolve.

2.2.3 Road Rehabilitation Works Only

This option looks only at improvement works to the road surface, road shoulders and existing drainage system without the proposed drainage easements. There is the potential for more landowners to encroach or fill in the drainage channels to increase the buildable areas of their plots. This would result in an unacceptable risk to the wider drainage management system that would result in increased flooding and greater damage to public and private property. There would also be increased health and economic risks as a result.

2.2.4 Road Rehabilitation Works and New Drainage Easements

This option would involve rehabilitation of various sections of the West Coast Road including road surface, road shoulders, existing drainage system and proposed drainage easements and outfalls, replenish existing seawalls, provide new revetment to fulfil the climate resilience requirements of the project.

The current drainage system along the West Coast Road requires improvement work and maintenance to provide infrastructure to an adequate standard. The key justification for the proposed work is to reduce the occurrence of surface water flooding on the road and surrounding area caused by the overflowing of the drainage system, to improve the quality of water draining to the coast by maintaining the system to minimise the build-up of silt and rubbish debris in the drains and to reduce the incidence of standing water as a breeding ground for mosquitoes. Establishing new easements where required at some sites, will provide an enhanced ability for the drainage infrastructure, such as outfall drains or pipes, to be maintained and accessed by the maintenance contractor in the future.

Given that the West Coast Road is of national importance as the key transport linkage between Apia and the international airport and the ferry terminal, it is essential that floodwaters do not impede the efficient use of the road or compromise road safety. Additionally, the drainage improvement work will reduce the risk of flooding to adjacent land, access and nearby properties which is important for communities.

The proposed drainage improvement work has the potential to generate socio-economic impacts such as:

- Access to small sections of the foreshore, minor roads and private access that connect with the West Coast Road may be restricted at times during the proposed work. For example, when carrying out improvement or maintenance work to outlets or when upgrading pipes that cross adjoining roads and accesses. However, suitable traffic management measures and access will be provided for, resulting in only a minor adverse impact to the community and road users.
- Potential accidental release of construction materials, such as oil, during construction operations has the potential to contaminate the local watercourse or marine environment which is utilised by the local community for fishing and recreation. However, it is not anticipated that a significant amount of construction machinery will be required and measures identified in Chapter 7, such as ensuring that equipment storage is undertaken at a distance from the work sites, will be applied to avoid the risk of accidental spills from construction machinery. With mitigation in place, a minor adverse or insignificant impact is considered likely.
- Construction work has the potential to affect the safety and well-being of the local community through the presence of heavy vehicles and machinery operating on the drainage improvement sites. However, any disruption and health and safety matters will be mitigated by making the community aware of the works beforehand, providing barriers, traffic management and other safety measures, and planning work times to minimise disruption. Therefore, the impact is anticipated to be minor and temporary.

In the past, development has encroached on the outfalls, to the extent that they can no longer carry the typical peak flow of runoff. In some cases the channels have been filled in completely and built over without any alternative provision for drainage being made. The negotiation of an easement for access for maintenance provides four likely advantages compared to either land purchase or leaving it in private ownership without easements for drainage:

1. The channel is maintained as an open area to convey stormwater runoff with less risk of being blocked resulting in localised flooding;
2. Landowners and the wider community are educated through this process on the importance of maintaining open drainage channels;
3. By creating an easement the landowners retain ownership of the land and can still use the area for non-permanent activities such as gardens when access for maintenance is not required; and
4. The easement is able to be valued and the landowner is compensated for the loss of the full use of the land while retaining ownership.

The drainage improvement work will reduce surface water flooding on the road and surrounding properties help to manage water quality being discharged to the marine environment and reduce health risks associated with mosquitoes that breed in standing water. Both will benefit the local communities and road users by providing a safer and better

operating transport link while also reducing the risk of flood damage to land and property, thereby resulting in a positive impact on the socio-economics of communities and road users.

The establishment of easements will provide significant improvements to the current drainage and flooding situation.

2.3 Construction Methodology

The Design and Supervision contract for the WCR rehabilitation project has been awarded to Roughton International Ltd/PLT Consultants Ltd, and detailed designs are being finalised. A detailed construction methodology for the WCR rehabilitation project has not been confirmed. This ESMP considers, documents, and assesses available information regarding the construction methodology in the supporting documentation in its development.

With packaging of the works into four lots and in light of the limited funds available, and as advised by the Client (email: 25/5/17), it is expected that packages 2 and 3 will run parallel to each other. The revised Package 2 (Chainage 10.7-18.5, Afega Bridge) includes coastal protection works between 10+990 and 11+190, as well as road works and drainage works. The revised Package 3 includes road works and drainage works between Chainage 18.5–24.5. It is expected that all 4 packages will each take 12 months to complete. Following the repackaging of the works, the geographical spread of the works has been much reduced and is not considered to cause any issues.

As with the recently completed Vaitele street widening project, it is expected that drainage works and well as utilities and coastal protection works will be completed before pavement works is completed. Some tasks will run parallel while others run in sequence depending on the Contractor's approach and in particular where time and cost savings can be achieved.

It is also expected that works under the Samoa Aviation Investment Program (SAIP) may be undertaken in parallel with the WCR works and this will have an impact on a number of factors including material supply, road traffic, additional haulage, construction program, which would need to be managed to avoid any issues and possible delays.

2.3.1 Aggregate and Gravel Supply

While the source of gravel and aggregate for the project is the Contractor's decision, the LTA and PUMA requirements must be considered, including any environmental mitigation or consents required. The Quarry Assessment West Coast Road Project (Tonkin & Taylor International Pty Ltd, March 2013) considered the ability of the quarrying industry on Upolu to provide an uninterrupted supply of high quality roading and bulk fill aggregate to meet the requirements of the West Coast Road reconstruction project.

Some of the key findings of this assessment – which included Ulia, Ott, Alafua and Saleimoa quarries – were:

- Health and safety of workers at most sites was considered to be at risk due to a lack of basic Personal Protective Equipment, the condition of quarry equipment and a lack of training.

- Environmental considerations were absent from most sites. Only one site had developed a surface water management strategy and dust suppression was not observed at any site.

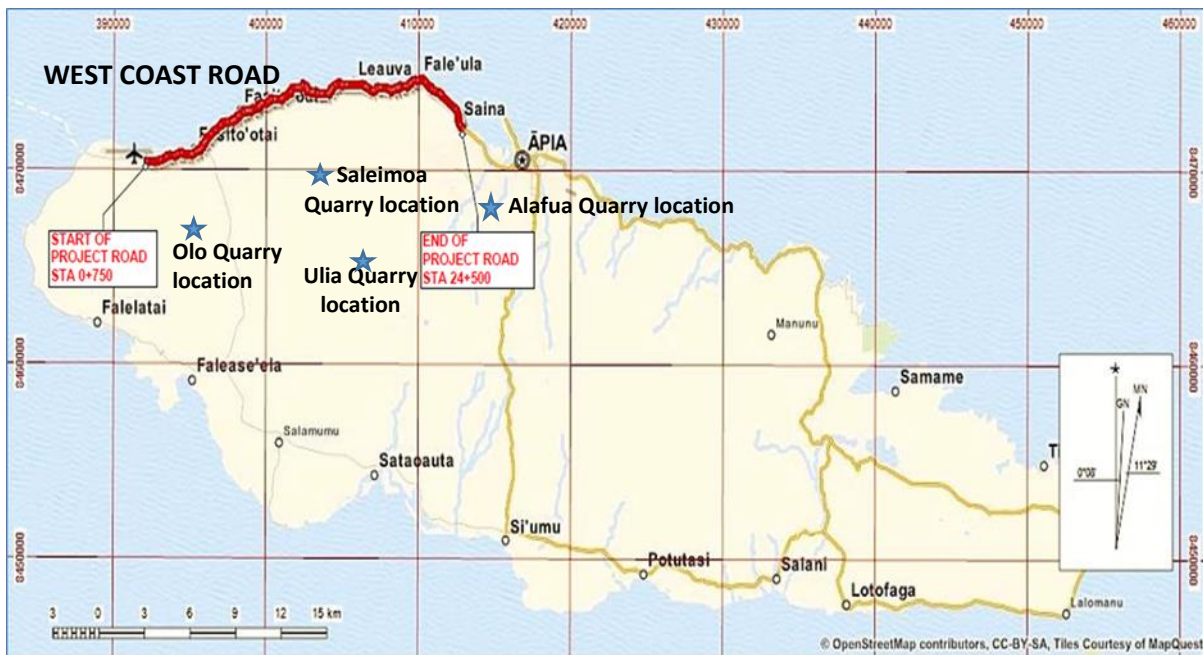


Figure 2.2: Location of Quarry sites relative to the West Coast Road

PUMA has made a number of observations on the various quarrying operations on Upolu and has noted that several quarries do not have current development consents or require remedial works prior to further use. Matters for consideration for potential candidate quarries for the West Coast Road project are as follows:

- Mount Olo Quarry has been considered by LTA as a potential source of aggregate for the WCR project; however PUMA, MNRE's Water Resources Division and Samoa Water Authority have advised that there is a high potential for groundwater contamination if further quarrying activity is undertaken at this site. The groundwater is used for drinking water supply for local communities. PUMA will not grant development consent for further quarrying at this site.
- Saleimoa is a private quarry that has received complaints regarding dust and noise. The quarry cannot continue to be used if dust and noise issues are not addressed. Additionally, the existing road surface is unlikely to withstand further haulage. If development consent is given for future works it is likely there will be a condition to fix the road.
- Alafua is a government quarry run by Ministry of Works, however it was recently closed. If this quarry is to be used for the WCR project a pre-development assessment that meets COEP 8 must be undertaken, including development of a Quarry Management Plan.

The DCR draws a conclusion from the assessment carried out on the four quarries as the sources of materials for WCR reconstruction that the Alafua quarry has basalt that appears to be the best quality available. The DCR notes that the amount of material remaining in the Alafua quarry is estimated to be substantially greater than the material required for the rehabilitation of the WCR. From a visual inspection of the quarry face it is considered that the

variability in the material is not excessive and, with proper selection, the material produced should be quite consistent. It was also noted from the stockpile currently produced by the crushing plant that no vesicles were noted in the aggregate. A sample of the aggregate was subjected to the Ethylene Glycol soundness test which did not detect any unsoundness in the aggregate.

On the other hand, the material obtained from the Ott crushing yard did not appear to be as good as that from Alafua, but it may have the strength and durability required for sound base material.

Inspections of the Saleimoa and Ulia quarries found insufficient material is available to complete the project. There is also an added risk due to the variability in the quality which would require very careful selection of material to ensure that only acceptable material is used.

It is duly noted that regardless of the proposed source of quarried materials, remedial works must be undertaken and/or development consents secured prior to sourcing for the WCR project.

2.3.2 Construction Camp and Laydown Areas

It is expected that Construction camps (for equipment and facilities) will be required for each of the work Packages for the WCR rehabilitation. The camp provides contractor offices, storage of equipment and supplies (including hazardous substances), workshops for maintenance of equipment, toilets and wash facilities for contractors and for collection of waste. It is not expected that a residential camp will be required for the WCR rehabilitation project.

Mitigation measures described in Section 7.0 and Appendix C are applicable to all areas affected by the WCR rehabilitation, including the construction camps. This section highlights aspects of site establishment and construction camp set up that will require implementation of mitigation measures outline in the Environmental Code of Practice (ECOP 5).

2.3.2.1 Objective

The objective of ECOP 5 is to provide guidelines on the selection, development, maintenance and restoration of construction campsites in order to avoid or mitigate against significant adverse environmental effects, both transient and permanent. This COEP shall be read in conjunction with COEP 1 - Administrative Procedures.

2.3.2.2 Planning Stage

During planning of the works, consideration shall be given to the location of construction camps for development projects. In the course of public consultation, the subject of construction camps shall be raised and areas identified that may be suitable for the development of such camps. Areas that are not suitable for reasons such as cultural or social sensitivity shall also be identified.

2.3.2.3 Design

Location

- Specify a schedule of sites identified during the planning stage as unsuitable as well as sites that are unsuitable in terms of topography, proximity to watercourses, and environmental sensitive areas such as forests, swamps, or coastlines.

- The consultant may specify the actual site of the construction camp or may specify the conditions that are to be met by the contractor in selecting, developing, maintaining and restoring such campsites.
- Construction campsites shall be located on a site such that permanent adverse environmental effects can be avoided or mitigated against and transient adverse environmental effects are minimised.

The site or sites shall be selected such that mitigation measures stipulated in this COEP can be implemented with reasonable facility.

2.3.2.4 Private Land

Environmental protection measures established by the COEP shall apply to all land regardless of ownership.

- Where construction camps are to be located on private land the contractor shall obtain the approval of the landowner to establish the campsite on such land and pay agreed compensation.

The following is a suggested specification for inclusion in the contract documents:

- Unless otherwise specified, the contractor is at liberty to make his own arrangements with landowners to establish construction camps. Prior to the development of such camps the contractor shall submit to the Supervising Consultant the signed authority of the landowner for the contractor to establish the construction camp on any land, after proceeding as COEP 4.

The contractor shall also submit to the Supervising Consultant the following information signed by the land owner and the contractor:

- Details of compensation to be paid
- Agreed period of tenure
- Any specific requirements of the land owner
- Photographs of the site in its original condition
- Details of proposed and agreed site restoration after completion of the project works.

At the completion of the contract works the contractor shall submit to the Supervising Consultant/Project Component Manager a signed statement from the landowner confirming that the compensation has been paid and that the landowner is satisfied with the restoration of the site. If such a statement is not submitted, the Supervising Consultant through the Project Component Manager/LTA may withhold moneys owing to the contractor in a sum sufficient to pay for the compensation and the site restoration if necessary.

2.3.2.5 Construction Camp Facilities

The construction camp shall be provided with the following minimum facilities:

- A perimeter security fence, at least 2 metres in height, constructed from materials fit for the purpose.
- Canteen, dining hall and dormitories as required shall be constructed of suitable materials to provide a safe healthy environment for the workforce and which facilitate regular cleaning and the provision of ventilation and illumination.

- Ablution block with a minimum of one water closet toilet, one urinal and one shower per 10 personnel engaged either permanently or temporarily on the project. Separate toilet and wash facilities shall be provided for male and female employees.
- A sickbay and first aid station.
- Areas for the storage of fuel or lubricants and for a maintenance workshop. Such areas shall be bunded to prevent the escape of accidental spillages of fuel and or lubricants from the site. Surface water drainage of such bunded areas shall be discharged through purpose designed and constructed oil traps. Empty fuel or oil drums may not be stored on site.
- Sewage treatment facilities to provide treatment for wastewater discharge from toilets, washrooms, showers, kitchens, laundry and the like.
- Stormwater drainage system to discharge all surface run off from the camp site to a silt retention pond which shall be sized to provide a minimum of 20 minutes retention for stormwater flow from the whole site that will be generated by a 20 year return period rainfall having a duration of at least 15 minutes. The run off coefficient to be used in the calculation of the silt pond volume shall be 0.9. Silt ponds shall be maintained in an efficient condition for use throughout the construction period with trapped silt and soil particles being regularly removed and transported and placed in waste material disposal areas as per COEP 6.
- All discharge from the silt retention pond shall be channelled to discharge to natural water via a grassed swale at least 20 metres in length with suitable longitudinal gradient.
- All camp facilities shall be maintained in a safe clean and or appropriate condition throughout the construction period.

2.3.2.6 Construction Camp Development Plan

A development plan of the construction camp shall be prepared describing the following:

- Perimeter fence and lockable gates
- Workshop
- Accommodation
- Canteen and dining areas
- Ablutions
- Water supply
- Wastewater treatment and disposal system
- Bunded fuel storage area
- Proposed power supply
- Proposed all weather surfaced areas
- Silt retention pond.

The following is a suggested specification for inclusion in the contract documents:

- Within 14 days of the commencement date the contractor shall submit to the engineer for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, storage areas and drainage facilities. The contractor shall also submit brief specifications for the materials to be used for the construction of all buildings and facilities and defining the standard of construction for all works to be undertaken on the campsite.

In preparing such drawings and specifications the contractor shall incorporate the following minimum requirements:

- The site shall be completely fenced with a security fence, at least 2 metres in height, the design of which shall be entirely suitable for its purpose. The fence shall be constructed from galvanised posts and wire.
- Areas for the storage of fuel or lubricants or where machinery or equipment is to be serviced shall be bunded to prevent the escape of accidental spillages of fuel or lubricants from the site. Drainage of such bunded areas shall be through purpose designed and constructed oil traps.
- A minimum of one water closet toilet, one urinal and one shower shall be provided per 10 personnel employed either permanently or temporarily on the works. Separate toilet and wash facilities shall be provided for male and female employees.
- All discharge from toilets, washrooms, showers, kitchens, laundry facilities and the like shall be piped to a purpose designed approved sewage treatment plant for treatment prior to discharge to a natural water course.
- All dormitories, dining halls and other accommodation shall be ventilated and illuminated to ensure the safety and health of the contractor's workforce.
- All stormwater drainage from the site shall be channelled or piped to a silt retention pond prior to discharge from the site. The retention pond shall be sized to provide a minimum of 20 minutes retention for stormwater flow from the whole site that will be generated by a 20 year return period rainfall having a duration of at least 15 minutes. The run off coefficient to be used in the calculation of silt pond volume shall be 0.9.
- All discharge from the silt retention pond shall be channelled to discharge to natural water via a grassed swale at least 20 metres in length with suitable longitudinal gradient.

All camp facilities shall be maintained in a safe, clean and/or appropriate condition throughout the construction period. The silt retention pond shall be maintained in efficient condition throughout the construction period. Trapped silt and soil shall be periodically removed and transported and placed in waste material disposal areas.

The contractor shall provide, equip, and maintain adequate first aid stations and erect conspicuous notice boards directing where these are situated and provide all required transport. The contractor shall comply with the government medical or labour requirements at all times and provide, equip and maintain dressing stations where directed and at all times have experienced first aid personnel available throughout the works for attending injuries.

Throughout the period of the contract the Client/LTA, the engineer or Supervising Consultant, or their representatives shall have uninterrupted access to and from the contractor's construction camp for the purpose of carrying out routine inspections of all buildings, facilities or installations of whatever nature to ensure compliance with this specification.

2.3.2.7 Campsite Restoration

At the completion of the construction work all construction camp facilities shall be dismantled and removed from the site and the whole site restored to a condition in no way inferior to that that pertained prior to the commencement of the works. The site shall be grassed and if trees originally grew on the site they shall be replaced with similar tree species.

All oil or fuel contaminated soil shall be removed from the site and transported and buried in waste soil disposal areas.

The following is a suggested specification for inclusion in the contract documents:

- At the completion of the construction work the contractor shall dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates. The whole of the construction campsite shall be grassed and if trees originally grew on the site they shall be replaced with similar tree species. At the completion of restoration the site shall be in no way inferior to the condition that pertained prior to commencement of the works.

2.3.3 Duration, Timing and Location of Construction Activities

The works are to be completed under different contracts for the different work packages and as they have not yet been tendered, the exact duration for each lot is not yet known. However, as noted in the DCR, an indicative duration for each of the packages is 12 months.

The revised packages and indicative duration:

- Package 1: Footpath 'geocell' (Ch:0.5-12.5), outfalls (Ch:0.5-24.5), all seawalls (Ch:0.5-24.5), mangroves planting if required between Ch 10.990-11.050 (length 60 m), and between Ch11.110-11.190 (length 80m) – 12 months
- Package 2: Chainage 10.7-18.5 Road works and drainage plus coastal protection between 10.990 and 11.190 – 12 months
- Package 3: Chainage 18.5-24.5 Road works and drainage – 12 months
- Package 4: Chainage 0.5-12.5 Road works and drainage – 12 months

To maintain the safe movement of vehicular and pedestrian traffic as well as the health and safety of contractors' workers, construction work will be scheduled as per normal working hours for development projects in Samoa between 7.00 am to 6.00 pm, Monday to Saturday. No work shall occur on public holidays or at weekends except for emergency work, unless given prior approval by the Supervising Consultant with the approval from the LTA. If activities occur outside of daylight hours, local villagers will be informed and agreement will be sought from local authorities.

To maintain the works within the boundaries as defined and illustrated by the 'limit of work' and other design detailed drawings, the contractors methodology and work practices must ensure that no activities are to be undertaken beyond the construction boundaries unless written agreement has been secured with the landowner and any works must be undertaken in accordance with this ESMP.

2.3.4 Construction-phase Environmental Management

In addition to this document the environmental management during the construction phase will be guided by a Contractor's Environmental and Social Management Plan (CESMP). The CESMP will incorporate and respond to this document during bid preparation. If substantial variations or departures are proposed from the content and prescriptions contained in this ESMP the Contractor must describe and justify these.

The Contractor must prepare its CESMP and submit it in draft form for approval by the Design and Supervision Consultant, LTA, PUMA and the World Bank. No construction works are permitted to commence until an approved CESMP is in place.

Chapter 8 provides further detail on the roles and responsibilities for environmental and social management during the construction phase.

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CHAPTER 3 – POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 National Policy and Legislation

The Strategy for the Development of Samoa (SDS 2012-2016) noted as part of the Government of Samoa's Sustainable Development Goals is their on-going commitment to sustainable development with emphasis on environmental and social performance for aid funded projects including WB projects, the Government of Samoa (GOS), through the LTA and the MNRE-PUMA will ensure the following:

- Fulfil all environmental and social conditions associated with project approvals;
- Develop, promote and foster a shared sense of responsibility for environmental and social performance of the project;
- Promote environmental awareness and understanding among employees and contractors through training, identification of roles and responsibilities towards environmental and social management and linking project performance to overall environmental performance;
- Encourage an understanding of social and cultural sensitivities in local communities and the importance of minimising project impacts on local communities;
- Monitor environmental and social performance throughout the project and implement an adaptive management approach to continuous improvement;
- Work with local communities and project affected stakeholders to ensure that they understand and realise the benefits as a result of project development; and
- Maintain an on-going commitment to informing, engaging and involving local stakeholders throughout all phases of the project.

3.1.1 Planning and Urban Management Act 2004

The primary environmental legislation in Samoa is the Planning and Urban Management Act 2004 (PUM Act 2004). Part V of the PUM Act 2004, specifically Section 37, requires consent for development within Samoa (a Development Consent). The process for determining whether a Development Consent is required and the application process are detailed in the Planning and Urban Management (Environmental Impact Assessment) Regulations (2007). Section 37 states that all development that takes place in Samoa needs consent unless a sustainable management plan or regulations provides otherwise. It specifies that a development shall not be carried out unless development consent has been obtained or unless the development is carried out in accordance with the consent.

Section 42 states that PUMA may require an applicant under section 37 to provide an EIA. Initially, all projects are required to be registered with PUMA and a preliminary assessment is done to assess whether a full EIA is to be prepared. Furthermore, the development consent system requires an EIA to be prepared for large scale developments that cost above SAT\$1,000,000. For these projects a PEAR is prepared and submitted to PUMA for review to determine whether a CEAR is required. All applications that do not require EIA submission will be approved by the ACEO of PUMA who is the Secretariat of the Planning and Urban Management Board (PUM Board). For applications that require EIA as supporting information, it will be publicly notified and referred to relevant authorities for assessment before it is approved by the PUM Board.

3.1.2 Occupational Health and Safety (OH&S) Act 2002

During construction and operation health and safety is to be managed through a Site Specific Safety Management Plan (to be developed by the contractor) that is consistent with the Samoa Occupational Safety and Health Act 2002. Specifically contractors must ensure strict application to the following provisions under sections 14 and 15 of the Act:

- An employer must take all reasonably practicable steps to protect the safety, health and welfare at work of employees and to provide and maintain a safe and healthy working environment including substances, systems of work and any building or public or private area in which work takes place.

Each employer shall:

- (a) Provide, maintain and make accessible to employees the protective clothing and equipment necessary to avoid injury and damage to their health;
- (b) Take all reasonably practicable steps to ensure that employees use that protective clothing and equipment whenever the circumstances for which it is provided arise; and
- (c) Make provision, in the place of work, for protective clothing and equipment so provided to be cleaned and securely stored without risk of damage when not required.

3.1.3 Lands, Surveys and Environment Act 1989

The Act manages land allocation and management, specifically manages forest protection and regulates land use activities and biodiversity conservation. The Act establishes the principal functions of the MNRE which include advising the Minister on all aspects of environmental management and conservation including:

- (i) the potential environmental impact of a public or private development proposal; and
- (ii) to act as the advocate of environmental conservation at Government, its agencies, and other public authorities with advice on procedures for the assessment and monitoring of environmental impacts.

3.1.4 Waste Management Act 2010

The Act provides for the collection, disposal and management of solid waste in Samoa including licensing of all operators (collection and disposal) and landfill/ dump sites, designation of the wastes and waste disposal sites.

3.1.5 Water Resources Management Act 2008

This Act provides for the management, protection and conservation of the water resources (being surface and ground water and includes coastal waters where fresh and marine waters mix) of Samoa. It gives authority to Samoa Water Authority (SWA) to monitor and enforcement of water resource management.

3.1.6 Noise Policy 2006

The Noise Policy 2006's (Revised October 2011) purpose is to provide an acceptable living environment to all residents by avoiding "excessive noise". The objectives of the policy are to:

- Provide minimum national standards applicable to development consent approvals to protect citizens against excessive noise in their communities and places of residence

- Protect residents from exposure to excessive noise and its effects through appropriate mitigation measures, consent conditions and responsive planning; and
- Create an environment where noise levels do not exceed a reasonable level.

The Agency requires that proponents and landowners give adequate consideration to noise exposures and sources of noise as an integral part of the environment when applying for consent or undertaking any other activity.

3.2 Codes of Environmental Practice

A series of Codes of Environmental Practice (COEPs) have been developed by the Government of Samoa which provide the standards for avoiding or mitigating adverse environmental impacts associated with development project planning, design, construction and maintenance. The COEPs define methods and / or procedures that provide guidance to be followed by consultants, designers and contractors.

The following COEPs are relevant to this project:

3.2.1 COEP 2: Road Planning, Design and Construction

In general road rehabilitation or upgrading works for existing roads, and the road alignment planning, design, and associated earthworks for new roads shall:

- Avoid as far as is practicable the disturbance, and or the resettlement of, villages, or individual buildings including houses;
- Avoid areas of land, foreshore, wetlands, waterways or other areas of habitat which have been set aside for the conservation of flora and fauna, and biodiversity;
- Avoid sites of archaeological, heritage, historical, traditional, and cultural importance;
- Avoid wherever possible National Parks, eco-tourism areas, foreshore reserves, forest reserves, nature reserves, riverbank reserves, traditional reserves, water catchment reserves, wetlands, and heritage and archaeological sites;
- If road user safety is not compromised, relax specified design standards in areas of steep and heavily vegetated slopes, sensitive coastal areas, and roads which could be part of a Scenic Roads Programme;
- Incorporate design features for the general improvement of environmental quality;
- Incorporate design features for the protection and enhancement of coastal margins and other areas that require particular sensitivity; and
- Incorporate measures and design features for the mitigation of adverse environmental effects.

The detailed design has met the requirements and principles of general improvement of environmental quality by incorporating features that included the use road marking, signage, sealed shoulders and dedicated bus stops. For the protection and enhancement of coastal margins and other areas that require particular sensitivity, the detailed design has included the use of swales to help remove pollutants from road runoff. Design features and measures to mitigate adverse environmental effects include the use of drainage easements outfalls and seawalls.

3.2.2 COEP 3: Consultation

The basic principles of consultation, which should be applied to all development projects, are as follows:

- At the earliest opportunity, a community should be advised of potential projects and how the community can receive information about, and become involved with, such projects. *For the WCR rehabilitation project, a number of consultation meetings and studies have taken place involving representatives from the villages along the WCR. These included the CIM Plans, EAR, LARF, Safety Audit report, Social Beneficiary Survey, and this ESMP.*
- The intentions/objectives of the consultation should be clearly and openly stated. *For the WCR, the objectives and intentions were clearly defined and explained in the meetings regarding the proposed road rehabilitation, improve drainage and coastal protection, and improved safety.*
- Stakeholders and affected communities should have timely and meaningful inputs to, and participation in, any phases or aspects of projects that directly affect them and all inputs should be treated equitably and with respect. *The WCR project consultations have been in progress since the early 2000, involving communities and key stakeholders including the Ministries and Utility providers to share information and to gauge their expectations and aspirations, and these have been invaluable in preparing the detailed design.*
- Consultation should be a two-way process and there should be an exchange of information where both the proponent and the affected communities should put forward their points of view and to consider other perspectives. *The WCR consultation process has been based on this principle with the communities and other key stakeholders providing feedback and raising concerns with valuable contributions to the finalised design.*
- Consultation is best undertaken at early stages in and throughout the decision making process or at least on going communication after a decision has been made. *For the WCR, this has been the case with early consultations with communities and other stakeholders which have been ongoing particularly when design needed to be informed and if other stakeholders have information and inputs that needed sharing.*
- All parties do not have to agree to a proposal, however as a result of undertaking consultation at least points of difference will become clearer or more specific. *This was also very evident in the consultations for the WCR, with the Utilities and their own requirements which the project could not fully accommodate, amongst other issues that were also resolved by means of the best outcome for all.*

Project proponents must comply with the requirements of the Planning and Urban Management (Environment Impact Assessment) Regulations 2007 as they pertain to consultation during the environmental impact assessment process.

3.2.3 COEP 4: Land Acquisition and Compensation

Land acquisition shall be minimised. Where unavoidable, land acquisition shall be carried out in such a manner so as to minimise the adverse impacts on the affected people.

- Avoid, wherever possible, the need to relocate graves and/or burial sites. Where this cannot be avoided, such relocation shall be carried out in a manner that will minimise duress on the relatives of the deceased. *The design has identified the location of one monumental burial site and 2 grave sites close to the WCR road reserve which will not*

be affected by the rehabilitation works, these will be clearly marked as 'No Go' areas on the design drawing and highlighted in this ESMP as well as the Contractor's ESMP.

- Land acquisition and compensation issues should be clearly distinguished from labour and industrial related matters in following the procedures established in this COEP. *The detailed design drawings have clearly identified affected land areas that will be required for land acquisition and compensation.*
- Any acquisition of land shall be carried out in consultation with the people to be affected and in accordance with the project consultation strategy (as set out in COEP 3 – Consultation). *The detailed drawings with affected land areas have been submitted to LTA and MNRE for confirmation before consultation with the affected land owners and compensation determination.*

3.2.4 COEP 5: Construction Camps

The objective of this Code of Environmental Practice (COEP 5) is to provide guidelines on the selection, development, maintenance and restoration of construction campsites in order to avoid or mitigate against significant adverse environmental effects, both transient and permanent. This COEP shall be read in conjunction with COEP 1 - Administrative Procedures.

In accordance with Part V of the Planning and Urban Management Act 2004 and any other relevant legislation, any person who engages in the development of a construction camp shall first obtain a Development Consent (consent) from PUMA for the proposed activity.

Consent applications shall be on a form approved by PUMA and shall be submitted by the person undertaking the camp construction. In the case of land development, the land developer rather than the contractor or agent shall submit the application. Applications shall be made no later than one month before the proposed camp construction is scheduled to begin. Applications shall be accompanied by such other documents as PUMA may require.

At any time during the consent process, PUMA may convene a public hearing or hearings for the purpose of determining the facts on which to base a decision. Adequate notice of the hearing or hearings, adequate opportunity to appear and be heard, and adequate opportunity to provide written comment, shall be given to all interested persons.

PUMA may, upon issuance of a consent, impose any conditions or special requirements on the camp construction as it sees fit. All such conditions and requirements shall be listed in writing by PUMA and attached to the consent.

A camp construction consent issued by PUMA shall expire two years from the date of issuance. If the construction activity is ongoing at the time of consent expiration, a new consent application shall be submitted to PUMA one month before expiration of the consent.

3.2.5 COEP 6: Road Construction Erosion Control

The objective of this Code of Environmental Practice (COEP) is to define measures for the prevention of erosion of exposed earth surfaces as a result of road construction activities, including post construction period, and to prescribe measures to be taken to avoid erosion of channels and drainage outlets. It also prescribes measures to be taken to mitigate significant adverse effects of the discharge of water containing suspended soil particles into natural

watercourses or onto land adjacent to road works. This COEP shall be read in conjunction with COEP 1 – Administrative Procedures.

The planning and design of the alignment of any roading project is to be undertaken to avoid, so far as is possible, the disturbance of existing vegetation and as a consequence minimise the implementation of erosion control measures defined in this COEP.

In order to minimise the risk of water ponding adjacent to the toe of fill batters with the consequent risk of saturating fill materials with resulting batter failures it is often necessary to construct toe drains.

Wherever they are installed road side drains shall be designed for their purpose and shall be protected against the effects of scour. The minimum protection shall be the establishment of suitable grasses (refer Annexure 1). Where flow velocities are anticipated to be high, scour protection shall be afforded by rip rap, concreted stone pitching, concrete dished channels or equally effective protection.

Throughout the construction period and if necessary the maintenance period it is intended that the discharge of silt-laden water from construction sites to natural water courses is minimised. In ecologically sensitive areas and along any foreshore, untreated discharge must be prevented.

In order to protect the surface of road shoulders against erosion from surface water flows it is necessary to surface the shoulder with non-erodible material. Such surfacing has the secondary benefit of minimising the occurrence of edge break of adjacent sealed pavements.

3.2.6 COEP 8: Quarry Development and Operations

The objective of this Code of Environmental Practice (COEP) is to prescribe the safety requirements for the development and operation of quarries as well as to define procedures and works that shall be used to mitigate against adverse environmental effects. COEP 8 shall be read in conjunction with COEP 1 – Administrative Procedures and COEP 13 - Earthwork. See also Section 2.3.1.

3.2.7 COEP 9: Gravel Extraction

The objective of this Code of Environmental Practice (COEP) is to provide planning and construction guidelines for the extraction of river gravels for development projects with particular regard for the need to avoid or mitigate adverse environmental impacts from such work. In each case a proposal to extract river gravel for a development project must be compared in terms of economic cost and environmental cost with the alternative of obtaining gravel aggregates from existing or new quarries. This COEP shall be read in conjunction with COEP 1 – Administrative Procedures and COEP 13 - Earthwork.

3.2.8 COEP 11: Drainage

The objective of this Code of Environmental Practice (COEP) is to prescribe procedures for the design, construction and maintenance of drainage structures and drainage channels to minimise short term and long-term adverse environmental effects. This COEP shall be read in conjunction with COEP 1 – Administrative Procedures and COEP 13 - Earthwork.

For the WCR project, culverts on natural watercourses have been designed to preserve or improve environmental conditions as far as possible with the culvert inverts set to allow the natural tidal movement in and out at the mouth of the stream.

The detailed design has also considered minimising the pollution load by the use of swales, earthen ditches and catchpits. Swales in particular attenuate the flow and encourage runoff to infiltrate the ground rather than discharge directly to the sea, the vegetation will provide some biological treatment and infiltration will filter out more of the pollution. The catchpits allow the drain to be blocked to allow clean-up in the case of a major accidental pollution incident such as spillage because of a road traffic accident.

3.2.9 COEP 12: Traffic Control During Construction

The objective of this Code of Environmental Practice (COEP) is to prescribe the methods that are to be used for the safety and control of traffic during the upgrading, reconstruction or maintenance activities on any road. This COEP shall be read in conjunction with COEP 1 - Administrative Procedures.

Note that the Contractor is to prepare a Traffic Management Plan (TMP) together with the Contractor's ESMP to be submitted for approval before the commencement of the works. Different sections of the WCR reconstruction may require special considerations and these will need to be highlighted in the TMP.

3.2.10 COEP 13: Earthworks

The objective of this Code of Environmental Practice (COEP) is to provide planning and work guidelines for earthworks activities associated with development projects; with particular regard for the need to avoid or mitigate adverse environmental impacts from such work. This COEP shall be read in conjunction with COEP 1 – Administrative Procedures.

All earthworks activities shall be conducted in accordance with this COEP and in such a way as to prevent accelerated erosion, accelerated sedimentation and disturbance of potential cultural resources. To accomplish this, all persons engaging in earthwork activities shall design, implement and maintain erosion control, sedimentation control, and cultural preservation measures which effectively prevent accelerated erosion, accelerated sedimentation and adverse impact on cultural resources.

3.3 Development Consents

Despite efforts on the part of the Government to provide a framework within which all development activities are properly screened and vetted for environmental sustainability, many local initiatives and activities are occurring without proper vetting. Many are coastal in nature involving sand mining, coastal reclamations and constructions within hazardous zones. Many mangrove areas are destroyed to make way for construction, by waste dumping and for firewood. (Ministry of Natural Resources & Environment (2013): Samoa's State of the Environment (SOE) Report 2013).

In accordance with Part V of the Planning and Urban Management Act 2004 and any other relevant legislation, any person who engages in road construction shall first obtain a Development Consent (consent) from PUMA for the proposed activity.

Consent applications shall be on a form approved by PUMA and shall be submitted by the agency or person undertaking the road construction. Applications shall be made no later than one month before the proposed construction is scheduled to begin and must be accompanied by such other documents as PUMA may require.

The Contractor is prohibited from commencing works on the project (including plant mobilisation and establishment of construction camps) until consent has been obtained from Ministry of Natural Resources and Environment /PUMA. Further, works may not commence until the Construction Environmental Management Plan (CEMP) has been prepared and approved by LTA, PUMA and the World Bank. The CEMP must incorporate and respond to all conditions of consent (in addition to the prescriptions contained in this document). Similarly, quarries proposed for aggregate and gravel sourcing must also have all relevant development consents in place prior to supplying the project.

A road construction consent issued by PUMA shall expire two years from the date of issuance. If the construction activity is ongoing at the time of consent expiration, a new consent application shall be submitted to PUMA one month before expiration of the consent.

3.4 International Obligations

The following is a list of all relevant international conventions and treaties that Samoa is a signatory to, or has endorsed. These international agreements are governed by international law and are legally binding for countries that have formally ratified them. Applicable obligations include:

- United Nations Framework Convention on Climate Change 1992.
- Kyoto Protocol to the Framework Convention on Climate Change 2005.
- Convention on Biological Diversity 1992 and Nagoya Protocol on Access to Genetic Resources 2010
- Vienna Convention for the Protection of the Ozone Layer 1985.
- Montreal Protocol on Substances that Deplete the Ozone Layer 1987.
- Convention on the Protection of World Heritage and Natural Heritage 1972.

3.5 World Bank Policy

The proposed works are assessed as a category B project under the World Bank's environmental and social screening guidelines, requiring development of this project specific ESMP. Due to the nature of the project it is expected that environmental impacts will be site specific and reversible, and mitigation measures can be readily designed and implemented.

In accordance with the World Bank Operational Policy 4.01 Environmental Assessment, this ESMP includes information on mitigation, monitoring, capacity development and training, and implementation costs. The ESMP outlines the potential environmental impacts and the measures needed to prevent, minimise, mitigate or compensate for adverse impacts and improve environmental performance of the project.

The ESMP is a dynamic document which must be updated as consultation and detailed designs of the project components are finalised to ensure currently unanticipated impacts are

addressed and revised mitigation measures incorporated. Effective implementation of the ESMP is a requirement of the funding agencies and local legislation so monitoring is an integral component of implementation. This ESMP is to form part of the bidding documents for contract(s) awarded under the project and will form the basis of the Contractor's Environmental and Social Management Plan (CESMP).

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CHAPTER 4 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

4.1 Physical Environment

4.1.1 Geology, Topography and Soils

In reference to the geological composition of the area, the entire north-west coast area of Upolu where the WCR is located is characterised as Mulifanua volcanics. These are formed mainly of olivine basalt soil (clay, silty clay soil texture) weathered to a depth of 10 metres -20 metres. This is typically comprised of a thin soil cover, with soil surface consisting of un-weathered boulders, common on uneven surfaces at 10 degrees to 15 degree slopes.

The topography of the project area varies with elevations above sea level ranging from 30 metres to 1 metre, with the lowest part located at Malie village and the highest part located at Faleolo. Steeper topography is found further inland from the coast. In terms of the landscape within the WCR corridor the area is predominantly flat and covered with sedimentary rocks which include swamp mud, coral reefs and cemented beach sands at present sea level and some sands deposited by the sea and river mouth gravel. Soils are almost entirely volcanic derived, except for a few small areas of coastal (coral) sands and are predominantly stony latosols of varying fertility derived from basalt, andesite and calcareous tuff. They tend to be very stony or bouldery, clay, clay loams, silts and hill soils. These soils generally display high permeability and have high infiltration rates.

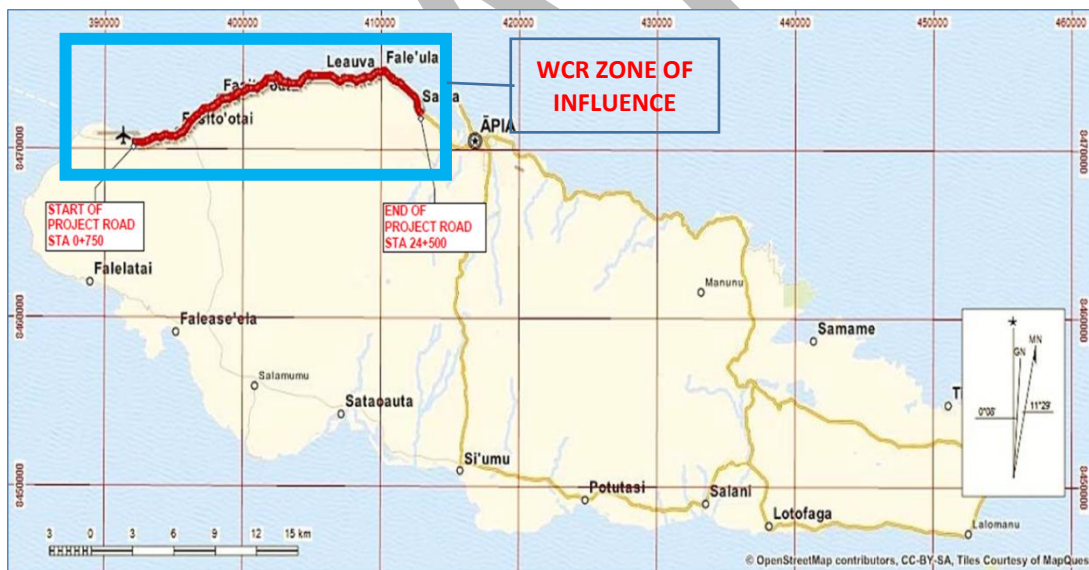


Figure 4.1: Map of the WCR Project Zone of Influence

4.1.2 Climate

Samoa's tropical climate has a wet and dry climatic season with prevailing South-Easterly winds most of the year. Average temperatures in the project area recorded at the Faleolo climate station for the year 2011 is in the range of 22.7- 30.9°C. The wet season extends from October to March with maximum precipitation levels at 672.7mm. The dry season is from April to September with minimum precipitation levels at 22.2mm.

4.1.3 Water Resources

The WCR follows close to the coast between 6 km and 11 km from the upland plateau which is about 600 m with several conical peaks the highest which rises to 864 m. The project area through which the WCR is located crosses a number of small streams and rivers (mostly tidal inlets or ephemeral streams which only flow after heavy rainfall) which form part of the drainage catchment of the area and assists to drain water from the inland hills and surrounding land out to the coast. The sea is the receiving environment for the watercourses and road derived stormwater and therefore, an overflowing drainage system has the potential for the water draining to the sea to be of a poor quality in terms of silt, contaminants and potentially rubbish.

Culvert pipes are provided at points where the road crosses the watercourses, however, some of the existing culvert pipes are undersized, damaged or blocked restricting and at some junctions preventing water flow. Moreover, a number of existing outlets are inadequate and create a build-up of water in the drainage system, with an overflow potentially leading to a pond on the road and flooding in adjacent lands during times of high rainfall.

4.1.4 Natural Hazards

The West Coast Road, including bridges, culverts and the engineered seawall is generally within both the Coastal Erosion Hazard Zone (CEHZ) and the Coastal Flood Hazard Zone (CFHZ). Majority of the WCR is within 5 to 10 metres of the coast with the exception of some sections of the road. A number of seawalls have been constructed with the intention of reducing the rate of erosion as there is evidence of erosion along the entire length of the WCR.

However, these seawalls and other coastal protection structures are unlikely to be able to withstand a natural disaster (cyclone) and on-going erosion, with most of the WCR being constructed on fill close to the coast that is eroding.

The combined factors of the proximity of the WCR to the coast, the varying levels of protection coupled with the importance of the WCR as the main road to the airport and wharf, results in high risk and susceptibility.

The WCR is at risk from storm water runoff channelled towards the coast by the inland work roads. The drainage culverts under the West Coast Road are undersized, usually at about 600mm in diameter to drain large areas and are poorly maintained with the rate of storm water runoff causing flooding on the road. This creates a hazard for drivers and pedestrians who are forced to walk onto the road around the flooded areas with reported fatalities at Faleasiu in 2006 related to a flooded road.

4.2 Biological Environment

4.2.1 Coastal Resources

The land use adjacent to the road is generally modified for use by residential, access and community related facilities. The closest sensitive natural habitat is the marine environment, including reefs located off the coast. The coastal environment along the West Coast Road is varied and consists of rocky outcrops and sandy beaches. A fringing reef provides protection along the coast, ranging from 500m at its closest, to over three kilometres at its furthest.

Within the reef the lagoon averages 1.5 metres in depth and supports abundant marine stretch of coast that the road follows, with the nearest protected marine environment being the Palolo Deep Marine Reserve on the eastern side of the centre of Apia.

The existence of sand mining in front of several villages including Toamua/Puipa'a and Saina has impacted on the local ecosystems and fisheries with little mangrove wetland remaining in the Faleata West District. These villages depend heavily on marine resources in the lagoons and intertidal zones including fish, mangrove crabs and bi-valves. While sand mining operations are legally licensed, their impact on community resources is becoming more evident. New environmental and resource assessments studies are vital and should be carried out to determine both their socio-economic and environmental cost in order to provide a basis for a review of these licenses.

The natural and physical systems around the coast are more susceptible to coastal hazards as the amount of sandy sediment decreases due to the increased use of the lagoon and inland river catchments that would typically otherwise provide buffering to development on the land.

There may also be increased clay-type sediments from development and inland land-use around stream and river mouths that smothers the reed and lagoon environment. Natural mangrove areas that would have supported marine life, provided a buffer to coastal hazards, and filter contaminants from developed areas have been reduced due to various land-uses, such as reclamation.

4.2.2 Forest Resources

In the Sagaga Le Usoga District, sections of the coastline along the project area where mangroves and some littoral forest trees once existed have been cut and reclaimed for homes. Sedimentation near river mouths has increased as a result of inland clearing for agricultural and farming development and lagoons off shore from these areas appear to be highly degraded. There were several mangrove areas in the district, most of which have been cleared and reclaimed for settlement including the main wetlands on the border with Leauva'a village where a major reclamation was undertaken for the construction of the Catholic Tofamamao Centre. The marine environment and lagoon is now under stress from sedimentation. The reclamations and clearing of the mangrove areas has increased the risks to the coastal area with mangroves no longer acting as a barrier for waves and a filter for the silt carried down local rivers.

Within the Sagaga Le Falefa District there are two extensive mangrove areas at Salepoua'e and Lotoso'a, Saleimoa village and a number of other minor wetland areas along the coast including Fasitootai and Vailuutai. However, much of the coast that was once covered in mangroves in the past is now extensively reclaimed. The effect of these changes has been both siltation in some areas and coastal erosion in others. Coastal processes such as the incidence and degree of flooding in coastal areas, the impact on the health of the lagoon and reef system and the rates of sediment accretion along the coast has also been affected by extensive plantations, cattle farms and agricultural activities some distance inland from the coast.



Photo 4.1: Mangrove forest at Lotosoa, Saleimoa



Photo 4.2: Seawall – WCR proximity to sea

4.3 Socio-Economic Environment

4.3.1 Population

The WCR crosses nine (9) electoral districts with thirty-one (31) villages across the considered impact path along the north western coast of Upolu island. The districts are: Faleata East, Faleata West, Sagaga Le Falefa, Sagaga Le Usoga, Gagaemauga I, Aana Alofi I, Aana Alofi II, Aana Alofi III and Aiga i le Tai. The district of Sagaga Le Falefa has the most villages traversed while Faleata East and Gagaemauga I have the least. As of 2011, the total population for the nine (9) districts is 65, 201 with Faleata West the largest group at 28%. The nine districts is around 299.5km² with Sagaga Le Falefa District contributing the largest portion at approximately 30%.

Table 4.1: Districts and Population along West Coast Road

District	Total Land Area (km ²)	No. of Villages	No. Villages Traversed	Total Population
Faleata East (FE)	21.2	12	1	12,482
Faleata West (FW)	35.5	18	7	18,134
Sagaga Le Falefa (SLF)	78.1	13	9	11,695
Sagaga Le Usoga (SLU)	15.2	3	3	5,652
Aana Alofi I (AA1)	25.0	3	2	5,683
Aana Alofi II (AA2)	9.5	2	2	2,915
Aana Alofi III (AA3)	38.8	10	5	5,477
Gagaemauga I (G1)	48.6	4	1	3,063

Source: 2011 Census – Preliminary Results, Samoa Bureau of Statistics, 2012.
PPCR WCR Environmental Assessment Report (IPA, 2012).

4.3.2 Community Infrastructure

Public utilities follow the path of the WCR and are located mostly along the side of the road but at other places are within the road shoulder or very close to the shoulder which will need to be relocated under the WCR rehabilitation. These utilities consist of service lines with power poles and telecommunication poles for overhead lines, SWA pipes and some telecommunication cables installed underground. Electricity is generally available in all nine district but with the households feeling somewhat constrained due to the current high cost of fuel (diesel)

impacting directly on electricity costs. Piped water supply is also high in coverage among all districts, although there are some areas that require improvement with households depending on alternative sources such as rainwater, drilled wells and natural springs. There is a high percentage of existence of household sanitation (toilet facilities i.e. flush and/or pour including pit latrines) correspondingly indicating high consciousness of people in terms of sanitation.

Table 4.2: Percent of Households with Access to Utilities in the West Coast Road Districts

Indicators	District							
	FE	FW	SLF	SLU	AA1	AA2	AA3	G1
Total Households	1,809	2,316	1,430	665	762	412	655	379
Electricity	98	98	94	96.3	94.2	96	95	96.3
Piped Water	98	99.4	90.2	98	72	90	93	99.7
Sanitation	99.6	99.8	99.8	99.8	99.6	99.8	99.6	100
Telephone	51.3	52.4	31.3	51	29.4	36	38.3	23.2
Cellular	82	74.3	61	52.5	65.1	48.3	43	55

Source: Census 2006, Samoa Bureau of Statistics, 2012
 PPCR WCR Environmental Assessment Report (IPA, 2012)

Communication via telephone and mobile is available to all districts, although these figures have significantly changed at the present time as compared to 2006 with popular advances in mobile communication. The table above presents these data. In terms of medical and educational facilities, there are thirteen (13) schools (theological college, polytechnic, college, secondary, primary and kindergarten) and three (3) medical centres, Leulumoega District Hospital, Afega District Hospital and Medcen Clinic located adjacent WCR.

4.3.3 Land Use and Sources of Income

The current use of land varies along the path of the road, from the urban city centre of Apia (although the project area starts from Vaitele on the outskirts of the urban area), to coastal villages and rural areas. Residential properties are adjacent along much of the WCR.

Table 4.3: Area of Land Parcels (in Acres) by Land Use of Districts in the WCR Area

District	Total Land Parcels	Under Agriculture	Non-Agriculture	% of Agricultural Parcels to District Land Parcels
SAMOA	92,310	85,761	5,973	92.9
UPOLU	58,460	54,000	4,241	92.3
Faleata East	491	456	31	92.8
Faleata West	1,678	1,503	110	89.5
Sagaga Le Falefa	4,775	4,339	424	90.8
Sagaga Le Usoga	1,810	1,761	40	97.2
Aana Alofi I	2,603	2,554	44	98.1
Aana Alofi II	1,122	1,058	37	94.2
Aana Alofi III	2,422	2,266	139	93.5
Gagaemauga I	746	737	5	98.7

Source: Agriculture Census 2009, Samoa Bureau of Statistics, 2012
 PPCR WCR Environmental Assessment Report (IPA, 2012).

According to the latest Agricultural Census in 2009 by the Samoa Bureau of Statistics, Sagaga Le Falefa district had the largest identified area of agricultural land parcels within the project area with a total of 4,339 acres. However, Gagaemauga 1 district was identified as having the largest percentage of agricultural land parcels to the total of district land parcels at 98.7%. The data presented also includes Patamea, Samalaeulu and Mauga villages in Savaii whereby

Leauvaa is the only village included in the project area. Therefore, in relation to the total land parcels of the district in the study area, it is relevant that Aana Alofi 1 at 98.1% has the highest percentage of agricultural land parcels.

The total percentage of agricultural land parcels across the nine districts is 93.3%, the flat terrain making agriculture relatively easy. Figures indicate that agriculture is the dominant use for land across all districts in the project area with this area accounting for approximately 30% of all agricultural land parcels on the island of Upolu. These figures are presented below. The largest area of land parcels under farming of plants and animals or livestock is in Sagaga Le Falefa with approximately 24.5% of Upolu island. Similarly, a significant number of agricultural produce is grown in the North West region of Upolu compared to the rest of the Upolu region and the urban area of Apia. These products include vi, banana, vanilla, star fruit, taro, oranges, avocado, lychee, apiu, coffee, pele, chilli, green pepper ginger, mango, coconut, cocoa, breadfruit, lemon lime, vi, banana, vanilla, star fruit, taro, taro palagi and taamu.

The main sources of income in the study region, classified by the Samoa Bureau of Statistics as the North West Upolu region is drawings from businesses or wages earned. This region accounts for almost half of the wage earners or labour force of Samoa at 49.82% indicating that the people from the region of North West Upolu have a preference towards non-agricultural activities for income. Instead, choosing to grow agricultural products for subsistence living.

Table 4.4: Percentage of Household Weekly Income from Source of Income by Region

Income Sources	Proportion				
	Samoa	Apia Urban Areas	North West Upolu	Rest of Upolu	Savaii
Total Income	100	100	100	100	100
Primary Income	42.04	60.83	49.82	30.72	18.86
Other Income	2.51	3.29	2.29	1.94	2.46
Value of Own Produce Consumed	12.49	4.04	10.03	20.65	18.54
Income from Entrepreneurial activities	7.03	1.89	6.91	7.82	12.44
Value of own Produce given away as gifts	1.47	0.47	0.82	1.72	3.37
Value of Remittances received (in kind/cash)	10.81	5.67	7.48	14.96	17.97
Value of items received as gifts	13.53	13.87	11.23	11.55	18.38
Rental value of Dwelling Unit	10.14	9.94	11.42	10.64	7.99

Source: Household Income and Expenditure Survey 2008, Samoa Bureau of Statistics, 2012
 PPCR WCR Environmental Assessment Report (IPA, 2012).

4.3.4 Socio-Cultural Resources

There are major socio-cultural resources which can be found along the WCR route including thirty-one (31) villages, which the project road directly traverses. Moreover, there are twelve (12) schools, one (1) monumental tomb site, thirteen (13) community grounds/village sports fields, forty-eight (46) churches, twelve (12) village pools/springs, three (3) medical clinics and two (2) grave sites noted down during the field assessment.

Therefore, it is important that these areas be shielded from physical disturbances during construction and clearly designated 'NO-GO' areas with boundaries clearly marked and sealed off.



Photo 4.4: Church access ramp in close proximity to edge of seal at Toamua
'Road re-align to avoid'



Photo 4.3: Edge of seal close proximity to sea and village pool at Levi, Saleimoa
'Village pool 'NO-GO' during construction



Photo 4.4: Edge of seal very close to the village pool at Faleasiu. To be clearly marked 'NO-GO' area during construction

Photo 4.5: Village pool and cave in close proximity to road at Tufulele village

4.4 Projected Climate Changes and Impacts

Projections by the Scientists from the Pacific Climate Change Science Program (PCCSP) indicate that for Samoa across all emission scenarios will experience increases in average annual air temperature and sea surface temperature. Sea level rise is expected to continue, with projections ranging between 7 and 17 cm under very high emission scenarios in 2030. Rainfall projections suggest little change in annual rainfall however more extreme rainfall events would be expected. According to projections Samoa is likely to experience a decline in the frequency of cyclones; however, an increase in storm intensity is probable by the late 21st century. For the WCR, these projections highlight the concerns with regards to rising sea level and frequency of extreme events with the location and proximity to the coast line.

CHAPTER 5 CONSULTATION AND STAKEHOLDER ENGAGEMENT

5.1 Background and Approach

Consultation being a vital component of the project development ensures that potential impacts are identified together with potentially affected people and stakeholders. Project implementation consultations must take place with affected people to ensure they fully understand the impacts, the proposed mitigation measures, and that they are properly compensated for impacts experienced.

The WB policies including Indigenous Peoples policy and gender diversity, supported by the GOS legislations as set out in the CRWCR LARF (rev.2015), require that consultation is conducted during preparation of all safeguard instruments. Accordingly, consultation must be well documented with a record of who attended, information presented, concerns raised, answers to concerns, and other matters or business discussed. A record of the consultation must be reattached to project documentation.

In preparing the WCR Design Report and other related documents, Roughton International Ltd in association with PLT Consultants Ltd conducted consultations in 2015, 2016, and 2017 with personnel from LTA, PMU/WB, SWA, EPC, Bluesky, Digicel, village mayors and village representatives, quarry companies, MNRE (Survey Division/Land Division/PUMA), and MWCD. Open community consultations as well as discussions with targeted groups and affected person (APs) were held during this period. Minutes and attendance records are presented in the Stakeholder Consultations records and included in Appendix E.

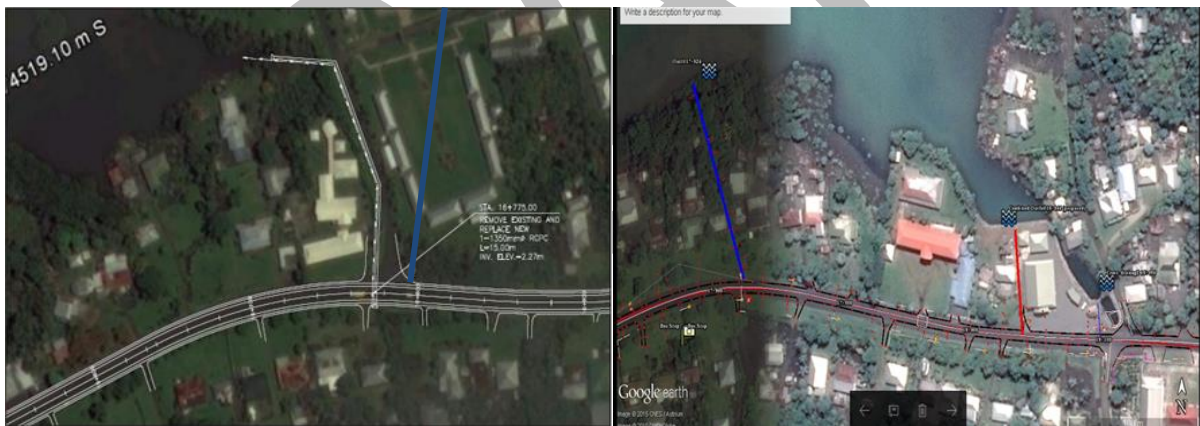


Figure 5.1: Google image Drainage Easement at Leauvaa and Afega

Examples of consultation brought about by environmental change requiring design change include:

- The drainage easement originally proposed across a playing field at Leauvaa village, when found that the playing field now has a number of buildings on it. Consultations were then initiated with a number of property owners for agreement to use their properties to relocate the drainage easement which was found to be a shorter distance than the original proposal.
- The proposed drainage easement at Afega village required change when found that the existing drainage easement outfall discharges very close to the village bathing pool with possible health issues, and the proposed drainage easement close to this location was on low flat ground with the outfall discharge point almost at the same level as the road

surface with only a few centimetres above the high tide mark and would run the risk of 'tidal locking'. A design decision was then made to combine these two drainage easements into one, but the most suitable location and route runs next to a family house and requires the removal of their toilet block.

Consultations were then carried out involving LTA, MNRE, Village mayor, and the affected family members to explain the current position and to source their agreement. The families and affected property owners agreed and have signed an agreement form for the works to proceed.

5.1.1 Scope of On-going Consultation

The scope for on-going consultation for the WCR rehabilitation project should include the following tasks:

- Update and consolidate the stakeholder matrix and engagement plan to ensure all parties and appropriate consultation mode (e.g. interviews, focus group meetings, public meetings) for the respective stakeholders.
- Update and consult institutional stakeholders to affirm a whole of Government approach to the project development, implementation and operations. This will ensure that the project plans and communication documents presented to the wider stakeholder group (e.g. local community) take into account and optimise other Government plans and priorities.
- Schedule consultation with stakeholders according to the most suitable communication method and involve members of the project delivery team (e.g. design engineers, safeguards specialists, LTA, MNRE) as required and dependent on the level of information required by the stakeholder group.
- Document all consultation including:
 - Manner in which notification of the consultation was announced: media(s) used, date(s), description or copy of the announcement.
 - Date(s) and location(s) consultation(s) was (were) held.
 - Invitation and attendance lists. (Name, Organization or Occupation, Telephone/Fax/e-mail number/address (home and/or office)).
 - Meeting agenda/ program/ schedule including list of presenters and discussion topics.
 - Summary meeting minutes (comments, questions and response by presenters), actions and decisions.
 - Collate and assess all consultation outcomes in a report to feed into subsequent development of the project ESMPs and detailed designs.

5.2 Stakeholder Consultation to Date

Consultation for the WCR project was initiated very early as part of the Governments drive for sustainable development, with preliminary meetings with the LTA, MNRE, MWCD, Village Mayors and other stakeholders. To date, LTA, PMU, MNRE and MWCD have conducted a series of consultations from the conceptualisation stage in the early 2000's with a broad range of stakeholders, including village mayors, government ministries, state owned enterprises, non-government organisations, affected property owners, church organisations, utilities, and other community based organizations. The consultations were aimed at explaining the proposed scope of works, the design rationale, options and alternatives, extent and limit of works (20m road reserve), time schedule, possible impacts and identifying the best ways to mitigate the

impacts the project is likely to have on the environment and APs, and to encourage stakeholder and community support thereby further strengthening the sustainability of the project.

As a final step, in each village community, LTA and MNRE (Land Management Unit – also responsible for valuation of land and affected assets) together with the ARAP consultant will conduct open forums with the APs to update them about the proposed WCR reconstruction works, affected land and other assets, as well as associated drainage works with the need for easements to be created to allow a ROW on affected properties, including compensation requirements for land expropriation and other affected assets. These will be carried out as part of the disclosure process and prior to construction activities starting. Consultation opportunities should continue through the life of the project, so that issues can be dealt with in a timely manner and opportunities can be pursued.

5.2.1 Outcomes of Stakeholder Consultation

Some of the key outcomes noted in the discussions and consultations to date include the following:

- A clear call for road safety measures to be a priority in design considerations.
- A clear call for historical and cultural assets to be avoided and protected.
- Concerns regarding flooding and poor drainage that must be addressed in the design.
- Concerns expressed by local communities and other stakeholders regarding safety during construction.
- Utilities requirements in particular services for relocation to be better coordinated with LTA and the Contractor to ensure no disruption to services.
- Concerns expressed regarding affected assets including land, fences, hedges, fruit trees, stalls and other structures, and possible compensation.
- Clear process for dealing with issues including roles and responsibilities, compensation and grievances.
- On-going consultation is required during all stages of the project for all stakeholders including LTA, MNRE, village reps and local communities, and affected land owners.

The concerns or opportunities raised through the consultation have been incorporated where possible into the ESMP and the detailed designs. Specific responses are documented in the Stakeholder Consultations Record.

5.3 Disclosure

Disclosure involves the release and sharing of this report in full and is about transparency and accountability through release of information about the project. A copy of this draft ESMP should be made available on the WB Infoshop and GoS websites and hard copies available at the LTA office, MNRE and PUMA offices, and community centres on Upolu.

5.4 Sensitive Receptors

Along the WCR, a number of sensitive receptors where people can be more susceptible to the adverse effects of exposure to traffic safety and noise including homes, schools (including pre-schools), churches, and hospitals. Places of business or public open space are not usually

classed as sensitive receptors. These sensitive receptor communities require specific consultation before and during construction activities to ensure impacts are minimised and community safety assured. Activities such as the transportation of material and equipment to and from the WCR as well as the use of heavy equipment impact greatly on these communities and mitigation measures may include construction works or transport during specific hours which do not impact school hours or specific traffic (includes pedestrian) safety management like flag controls and route diversions.

The zone of influence for the WCR project encompasses the 23 villages from Saina to Satapuala at the Faleolo Airport. While the construction activities will occur within the road reserve boundary and 'limit of work', some effects, particularly related to transport of materials and effects that can extend beyond property boundaries (e.g. noise and dust) could affect the village communities. Consultation and assessment of effects on the communities along the WCR and the haulage route from the quarry will need to be undertaken once the quarry source has been confirmed. There are thirteen (13) schools, forty-eight (48) churches, two (2) hospitals and three (3) medical clinics noted down during the field assessment along the WCR.

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CHAPTER 6 ENVIRONMENTAL AND SOCIAL IMPACTS

Based on the World Bank's Operation Policy 4.01, the proposed road rehabilitation and drainage improvement of the main West Coast Road has been classified as a Category B project. Therefore, it is anticipated that there is very minimal irreversible impact, measures redesigned more readily than Category A projects, that the impacts on human population or environmentally important areas are less adverse and site specific. Additionally, majority of these impacts for the project road are directly related to the construction period.

6.1 Design/Pre-Construction Phase

6.1.1 Protection of Sensitive and Ecologically Important Areas

The proposed development will not traverse any environmentally sensitive areas and accordingly, no adverse impacts are anticipated to be caused by the rehabilitation of the road. However, attention will be given to ensure that potential environmentally sensitive areas are protected during the preparation of the detailed design in order to minimise adverse impacts on sensitive ecosystems, or the natural environment. Details of these measures are outlined in Chapter 7.

6.1.2 Sustainable Environmental Design and Road Maintenance

The proposed earthworks may result in soil erosion as it is possible during the stripping, cutting and filling of soil, that some excavated soil material may get inadvertently caught in the nearby drains, coastal waters and water channels. However, by adopting proper sustainable environmental practices provided for in Chapter 2 into the designs and incorporating mitigation measures outline in Chapter 7, these impacts can be minimised and avoided.

6.1.3 Soil and Geology

The proposed road rehabilitation works are not considered to result in any significant realignment or deviation from the configuration that currently exists. The topography of the area is typically flat and will not increase the risk of further subsidence, erosion or slipping. The existing road assessment has shown that the existing road surface requires strengthening throughout with the proposal for treatment to overlay the existing pavement and reconstruction of the widening and the area for shoulders. However, it is not expected that the project works will have a major adverse effect on the surrounding soil and geology.

6.1.4 Climate Change and Coastal Hazards

Some sections of the project are vulnerable to climate change effects of extreme weather patterns and rising sea levels as they are within the coastal erosion and flood hazard zones. The level of habitation is high along the WCR with population numbers likely to continue to remain high given the national importance of this road. The road is less than 5 metres away from the sea at some points along the WCR with an above sea level reading of 1.026 to 1.9 metres at its lowest points. Therefore, the adverse impacts of coastal hazards and climate change on the design of the road and proposed works is highly significant, unless mitigating design factors are incorporated to promote and enhance the resilience of the road.

6.1.5 Road Safety

Extensive village development characterise the road, including stores, churches and mainly large homes with surrounding lawns or gardens, some of which are located close to the road and others set further back. Busy peak periods along the WCR are usually in the early morning and late afternoon however, the traffic volume off peak is reasonable for a two-lane two-way road such as this. At any time day or night, villagers and stray animals (i.e. dogs, pigs and chickens) also walk across and along this road. Many trucks, buses and small vehicles also traverse this route on a daily basis. Furthermore, there are concerns about the existing degree of road safety along the road and when the road is constructed because the road is used by many pedestrians as it passes continuously through populated areas.

During public consultations, community requirements for road safety measures were presented. The measures to achieve this objective are:

- Off-road set down stops;
- Attention given to road accident black spots;
- Measures to slow traffic, e.g. installation of speed humps that are designed to technical specifications and placed in selected areas such as schools, hospitals, markets etc.;
- Ensure road speed limits are enforced;
- Improvements in pavement markings and road signage; and
- Enforcement of the use of off-road set down stops and bus stops i.e. issuing fines to vehicle owners and bus owners.

The recommendations of the Road Safety Audit prepared for the Upolu West Coast Road in accordance with COEP 2 - Road Planning, Design and Construction have been considered and taken into account in the design of the road. Furthermore, subject to the adoption and implementation of mitigation measures proposed in Chapter 7 of the report, the impact of the project design on road safety is considered to be significantly positive.

6.1.6 Affected Lands and Properties

Under the proposed rehabilitation works, drainage at locations where the outfall drain crosses land outside the road reserve will require the creation of drainage easements. These easements must allow for the actual physical size of the outfall drain and be wide enough to provide access for a digger and truck to move through for maintenance purposes. Considering the recommendation from previous studies undertaken by BECA, it was recommended that on site, the width of the easements be 10 metres, with the outfall drain to run along one side leaving space to manoeuvre for maintenance machinery. In 2010, the PEAR prepared by BECA for the WCR Drainage Improvement identifies 25 sites that require drainage easements along the project route some of which since 2010 have been further developed. From the Roughton/PLT assessment in 2015 for the WCR rehabilitation and drainage design, 28 drainage easement sites were identified as having clear and negotiable routes for drainage outfalls. These included one at Saina that has now been omitted from the WCR list as was covered under the recently completed Vaitele Street road widening project, and the other one at Satapuala by the Faleolo Airport will not require a formal easement agreement as this is on GOS land. This leaves 26 drainage easements along the WCR requiring formal agreements with land owners.

These drainage easements have been re-surveyed to finalise a route on the property(s) that will not adversely affect landowners and to confirm the cadastral boundaries. However, the realignment of the road for safety and measures to avoid existing structures and cultural assets in some locations, have resulted in the need to expropriate some land. These have been surveyed and will be finalized in the near future. The process for consultation with landowners, surveying and finalising of affected land and route alignment for drainage easements is presented in Chapter 5, and is also covered in the LARF and ARAP with compensation to be in accordance with COEP 4 – Land Acquisition and Compensation as outlined in Chapter 5 of this report.

6.1.7 Utility Services

The road reserve has traditionally also served as a convenient utilities corridor with a number of services already located under and alongside the existing road. Generally, it is not proposed to disturb the major underground utilities and disrupt the continuity of supply as in most cases, they are considered safe from damage during construction. However, on some areas or stretches of the WCR, existing underground telecommunications network cables are less than the desired depth of 700mm to the top of the ducting. Similarly, SWA water supply mains and sub-mains are located very close to the existing road shoulder. and would need to be relocated for the WCR rehabilitation works in light of the proposed road widening and sealed shoulders.

Therefore, minor feeder or supply conduits for underground power supply and telecommunications as well as water pipes along with power poles need to be relocated to a safe distance away from the edge of the carriageway to improve accessibility in the future and to ensure that the new pavement will not be affected should the utilities require servicing. Generally, electricity conductors are on the seaward side of the road and the telecommunications lines are on the landward side however, this may vary as in some cases the two utilities share poles. The SWA mains are also on the seaward side and the sub-mains on the landward side.

The relocation of services affected by the WCR rehabilitation is expected to be covered under this project. For any upgrading or additional provisions, the Utility provider is expected to fund these as they will not be included in the WCR rehabilitation project.

Recommendations have been proposed that along the whole length of the WCR, consideration of the following is advised:

- Telecommunications and power lines are relocated to an underground duct to satisfy its climate resilience objective as supported by the CIM Plans;
- That for every 100 metres or more along the WCR, a service trench crossing the road is installed accommodating for water pipes as well as electricity and telecommunication cables;
- Exploring other methods of installing underground pipes and conduits such a boring to minimize damage to road structure and trenchless directional drilling.

This is an opportunity to be explored by LTA and the service providers to plan and invest in underground cabling and pipeline projects that is outside the scope of this project, which can be coordinated and implemented concurrently with the upgrading of WCR. Mitigation measures are detailed in Chapter 7.

6.1.8 Cultural Heritage

The WCR has one monumental tomb site (tia). The tomb of Malietoa Moli is located along the alignment at Malie directly adjacent the road reserve. In order to avoid any adverse effects on this traditional and cultural site, the final detailed design of the road rehabilitation works at this location have ensured that the tomb is well clear of the road alignment and have declared this site a 'NO-GO-AREA'.

Further, the WCR passes close to some village pools particularly at Utualii, Afega, Faleasiu and Tuanai villages however the road does not encroach on these areas and have been declared as 'NO-GO AREAS' for the construction works.

There are also grave sites on a few private properties that may be affected potentially by the course for drainage easements. These have also been declared 'NO-GO AREAS' for the road rehabilitation works including the drainage easements and outfalls.

The detailed final designs have considered the impact of the WCR rehabilitation on these historical cultural sites after consultation with landowners, and approval has been given by the land owners for the preferred route for the drainage infrastructure.

6.1.9 Social or Community Concerns

There is limited concern about the negative effects of the road construction as the proposed project works is concentrating on the rehabilitation of the existing road only. Generally, road improvements aim to bring benefits to the surrounding communities by improving access to jobs, market places and services such as education and health, and in this particular case to the domestic and international travel providers and services as well as lowering transport costs. Furthermore, these rehabilitation works on the road will reduce breakdowns and damages to private and commercial vehicles that can be costly as well as improve safety, e.g. pedestrian safety with better facilities such as wider and paved road shoulders. Rehabilitation and road reconstruction projects can also evoke change within the community or social environment around the road and can influence various aspects of travel patterns, social and economic activities as well as lifestyles.

Furthermore, no displacement of people will be required for the proposed project which will be carried out within the right of way (20m) along the existing road alignment. It is anticipated that there will be some land affected where widening and realigning works are required and where the creation of permanent easements for drainage occur. The LARF, the ARAP and in Chapter 5 of this report in accordance with COEP 4 – Land Acquisition and Compensation details the measures to minimise the social impact of any necessary land acquisition and compensation for loss of crops.

6.2 Construction Phase

6.2.1 Air Quality and Dust Control

Air quality during the construction stage has the potential to be impacted from construction activities carried out for the road rehabilitation works including: air pollutants such as vehicle fumes and smoke from construction related machinery and vehicles; release of dust from earth disturbing transport operations and activities; potential release of smoke from the burning of

wastes such as vegetation and other materials; as well as the potential changes to soil moisture, wind speed and air as a result of vegetation removal.

The significance of these impacts will depend on the location of nearby receptors such as residential areas, educational, recreational and religious buildings and spaces as well as the extent of the physical work required when conducting earth disturbing activities. The effects on air quality of these activities include: nuisance from dust in areas where earth has been exposed by vegetation or road seal being removed, typically during prolonged dry periods, bronchial problems and nuisance from airborne exhaust particles. In accordance with COEP 2 – Road Planning, Design and Construction, dust control measures during construction activities will be implemented to further minimise air quality and dust impacts. The mitigation measures proposed are detailed in Chapter 7 of this report. Furthermore, the adverse impacts during the construction phase relating to dust and air quality are expected to be minor negative subject to the implementation of the mitigation measures.

6.2.2 Water Quality and Hydrology

During the construction period of the WCR, various cases of water contamination can occur. This can lead to the following main impacts including: increased sedimentation in the drains from the disturbance of silt from earthworks activities within or adjacent to the drainage channels; and the potential release of sediment or the inadvertent spillage of rubbish, oil and other waste materials into the wetland, streams, drains and marine environment.

The following factors determine the significance of impacts and include the worksites localised topography, soil types, scale and duration of the works, the receiving water environments level of sensitivity and rainfall levels.

Minor adverse impacts on water quality during the construction works will be mitigated by limiting and restricting the scale of earthworks to the existing road alignment and drainage corridors as well as implementing construction management techniques which will mitigate accidental spillages. It is recommended that sediment traps and earthwork management techniques be used as described in COEP 2 – Road Planning, Design and Construction and COEP 13 – Earthworks. The details of these mitigation measures are included in Chapter 7.

The impacts on water quality are anticipated to be minor negative and temporary for the proposed construction works with strict adherence to the mitigation measures provided in Chapter 7 and other related documents.

6.2.3 Climate Change and Natural Hazards

Suitable sediment and erosion control measures will be implemented where earthworks are required within identified hazard zones. The impacts of the road rehabilitation construction work on soil, geology and coastal vulnerability is considered to be minor negative. However, these impacts are considered to be temporary with proper control measures in place as defined in Chapter 7 and the related COEPs.

6.2.4 Socio-Economic

Disturbances in the communities are anticipated to be minor and temporary, and the Contractor will take the appropriate action and make arrangements during the construction period to mitigate these impacts.

Potential adverse impacts include:

- Disruption to persons who use the road along a significant length of the main connection especially for travellers to and from Savaii island and overseas as well as commuters to and from Apia from the populated north-west and south-west coast of Upolu.
- Potential for inadvertent spillage of construction materials i.e. oil and other chemicals. Impact and extent of which depends on size and type of spill;
- Litter and waste materials affecting the visual amenity of villages created from earth disturbing activities;
- Community safety and well-being may be affected as a result of the presence of large machinery and heavy vehicles in the area;
- There may be at times during the proposed work restrictions of access to small sections of the minor roads, foreshore and private access that connect with WCR.

Potential positive effects include:

- The opportunity for the local economy to benefit from the employment opportunity of local construction workers, creating direct or indirect employment and the multiplier effect within the community.

Mitigating measures will be put in place during construction works in order to minimise socio-economic impacts in accordance with COEP 2 – Road Planning, Design and Construction and COEP 12 – Traffic Control During Construction which is detailed in Chapter 7 of this report. The implementation of these mitigation measures will result in impacts during construction phase to be short term and minor negative for affected groups and communities.

6.2.5 Noise Control and Vibration

Heavy vehicles and machinery can increase the potential for noise and vibration levels that may cause disturbances near populated areas along the WCR. The extent of which will be dependent on a number of factors including distance to community and residential areas, time of operations, and the intensity level of works. However, the WCR route is presently a high traffic, high noise environment and the effects of the construction works are likely to be within a level and during the hours that would be tolerated by the community given the long-term benefits the project will provide once completed.

Noise levels and timing of construction works will follow the permitted noise levels and approved operation hours detailed in the PUMA Planning Policy: Noise Standards 2006. These mitigation measures will be included in the contractor's tenders and as detailed in this ESMP and the ECOP for the WCR. Any impacts relating to noise and vibration are anticipated to be minor negative and short term with the appropriate mitigation measures implemented during the construction phase.

6.2.6 Traffic

Under 6.1.5 Road Safety and 6.2.4 Socio-Economic above, the disruption to traffic along the WCR will likely be high with the presence and operation of large vehicles and heavy machinery as well as the closure during road works to some traffic lanes. The safety of both pedestrians and road users will likely be affected due to the delays to public and private transport.

The extent of these impacts will depend on the proximity of the works to populated areas, the duration of construction, number of construction machinery and vehicles on site, maintenance of access points and roads as well as the presence of traffic control measures. The management of these impacts will require the contractor to prepare and implement an approved traffic management plan (TMP) which must identify likely disrupted areas that will affect the traffic flow and movement subject to the construction programme. The TMP document should also provide alternative detour routes with proper signage for vehicles to take which the public is to be advised and notified of in advance through local media such as radio, television and newspaper. Furthermore, the TMP must be prepared in accordance with COEP 12 – Traffic Control During Construction.

Traffic related impacts is considered to be temporary and minor negative during construction phase with implementation of proper traffic management control measures during road works.

6.2.7 Landscape

Within the road reserve and private properties, works will involve open cut trench pipe installation. Due to the amount of earthworks required for the project, it is considered appropriate to install the manholes, inlets, pipes and outlets at a depth suitable and allows connection up to the existing drainage system and ensures drainage is efficient. Furthermore, any materials excavated that cannot be re-used around the new infrastructure for backfill will be removed to an appropriate and approved location. There will also be no net change in the contour of the land once the proposed works are completed.

In accordance with the COEP controls, silt and sedimentation controls will be undertaken which will reduce potential impacts of water run-off in and around the residential and road environment. As a result, any adverse impacts in reference to the landform will be insignificant for reasons above-mentioned, and can be mitigated to ensure that there is no long term environmental impact from the proposed works.

6.2.8 Visual Amenity

The proposed works involve the installation of stormwater pipes, inlets, manholes and outfalls within rural residential areas and the existing legal road reserve as well as the reconstruction of road pavement. Furthermore, as these structures and utilities will be below or flush with existing ground level, any visual effects will be short term and insignificant. It is expected that no specific persons will be adversely affected by the proposed works.

6.2.9 Cultural and Heritage Impacts

Adjacent to the WCR alignment at Malie is a tomb site that has been identified to be very close to the road reserve and subsequently could be affected by the construction works. As a result, the road alignment will ensure that this tomb is avoided. This will be the same procedure for drain easements at other sites where graves are in close proximity to the construction works. Low retaining walls will be erected at the boundary of the road where there are tombs and graves in order to ensure there is no fill spread onto the adjoining land and there are no effects on the site. In addition, these will be designated as 'NO-GO AREAS' for the construction works. The Contractor will cease works and notify the LTA supervision consultant who will then contact the relevant Government agencies should any other sites be identified.

The impact on cultural and heritage sites is considered to be minor negative subject to, mitigation measures being implemented during construction works.

6.2.10 Terrestrial Ecosystems

Terrestrial ecosystems can be impacted where the road is constructed on native habitats or species have to pass across the road. The proposed works is through a typically mixed use rural area where developments extend right up to the edge of the road. It is not anticipated that the proposed road rehabilitation works will adversely affect any terrestrial ecosystems as there is no evidence of any natural terrestrial ecosystems relying on crossing the road for migration or food purposes. Thus, the rehabilitation construction works will have an insignificant impact on these terrestrial habitats.

6.2.11 Freshwater Ecosystems

The pollution caused by road works on freshwater habitats is one of the main concerns. Appropriate care to keep fuel storage away from freshwater sites is required and measures to avoid spills must be taken. Freshwater ecosystems are also affected when they are either altered or disturbed which is mainly caused when river crossings have blocked the path of freshwater species. The Aleisa Stream is the only watercourse that flows underneath the boundary between Afega and Malie villages of the project road. Further, no upgrade works will be conducted at the Afega/Malie bridge.

In the path of the project road, there are five (5) mangrove wetland areas at Nofaalii, Fasitootai/Vailuutai border, Lotoso'a, Nono'a and Malie villages with three (2) freshwater pools located in the villages of Afega and Tuanai.

There are reinforced concrete box culverts and pipes which channel the water across in order to discharge into the wetland areas and the sea. The alternation or removal in the drainage channels of these cross culverts or other structures may result in sediment or silt which has accumulated upstream of any blockages being temporarily discharged. Whenever culverts are being removed and there is evidence of siltation, where possible, an excavator will remove bulk of the silt and place it clear of watercourses rather than allowing it to flow downstream.

Furthermore, construction activities carried out near freshwater sources must be conducted during periods of dry weather and where works are required immediately adjacent to or within watercourses, there is a potential for minor negative impacts to occur.

These works will be mitigated with appropriate silt management devices as outlined in COEP 13 – Earthworks as well as section 6 of this report.

6.2.12 Coastal Ecosystems

The project road extends directly adjacent a few meters from the sea at ten (10) villages, Alamutu, Lotoso'a, Salepoua'e, Nono'a, Malua, Utualii, Tufulele, Faleasiu, Fasitoota and Nofaalii. Wetland areas and coastal mangroves also exist along the project zone with outlets to marine waters. These waters are the receiving environment from the road drainage system of the discharge of stormwater runoff. Therefore, the coastal ecosystem is vulnerable to the inadvertent release of contaminants such as hydraulic fluids, oil and siltation as a result of the road works.

As a result, it is particularly important that storage areas and construction sites are protected in order to trap any sediments and contaminants before they leave the site. It is anticipated that there will be little change from current runoff volumes which will not increase significantly when the rehabilitation works increase the paved surface of the road as the area is already predominantly finished in impermeable surfaces. This will ensure that any adverse impacts on mangroves or wetlands downstream of the road are avoided. Therefore, it is anticipated that the construction works will have a minor negative but temporary impact on the coastal ecosystem.

6.2.13 Waste Management

Environmental hazards can be caused by the improper disposal of solid wastes. The construction activities are anticipated to produce two types of inert waste. The generated spoil and removed asphalt, concrete as well as elements of demolished installations and contaminated soil. The project area has no waste disposal facility in close proximity as the only government waste disposal facility is located at Tafaigata. As a result, waste disposal can be a concern without putting in place a solid waste management plan for implementation of the project. There is little option for the contractor to dispose residual waste by hauling it to the Tafaigata landfill. Furthermore, waste generation from construction works will be controlled by appropriate measures that will ensure the impacts are minor negative and are temporary. These measures are detailed in Chapter 7, and ensure that the impact of solid waste materials from the proposed works is not adverse to the surrounding environment.

6.2.14 Safety and Health

The potential impacts of the works on public health and safety can include pedestrian safety where they may be prone to different hazards as a result of exposure to moving vehicles and operating construction equipment as well as traffic hazards from partial closure of roads on construction sites. Additionally, delays due to road closures and route diversions on construction sites may also inconvenience the travelling public the most vulnerable to these hazards being students who make up the largest proportion of pedestrians during schooldays. Occupational safety is concerned with workers who will be exposed during construction to associated hazards such as construction noise, moving equipment and vehicles, heavy lifting and others.

The potential impacts overall during construction works of the project on public and worker health and safety are anticipated to be minor negative and temporary. The mitigation measures to be implemented by contractors to ensure the health and safety of the public and workers are detailed in Chapter 7.

6.2.15 Quarry and Borrow Areas

A certain volume of materials used for fill, capping layer and granular sub-base will be obtained from borrow areas, several of which have been identified and can be used on the project road. The prospective contractor will likely identify his source of materials which will need to be approved before using them on the project road by the construction supervision engineer. Furthermore, to minimise impacts to the general environment if materials are sourced from an existing and operational quarry site, the contractor should exert influence that proper management and operational measures are instituted.

The mitigation measures outlined in the COEP 8 – Quarry Development and Operations, COEP 9 – Gravel Extraction and Chapter 2 (2.3.1) and Chapter 7 of this report should be followed if the contractor decides to open a new borrow site in order to minimise impacts. During construction on quarry and borrow areas, the potential impacts of the project are minor negative.

6.3 Site De-Commissioning Phase

The Contractor will be responsible for ensuring the proper decommissioning of the temporary construction sites in order to minimise ongoing impacts after construction is completed. Recommended measures to achieve this objective are covered in the Chapter 2 (2.3.2), Chapter 7 of this report and the ECOP prepared for the WCR rehabilitation works.

6.4 Operation Phase

6.4.1 Air Quality and Dust Control

Rehabilitation and improving the road surface and pavement will provide relief from general traffic exhaust fumes once the proposed works are completed. The strengthened road pavement will also enable traffic to move more efficiently resulting in decreased periods of congestion that would have resulted otherwise in increased fumes had the road not been rehabilitated. Additionally the impacts of the upgraded road and associated infrastructure during its operation phase on air quality will depend on the periodic maintenance operations in place. Potholes patching and resealing works however are avoided with the strengthened road pavement. There is also less dust from exposed earth and fewer air emissions of fumes from vehicles and maintenance machinery. This will generally involve mowing grass and vegetation along the drainage easements and cleaning of drains only. Furthermore, it is likely that the proposed works will have a long-term significant positive impact on air quality and dust control. Provided that exposed areas are either re-vegetated quickly after the completion of maintenance works or sealed, the anticipated impacts on air quality is negligible.

6.4.2 Water Quality and Hydrology

The proposed works will have a significant positive impact on the capacity of the drainage system where restrictions currently exist caused by inadequate or undersized infrastructure and poor maintenance. The improved drainage works will reduce the risk of overflowing drains from blockages or insufficient capacity by enabling the system to function more effectively. The result of which is an improvement to the water quality that is discharged into the marine environment. Additionally, outfalls with large capacity will slow the velocity of the flow down enabling sediment deposition away from the lagoon. Furthermore, the regular and improved maintenance procedures whereby debris is removed and contamination is prevented for the proposed works to the drainage network and easement will further enhance the water quality. As a result, it is anticipated that the proposed project will have a significant positive impact on the hydrology of the surrounding area.

6.4.3 Socio-Economic Impacts

The long term objective of this project is to enhance the climate resilience of main transport infrastructure such as the WCR. This will allow communities along the WCR to be more responsive, adaptive and quick to recover from the negative effects of climate change and natural hazards.

The improved road will also have long-term impacts resulting in significant positive improvements to the flow of traffic, safety and the continual accessibility from the north-west and south-west coast of Upolu island, Apia Central Business Area, Vaitele Industrial Area, Fagalii Domestic Airport, Faleolo International Airport, Matautu International Port, Aleipata Wharf, National Hospital as well as the Savaii island residents to and from the main services at Mulifanua wharf.

Furthermore, unless it is a necessity that will serve and benefit the public as a whole, the proposed rehabilitation works seek to minimise encroaching onto private land. In the past and in some current cases development has encroached on drainage channels and outfall structures. This has impacted their capacity to carry typical peak flows or runoff and in some cases, channels have been built over or filled in completely without alternative provisions for drainage constructed. Therefore, to solve this issue, it is recommended that drainage easements are to be negotiated with landowners, an alternative to taking and purchasing land by the Government. This negotiation will be an opportunity to promote and educate landowners and the wider community about the importance of maintaining open channels, allows landowners to retain ownership and still utilise the area for non-permanent activities such as gardens when maintenance activities is not required, ensures that the easement will be accessible for maintenance as an open area to convey stormwater runoff without the risk of blockages and will provide the opportunity for compensation for the loss of the full use of land.

This project also makes the opportunity available to undertake works with the similar objective to enhance climate resilience of services for other utility providers. The underground placement of telecommunication and power supply utilities will also result in greater security of supply during extreme storm events, cyclones and other climate change effects.

Furthermore, it is considered that the project overall will have a significant positive impact on the socio-economic environment of the WCR.

6.4.4 Noise Control and Vibration

Noise may be generated during the periodic maintenance of the road and drainage network however the rehabilitation works will not result in any activities that are not already occurring in the operation stage. Possible impact of noise is dependent on the location of the works with respect to local residences and the scale of the works however, the impact is likely to be insignificant.

6.4.5 Traffic

Maintenance of the road will have adverse impacts on traffic similar to those experienced during the construction phase. However, there will be more room to provide alternative traffic management options as the paved surface of the road will be wider than before with paved shoulders. Furthermore, the need for maintenance activities will be less frequent with a strengthened road pavement and surface leading to fewer disruptions to the traffic flow along the WCR.

Additionally, once the culverts under the road are installed, the drainage works and maintenance will likely take place adjacent to the main carriageway or off-road in private properties. Standard protocol will be adopted and covered in the this document and the WCR

ECOP for working alongside roads with the operational phase impact on traffic determined to be minor negative for the project.

6.4.6 Landscape

The existing landscape will not change from its current state as the road already exists in this location. Furthermore, there will be positive impacts as road shoulders and edges are smoothed out with seal and a formal drainage network is established, which ultimately avoids ponding or standing water by the side of the road. Overall, the landscape of the project area will be enhanced and any areas where rubbish debris and sediment/silt currently collects will be cleaned up, resulting in a positive impact.

6.4.7 Visual Amenity

The project will involve works that will be backfilled and reinstated upon completion including excavation, open trenching and trenches. Furthermore, within private properties, the outfalls proposed will be designed and constructed to blend in with the existing environment and surrounding area in order to minimise the visual impact. Therefore, in its operational stage, the visual impact of the improved road in the project area will be positive to the surrounding natural and built environment.

6.4.8 Cultural and Heritage Impacts

The project, at its fully operational stage will have avoided any adverse impacts on cultural and heritage sites affected by the works. Therefore, the impact on these cultural and heritage assets is considered insignificant.

6.4.9 Soil, Geology and Coastal Hazards

Existing land use of the project area and surrounding lands will not differ as the project is restricted to the 20m road reserve and sites already used for drainage purposes. Therefore, the impact of the improved road and drainage operation will be insignificant to the geology, soils and coastal hazards of the area and with the CIM Plans and other reports recommendations implemented in the improved drainage works, flooding and drainage issues can be solved across affected villages.

6.4.10 Terrestrial Ecosystems

Impacts on terrestrial ecosystems are considered insignificant as they will not be affected by the operation of the improved road and drainage infrastructure.

6.4.11 Freshwater Ecosystems

Watercourses most affected during the drainage improvement works are the modified man-made swale or channels. Currently, the drainage system is not working effectively especially during the rainy season as undersized pipes and culverts are often blocked and cannot carry the peak volume of water during extreme wet periods. For most sites, this blockage effect results in a natural dam forming at one end of the drainage network leading to ponding and siltation upstream and a rise in scour and erosion downstream.

These temporary ponding sites within upstream properties have become reported breeding grounds for mosquitoes and are leading to health problems for some residents along the WCR. Improved drainage network system will avoid and mitigate these adverse effects on residents

and will generate a minor positive impact on the freshwater habitats in the area and enhance water management.

6.4.12 Coastal Ecosystems

The impact on the coastal ecosystem is minor positive once the project is in its operation phase. The improved drainage network and regular maintenance will ensure that runoff from the road undergoes some form of filtration and/or treatment before it flows into the sea and the natural dispersion and dilution takes over.

6.4.13 Rehabilitation and Maintenance of Practices

Routine maintenance refers to activities such as grass cutting, drain cleaning, grading, line - marking, pothole patching and shoulder repairs, all of which are performed at regular intervals. Periodic maintenance activities are generally scheduled over periods of several years and include resurfacing and repairs. Seasonal maintenance activities are also considered to be periodic and include flood repairs, emergency upkeep of safety features and road signs. The LTA will ensure that sufficient funding is available to carry out periodic and routine maintenance of the road.

6.5 SOCIAL IMPACTS

6.5.1 Health and Safety

During construction, health and safety is to be managed through a Site Specific Safety Management Plan (to be developed by the contractors for their respective work package). The Contractors health and safety documentation should incorporate all aspects of the project including the construction site works, quarries and transport routes, and traffic management (both vehicular and pedestrian).

The primary hazards identified are construction works involving the use of trucks and heavy equipment, use of hot bituminous products, working in extreme ambient temperatures, and relocation of utilities, required cut and fill although not expected to be a major risk, excavation of drainage trenches, and controlling traffic and people movement.

For the installation of drainage infrastructure, trenches are not expected to exceed 1.5 m however, batter slopes or shoring may be required to stabilise the sides of the trenches. The community, the public and workers face risks through exposed trenches, therefore excavated trenches will be progressively filled as the drainage culverts are laid. The maximum length for any extensive trenching work at any one time shall be 30 m. Any exposed trenches shall be secured at night to prevent access by non-authorized personnel.

Engaging a foreign contractor for the construction phase on one or more of the packages, may result in health risks such as an increase in HIV/AIDS and sexually transmitted diseases (STDs). Workers' HIV/AIDS and STD awareness training will need to be implemented as part of site inductions during project establishment.

6.5.2 Affected Assets and Business Impacts

During the construction phase there is the potential for impacts on private properties for road widening and for the creation of drainage easements including land, trees, fences, hedges and

other structures. There are also impacts on businesses including shops and fruit stalls along the WCR (refer Appendix G: Affected Assets). These impacts would generally be limited to noise, dust and traffic from construction activities and will be of limited duration. There are also accessibility issues which would need to be addressed with the agreement of the property and business owner. Some fruit stalls will need to be relocated. Some structures such as fences and toilet blocks will need to be reinstated or relocated. Standard good practice construction management will mitigate these potential impacts to an acceptable level.

All potentially affected land owners and businesses will be included in the consultation process. Mitigation measures shall include consultation throughout the project life, business continuity planning and grievance redress, relocation arrangement, and other concession arrangements and negotiations regarding agreement and compensations. The LTA (Project Component Manager) and the MNRE (ACEO-Land Division) will be responsible for developing and implementing these mitigation measures in conjunction with the Contractors.

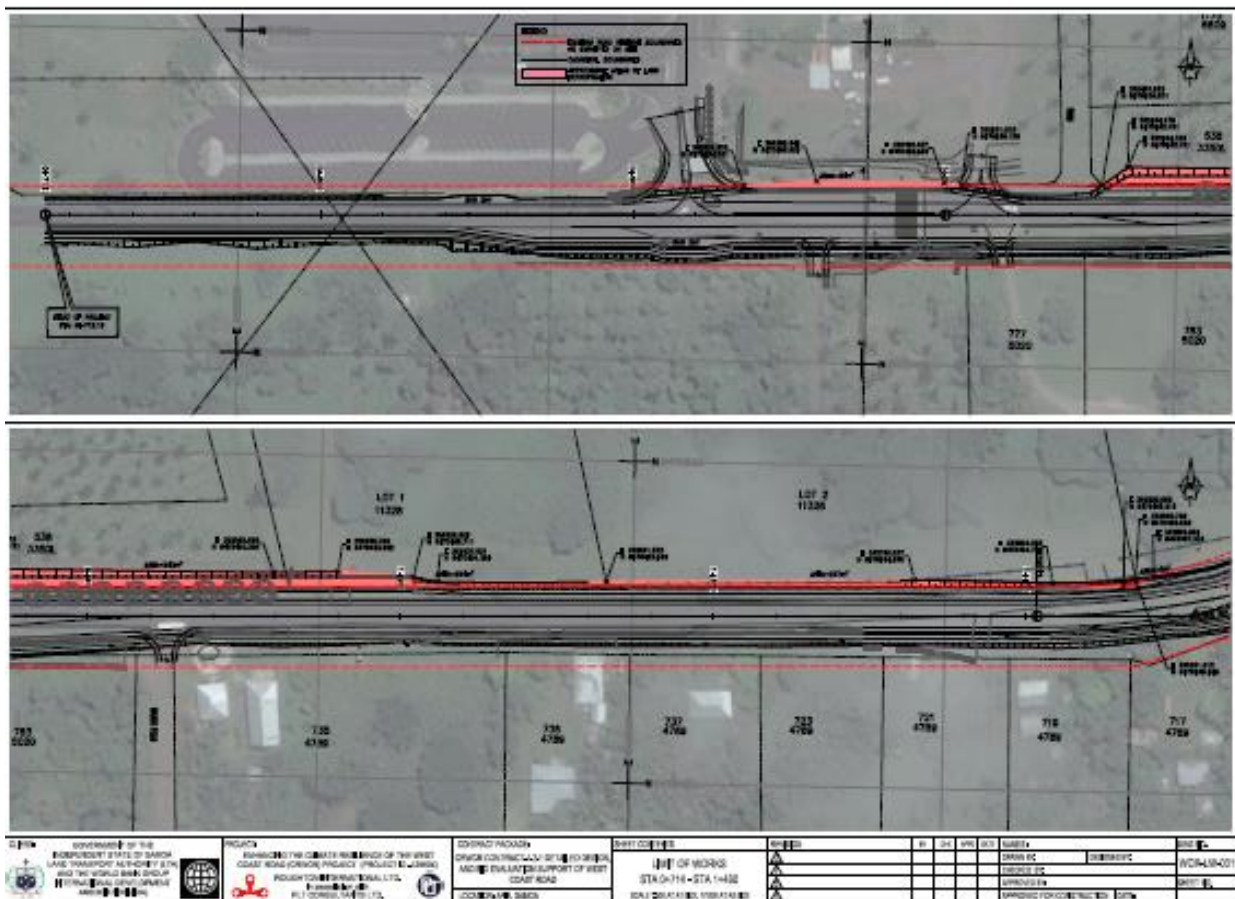


Figure 6.1: WCR 20M Road Reserve and 'Limit of Work' – affected assets including land, stalls, trees, hedges, and fences.

CHAPTER 7 MITIGATION MEASURES

Some mitigation measures identified in this Chapter and outlined in Appendix C are applicable to all aspects of the project, while others that are specific to particular components due to the nature of the rehabilitation and upgrade works proposed. Also identified are sensitive receptors and environmental values along the WCR requiring specific mitigation measures for safety and environmental protection.

The mitigation tables in Appendix C detail the impact or issue, the mitigation required, where this is to occur, when this mitigation is to be applied, estimated costs, implementation responsibility and supervision responsibility.

This ESMP should be included in all bidding documents and form the basis of the Contractors ESMPs which will detail implementation of the mitigation measures identified in his ESMP. The ESMPs are dynamic documents which should be updated to include any variation from the current scope or addition of newly identified impacts and mitigation measures that may arise through the bidding and contracting process (if not addressed in the Contractor's ESMP) or consultation. The mitigation measures associated with the impacts identified above are detailed below.

7.1 Aggregate, Material and Equipment Importation

In terms of acquiring aggregate, existing quarry sites on Upolu will be used. Both Ott (for base material) and Alafua (for both base material and sealing chip) quarries have been identified as potential sources for aggregate. The Contractor, PUMA and LTA are responsible for reviewing site operations once testing and selection of the most suitable quarry has been carried out to ensure that operations are approved and legal under Samoan law for the supply of aggregate.

The Contractor will determine which quarry source will be used as well as the operations set up within the quarry (e.g. operated by local quarry operator). If a local operator is used, the contractor will be responsible for ensuring any conditions of operation imposed to ensure the operation is legal are met, that the contractor's work complies with any purchase or transport requirements as well as being responsible for reviewing operating license/permits. To support any permit application a quarry management plan and EIA may be required and the contractor should also implement the COEP for Quarry Development and Operations (COEP 8). The key mitigation measures from this document are detailed below. Contractors will need to include provision for quarry specific plans including health and safety, rehabilitation and environmental management. An EIA will need to be developed for the chosen quarry site if a Development Consent is required.

As outlined in Appendix C, dust must be actively managed along with the use of linear layout for materials handling in order to reduce the need for vehicle movements as well as loading and unloading around the site. A provision for quarry dust and noise control should be included in the Contractor's ESMP. In order to minimise noise and dust emissions, aggregate processors, generators, crushers and all equipment should/if possible be located in the quarry pit and closed/covered trucks to be used for the transportation of construction materials. Furthermore, consideration should be given when locating operations to prevailing wind conditions.

Water is a significant resource in quarry activities and as such, closed circuit systems should be implemented where possible for treatment and re-use in site processes and activities (e.g. washing plants). An oil water separator should allow for treatment of wastewater contaminated with hydrocarbons and a closed circuit water management for treatment of wastewater contaminated with sediment (from settlement ponds). Careful planning and understanding of product quality is required in order to minimise the waste on site and is where overburden by product should be stockpiled and used at a later date during the rehabilitation of the quarry site.

Other mitigation measures (refer to Appendix C) that have been detailed for the project as a whole also apply to the quarry site if it is managed by the WCR pavement Contractor including damage to assets and infrastructure, wastewater treatment, erosion and sediment control measures, noise and vibration mitigation, loss of biodiversity and the chance find of archaeological artefacts etc.

Furthermore, through a TMP, transporting material from the quarry will need to be managed. This will identify the maximum load limits, required measures to reduce spillages and dust as well as identifying the route.

The mitigation measures provided in Appendix C include refused delivery of overloaded trucks, covering of loads, transport during off peak times and by using existing less trafficked roads, route identification. The Contractor's ESMP should also provide provisions for speed control measures such as speed bumps in and near settlements, regulating haul trucks working hours as well as noise and speed control which can include prohibiting engine breaking in order to reduce noise

7.2 Hazardous Substance Use, Storage and Disposal

The construction site is expected to have some small hazardous materials (chemicals, hydrocarbons, or other similar hazardous materials) during the course of the WCR rehabilitation works hence the Contractor will be required to prepare a Hazardous Waste Management Plan and Emergency Response Plan in line with the COEP 2 to be approved by the PCM/PSC. Removal and disposal of existing hazardous wastes shall only be performed by specially trained personnel following national requirements, or internationally recognised procedures.

The Contractor shall:

- Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities;
- Hazardous waste (or chemical waste) shall be properly stored, handled and disposed of in accordance with the local legislative requirements. Hazardous waste shall be stored at designed location and warning signs shall be posted;
- Inform the PSC of any accidental spill or incident in accordance with the plan;
- Prepare a companion Emergency Response Plan outlining all procedures to be undertaken in the event of a spilled or unplanned release;
- Initiate a remedial action following any spill or incident; and

- Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions. The Emergency Plan for Hazardous Materials shall be subsequently updated and submitted to the PSC/PCM for no objection.

During construction there will be a potential for pollution to adjacent habitat areas and watercourses caused by chemical wastes such as spent waste oil, spent lubricant, contaminated soil material due to leakage of hydraulic oil, fuel from construction plant or vehicles, etc.

The following measures shall be put into place in order to minimise the damage caused by chemical waste:

- All refuelling of heavy equipment and machinery shall be undertaken by a service vehicle to prevent any spillage or contamination by chemical wastes such as maintenance oils, lubricants, etc.
- All the fuel and hazardous material storage shall be adequately enclosed to prevent any spillage problems;
- Storm water runoff from open workshops, repair areas, and enclosed storage areas shall be collected and treated in hydrocarbon separation pits/tanks before discharge to drains and waterways.
- All chemicals shall be transported, stored and handled in accordance with applicable laws and good design engineering and constructions practices. The contractor shall provide details of proposed storage and security arrangements, and
- Various chemicals shall be packaged, labelled, handled, stored and disposed of according to standards acceptable to the World Bank and the government of Samoa.

7.3 Safety and Traffic Management

The transport of materials as well as the use of heavy equipment has the potential to impact communities through noise, dust and road safety. The Contractors are responsible for developing a traffic management plan (TMP) which will specify how haul routes and traffic (vehicle and pedestrian) will be managed, including transport times (outside peak hours), maximum speed and loads of trucks, use of flag controls at site entrances (construction lay down area) and around specific work areas. The Contractor's Safety and Management Plan should follow the COEP 12 which is specific to traffic control for construction involving "upgrading, reconstruction or maintenance activities on any road" with aspects including e.g. clothing, signs, and one-way traffic).

The Samoa Occupational Health and Safety (OH&S) Act 2002 and Labour and Employment Relations Act 2013 must be applied to all worker safety. The Samoan COEPs and health and safety regulations should be used as the basis for developing the Contractor's site specific safety plan.

The aim of the safety and traffic management plan is to:

- Provide advance warning of work taking place to road users and provide road warning signage in accordance with COEP 12.

- Provide a safe work site for the public and site personnel at all times and in all conditions.
- Ensure that all personnel engaged in construction related activities on or adjacent to any road shall wear reflective jackets while on the construction work site.
- Provide safe, signed access or detours for vehicles and pedestrians when work affects access.
- Establish alternative bus stops where existing ones are closed by construction work.
- Restrict movement of construction vehicles through good planning, to minimise disruption to road users.
- Traffic cones shall be used to warn and slow down traffic approaching the work areas. They should be placed along the centre-line or shoulder of the road as appropriate.

7.4 Particulate Emissions and Dust

The Contractor shall propose methods and actions to control dust resulting from construction related activities, including quarry sites, crushing and concrete batching plants, earthworks including excavation and road construction, embankment and channel construction, haulage of materials and construction work camps. In particular the Contractor shall undertake the following:

- Minimise production of dust and particulate materials at all times, to avoid impacts on surrounding communities, and especially to vulnerable people (children, elderly people);
- Time removal of vegetation to prevent large areas from becoming exposed to wind;
- Place screens around construction areas to minimize dust proliferation, paying particular attention to areas close to local communities;
- Spray water as needed on dirt roads, scarified pavement, cut areas and soil stockpiles or fill material. Spraying shall be carried out in dry and windy days, at least twice a day (morning and afternoon). The frequency of spraying near local communities shall be increased as needed;
- Pave access roads with gravel in the sections which near the communities and other sensitive receptor environments to reduce generation of air-borne dust;
- Transportation of materials by trucks and other vehicles shall be controlled to minimise the generation of air-borne dust;
- Ensure adequate maintenance of all vehicles. Construction plant/vehicles that generate serious air pollution and those which are poorly maintained shall not be allowed on site;
- Transport of chemical materials such as cement and sand shall be covered entirely with clean impervious material to ensure that these materials shall be contained. Overflow of material shall be avoided; and
- The exhaust gases from construction machinery and vehicles are accepted. However, the engines shall be inspected and adjusted as required to minimize pollution levels.

7.5 Earthworks, Cut and Fill Slopes

The contractor shall ensure that the following procedures are undertaken:

- All earthworks shall be properly controlled, especially during the rainy season.

- The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
- The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
- Any excavated cut or unsuitable material shall be disposed of in designated disposal areas as agreed to by the Project Supervision Consultant/ Engineer (PSC), and
- Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause runoff from the landfill towards any watercourse. Drains may need to be dug within and around the landfills, as directed by the PSC.

7.6 Stormwater and Water Management

7.6.1 Stormwater Management

Some parts of the WCR are most susceptible to flooding with the entire road located within the coastal flood inundation zone. A hydrology study was undertaken with an assessment of local flooding conditions including peak flow, the results of which along with topological and geotechnical survey data have been used for the proposed stormwater infrastructure design.

Furthermore, to direct any runoff from undisturbed areas away from stockpiles, storage and work areas, clean water diversion bunds will be used during construction which will direct this clean water to land for soakage. The Pacific Ocean is the nearest body of water and is to the north of the WCR. Runoff can cause erosion whether clean or treated and therefore should not be allowed to discharge directly to the coast. Contractors are to follow the guidelines provided in the COEP 6 & 11.

7.6.2 Water Management

Construction activities such as compaction and dust suppression where water is required should be managed carefully to ensure that the main freshwater supply is not impacted. Non-potable water or rain water should be collected and used where possible provided there is no risk of contamination of groundwater. To extract water from rivers or pool/springs should not be allowed unless prior approval from PUMA as well as consent from the village community is obtained. Additionally, SWA have a number of bores along the WCR region which may be another source of supply provided SWA approves.

7.7 Noise

To minimise noise the Contractor shall:

- Maintain all construction-related traffic on project access roads including WCR at established speed limits.
- Maintain all on-site vehicle speeds at or below 30 kph, or otherwise designated.
- To the extent possible, maintain noise levels associated with all machinery and equipment at or below 54 db (refer below Table 7.1).
- In sensitive areas (including residential neighbourhoods, hospitals, community meeting houses, schools, etc.) more strict noise abatement measures may need to be implemented to prevent undesirable noise levels.

- Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.
- Design a transportation schedule for entry of construction materials to minimise the adverse impact on residents, as well as the traffic on the existing roads. The transportation vehicles shall be required to slow down and banned from using horns when passing sensitive areas. Transportation during peak hours should be minimised. The Contractor shall provide the transportation route in advance to the PSC.
- Maintain the construction equipment in its best operating conditions and lowest noise levels possible.
- Use temporary noise barriers at sensitive locations to minimise the noise caused by construction equipment;
- Provide hearing protection to workers who must work with highly noisy machines such as rollers, graders, mixing, etc., for noise control and workers protection.
- Areas for the storage of fuel or lubricants fenced and have a compacted/impervious floor or other surface to prevent the escape of accidental spillage of fuel and/or lubricants from the site. Surface water drainage from fenced areas shall be discharged through an oil skimmer/separator or other appropriate device to remove hydrocarbons. Empty fuel or oil drums may not be stored on site. Proper labelling shall be in place and training provided to workers handling these materials.
- The construction supervision team shall be equipped with portable noise detection devices to monitor the noise level at the sensitive receptors.
- Materials leaving the construction site shall be transported during non-peak hours in order to minimise traffic noise due to the increase in traffic volumes.
- Use of properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields, etc. shall be made. Mufflers and other noise control devices shall be repaired or replaced if defective.
- Use of electric-powered equipment when applicable instead of diesel-powered or pneumatic-powered equipment.
- Equipment known to emit a strong noise intensity in one direction, shall when possible, be oriented to direct noise away from nearby sensitive receptors.
- Machines and equipment that may be in intermittent use shall be shut down between work periods or throttled down to a minimum operation.

Table 7.1: PUMA Planning Policy: Noise Standard 2006

Land use category/ Description of area	Maximum Noise (dBA) at the Boundary of the Receiving Property		
	Day* 0700-1800 hours	Evening 1800-2200 hours	Night 2200-0700 hours
Mainly residential area	50-54	44-48	39-43
Note: *On Sundays and public holidays between 0700 and 1800 hours the evening noise limit applies.			

7.7.1 Night-time Construction Noise Mitigation

Although in general, night-time construction shall not be allowed especially near sensitive receptors, some construction may still occur for technical and other reasons (e.g., relocation of services, road crossing, continuous sealing, etc.). Because night-time construction, if occurring

near local communities, will result in significant impacts to residents and other sensitive receptor environments, the following special measures shall be taken during the construction phase:

- People living within potentially impacted areas shall be notified ahead of time of the length and noise intensity of the proposed night-time construction. Residents shall be informed as to why night construction is necessary and they shall be provided with the mitigation measures that are going to be implemented to obtain their understanding. These residents shall be allowed to express their concerns, difficulties, and suggestions for noise control prior to the commencement of night time construction. These concerns shall be addressed and suggestions adopted where appropriate;
- Concrete mixers, generators and other stationary equipment shall be carefully placed as far away from local communities to reduce noise impacts from these machines. Where possible, electric power supply shall be used for night-time construction as diesel generators are extremely noisy and avoiding their use is the best mitigation possible;
- Equipment with lower noise levels shall be used for concrete pouring operations, which may require long hour non-stop operation;
- Temporary noise barriers shall be installed at the appropriate locations to avoid night-time noise impacts,
- Notification boards shall be posted at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, telephone numbers and other contact information so that any affected people can have a channel to voice their concerns and suggestions;
- The Contractor shall ensure that all best practicable options are taken to avoid a public noise nuisance beyond the boundaries of the site. The permitted noise level limits as per PUMA Planning Policy: Noise Standard 2006 as presented in Table 7.1 above; and
- In areas where there is the potential for excess noise or vibration to be created the Contractor shall advise potentially affected parties 24 hours in advance of the activity causing the noise / vibration commencing.

7.8 Construction Camp

7.8.1 Construction Camp Site Management Plan

The Construction Contractor (Contractor) shall implement a series of activities related to the introduction of the construction workforce and setting up the work camp to address potential negative impacts on local communities and the environment in-line with the COEP 5 as follows.

7.8.1.1 Workforce and Construction Camp Site

General Requirements

The Contractor shall, wherever possible, locally recruit the available workforce and shall provide appropriate training as necessary. The Contractor shall consider all aspects of workforce management and plan as well as put in place measures to address potential issues that may arise.

The following general measures shall be considered for construction camps:

- The Contractor shall have to make its own arrangements with Land Owners (Customary or Free hold) for construction camp site locations, prior to sorting approval from the LTA/MNRE-PUMA.

- The Contractor shall present the design of the camp(s) including details of all buildings, facilities and services for approval no later than two months prior to commencement of any construction work. Approvals and permits shall be obtained in accordance with applicable laws, applicable standards and environmental requirements for the building and infrastructure work for each camp area.
- The Contractor shall provide adequate and suitable facilities for the use of contract staff and labour employed therein.
- Camp site selection and access roads shall be located so as to avoid clearing of major trees and vegetation as feasible, and to avoid aquatic habitats and other sensitive receptor environments.
- Camp areas shall be located to allow effective natural drainage and landscaped so as to avoid erosion.
- The Contractor shall provide adequate lavatory facilities for the number of workers expected on site, plus visitors. Toilet facilities should also be provided with adequate supplies of clean or potable water, soap, and toilet paper.
- The Contractor shall implement effective sediment and erosion control measures during construction and operation of the construction work camps in accordance with the environmental requirements as stipulated by the EMP and EAR, especially waterways, mangrove swamps, pools, and the sea.
- The Contractor shall provide safe potable water for food preparation and drinking.
- The Contractor shall establish a method and system for temporary storage and disposal or recycling of all solid wastes generated by the site office camp.
- The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as approved by the LTA-PCM/PSC and MNRE-PUMA;
- The Contractor shall ensure that storage areas for diesel fuel and lubricants are not located within 30 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. A ditch shall be constructed around the area with an approved settling pond/oil trap at the outlet;
- Areas for the storage of fuel or lubricants and for a maintenance workshop shall be fenced and have a compacted/impervious floor to prevent the escape of accidental spillage of fuel and/or lubricants from the site. Surface water drainage from fenced areas shall be discharged through purpose designed and constructed oil traps. Empty fuel or oil drums may not be stored on site. Waste lubricants shall be recycled, and not disposed to land or adjacent water bodies;
- The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas as agreed by the land Owner and approved by the LTA and MNRE-PUMA. They shall not be located within 200 meters of existing households;
- Concrete batching plants shall not be located within 500 m of any residence, community or work place and adequate bathing facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions at all times; and
- The Contractor shall provide medical and first aid facilities at each camp area.

7.8.1.2 Maintenance of Work Camp Facilities

The following measures shall be implemented to ensure that the construction camp and its facilities will be organised and maintained to acceptable and appropriate standards:

- A designated camp cafeteria shall be established under strict sanitary and hygiene conditions;
- Designated break times (lunch or other) shall be established;
- Allocated smoking areas shall be clearly allocated in the camp site area;
- Procedures shall be implemented to maintain the condition of the construction camp and facilities and ensure adequate cleanliness and hygiene;
- The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times;
- Water shall be provided in or near the latrines and urinals; and
- A complaint register to receive and respond to complaints from the construction staff, workers and visitors regarding facilities and services provided.

7.8.1.3 Site Restoration

- At the completion of construction work, all construction camp facilities shall be dismantled and removed from the site and the whole site restored to a similar condition to that prior to the commencement of the works, or to a condition agreed to with MNRE-PUMA, LTA and village communities.
- Remedial actions that cannot be effectively carried out during construction shall be carried out on completion of the restoration works (and before issuance of the acceptance of completion of works).

Various activities to be carried out for site restoration are:

- The construction campsite shall be grassed and trees cut replaced with saplings of similar tree species.
- All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including grassing and reforestation.
- Water courses shall be cleared of debris and drains and culverts checked for clear flow paths.
- All sites shall be cleaned of debris and all excess materials properly disposed.
- Borrow pits shall be restored.
- Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas.
- Saplings planted shall be handed over to the community or the land owner for further maintenance and watering, and
- Soak pits and septic tanks shall be covered and effectively sealed off.

7.8.1.4 Code of Conduct

A major concern during the construction of a project such as the WCR is the potentially negative impacts of the workforce interactions with the local communities. A Code of Conduct shall be established to outline the importance of appropriate behaviour, and compliance with relevant laws and regulations. Each employee shall be informed/inducted of The Code of Conduct and bound by it while in the employment of the Client or its Contractors. The Code of Conduct shall be available to local communities at the project information centres' or other places easily accessible to the communities.

The Code of Conduct shall address the following measures (but not limited to them):

- All workers and subcontractors shall abide by the laws and regulations of Samoa;

- Illegal substances including alcohol and drugs shall be prohibited;
- Fighting (physical or verbal) shall be prohibited;
- Creating nuisances and disturbances in or near communities shall be prohibited;
- Disrespecting local customs and traditions shall be prohibited;
- Maintenance of appropriate standards of Safety attire and gear shall be in effect; and
- Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

7.9 Erosion and Sediment Control

Although WCR is mostly on flat terrain, there are pockets and stretches along the WCR that the sides are steep and any cut or fill, should triggering conditions prevail, the project must include measures to reduce or halt erosion problems. This might include the use of erosion control structures, protective re-vegetation, slope stabilisation, etc., in line with COEP 6.

Site activities shall be carefully managed in order to avoid site erosion and sedimentation of waterways. In order to minimise negative erosion impacts in the project area, the following activities shall be carried out by the Contractor:

- Erosion and sedimentation shall be controlled during the construction. Areas of the site not disturbed by construction activities shall be maintained in their existing state.
- Disturb as little ground area as possible, stabilise these areas as soon as possible, control drainage through the area, and trap sediment onsite. Install erosion control barriers around perimeter of cuts, disposal pits, and roadways.
- Slope works and earth moving/excavation shall be conducted in order to minimise exposure of the soil surface both in terms of area and duration. Temporary soil erosion control and slope protection works shall be carried out in sequence to construction.
- Conserve topsoil with its leaf litter and organic matter, and reapply this material to local disturbed areas to promote the growth of local native vegetation.
- Apply local, native grass seed and mulch to barren erosive soil areas or closed construction surfaces.
- Apply erosion control measures before the rainy season begins, preferably immediately following construction. Install erosion control measures as each construction site is completed.
- In all construction sites, install sediment control structures where needed to slow or redirect runoff and trap sediment until vegetation is re-established. Sediment control structures include windrows of slash, rock berms, sediment catchment basins, straw bales, brush fences, and silt fences.
- Control water flow through construction sites or disturbed areas with ditches, berms, check structures, live grass barriers, and rock.
- The ground surface at the construction site offices shall be concreted or asphalted in order to minimize soil erosion.
- Erosion control measures shall be maintained until vegetation is successfully re-established.

- Water shall be sprayed as needed on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion and dust, and
- Larger changes in the landscape from quarries, tunnel spoil tips, etc. should be landscaped and replanted, both to reduce erosion problems and to reduce the visual impact of construction.

7.10 Stockpiles and Borrow Pits

The Contractor shall prepare and overall Stockpiles and Borrow Pits Management Plan for the total works. Operation of a new borrowing area, on land, or in an existing area, shall be subject to prior approval of the LTA and MNRE-PUMA, and the operation shall cease if so instructed by the PSC.

Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns.

The location of crushing plants shall be subject to the approval of the LTA and MNRE-PUMA, and not be adjacent to environmentally sensitive areas, or to existing residential settlements, and shall be operated with approved fitted dust control devices.

The mitigation measures shall include:

- A map showing the extent of the area to be developed.
- A method statement defining the proposed working methods.
- The proposed access and haulage routes between the borrow pits and the destination for the extracted materials.
- A justification for the quantities of materials to be extracted, an estimation of the waste material to be generated and disposal details for such waste materials.
- Details of the measures taken to minimise the borrow pit areas and their visual impact on the surrounding area, and
- Details of the measures to be taken for the long-term rehabilitation of the borrow pit areas in order to avoid situations that could constitute a threat to health and safety and cause environmental degradation.

In general terms, the Contractor shall:

- Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 15 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies.
- Limit extraction of material to approved and demarcated borrow pits.
- Stockpile topsoil when first opening the borrow pit. After all usable borrow has been removed, the previously stockpiled topsoil should be spread back over the borrow area and graded to a smooth, uniform surface, and adequately sloped for drainage. On steep slopes, benches or terraces may have to be established to help control erosion.
- Excess overburden should be stabilized and re-vegetated. Where appropriate, organic debris and overburden should be spread over the disturbed site to promote re-vegetation. Natural re-vegetation is preferred to the best extent practicable.
- Existing drainage channels in areas affected by the operation should be kept free of overburden.

- Once the job is completed, all construction -generated debris should be removed from the site to an approved disposal location.
- The Contractor shall ensure that all borrow pits used are left in an appropriate condition with stable side slopes, re-establishment of vegetation, restoration of natural water courses, avoidance of flooding of the excavated areas wherever possible so no stagnant water bodies are created which could breed mosquitoes, and
- When the borrow pits or the local depressions created by the construction activities cannot be refilled or reasonably drained, the Contractor shall consult with the local community to determine their preference for reuse for community purposes.

7.11 Wastewater Management

During the construction stage, the Contractor shall prepare a Wastewater Management Plan before commencement of project works. The Plan shall include:

- A review of the preliminary site drainage design prepared during the detailed design.
- An update of the preliminary design based on the actual construction program and site specific conditions (e.g. the geographical conditions, location of slopes and the nature of construction work).
- Detailed design including drawings, location maps, specifications of drainage collection channels and wastewater treatment facilities.
- Proposed discharge locations and treatment standards.
- A detailed implementation program of the proposed drainage system.
- As part of the design of the site drainage system, surface runoff within the construction site shall be diverted in order to avoid flushing away soil material and the water is treated by device such as sediment trap before discharge.
- Domestic sewage from site offices, toilets and kitchen shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limits according to PUMA regulations.
- A Wastewater treatment device such as a sediment tank can be installed near each of the construction activities that may generate wastewater. Alternatively, sedimentation ponds can be constructed on-site to settle out excessive suspended solids (SS) before discharging into a discharge outlet.
- Prior to the rainy season, all exposed surfaces and slopes shall be properly covered or landscaping shall be provided to minimize run-off of sediment laden. Slope protection can be carried out in sequence to construction and in advance of the rainy season.
- Drainage control devices such as sediment traps shall be installed at each discharge outlet, and they shall be cleaned regularly, and
- Portable toilets can be provided on each work site employing 5 workers or more.
- At least one toilet shall be installed per 25 workers. Domestic sewage collected from the site office and portable toilets shall be cleaned up on regular basis. Only licensed waste collectors shall be employed for this disposal. The sludge shall be treated according to the requirements of the Contractor's Waste Management Plan in line with PUMA regulations.

7.12 Solid Waste Management

Solid wastes such as those listed below are expected due to construction activities and shall be managed with a plan prepared by the Contractor to include the following:

- Surplus excavated materials requiring disposal due to earth moving activities and slope cutting.
- Disposal of used lumber for trenching works, building material, site hoarding, packaging materials, containers of fuel, lubricant and paint.
- Waste generated by demolition of existing structures affected by the project (fence, temp structures) or breaking of existing concrete surfaces, and
- Domestic waste generated by construction workers, construction campsite and other facilities.

The above wastes must be properly controlled through the implementation of the following measures:

- Minimise the production of waste that must be treated or eliminated.
- Identify and classify the type of waste generated. If hazardous or chemical wastes are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal.
- Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each, and
- Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, pools, or wetlands). Collect and recycle and dispose where necessary in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.

The Contractor shall make a commitment to waste recycling and re-use methods in consideration of the following;

- A method statement on waste recycling, re-use and minimisation of waste generation.
- Scarified and excavated material shall be re-used on-site or the nearby road segment / other projects as far as possible in order to minimise the quantity of material to be disposed of.
- Recyclable materials such as wooden pegs, materials for shoring in trench works, steel, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources. Collected recyclable material shall be re-used for other projects or sold to waste collector for recycling, and
- Collected waste shall be disposed of properly through a licensed waste collector or to approved locations such as the Tafaigata Landfill.

7.13 Landscape, Visual impacts and Re-vegetation

The construction program of the WCR shall be executed in phases, particularly in those locations where severe or steep landscape and visual impacts are expected.

The following measures shall be implemented:

- Construction shall be programmed in sequence so that the scale of earth moving activities and area of exposed surface can be minimised.
- Re-vegetation shall start at the earliest opportunity. Appropriate local species of vegetation shall be used.
- The requirement of compensatory planting shall be included in the design and project contract. A Master Landscaping Plan and requirements of ecological monitoring or survey during different stages of the project shall be prepared during the design stage that shall be implemented during the construction and maintained during operation.
- Facilities and structures shall be located according to the terrain and geographical features of the project site.
- Restoration, of cleared areas such as borrow pits no longer in use, disposal areas, construction roads, construction camp areas, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be accomplished using landscaping, adequate drainage and re-vegetation.
- Existing trees and plants within the construction boundaries shall be tagged to indicate whether the trees are to be retained, transplanted or removed. Transplantation of existing trees affected by the project works shall be carried out prior to the commencement of construction.
- Excavations shall avoid damage to the root systems. Mitigation measures are also required to prevent damage to trunks and branches of trees.
- Temporary hoarding barriers shall be of a recessive visual appearance in both colour and form.
- Upon completion of the construction, the affected areas shall be immediately restored to their original condition, including the re-creation of natural and seawall protected shoreline, footpath and re-establishment of disturbed vegetation.
- At highly visually sensitive locations, construction may be scheduled where possible during the dry season and preferably before the busy tourist/visitor season.
- Construction trucks shall operate at night when possible and kept cleaned and covered when hauling bulk materials.
- Construction storage and machine maintenance sites shall be surrounded with fence to avoid direct visual sights of the construction sites.
- There shall not be construction camps near scenic areas i.e. village pools, turtle ponds, beach front, mangrove swamps, etc.
- Random disposal of solid waste in or near scenic areas shall be strictly prohibited.
- All mixing stations and batching plants shall not be located near rivers or in scenic areas. The stockpiles shall be located in hidden areas, and outside of the sight from tourists and general public;
- Use the existing roads as access road if possible to minimize the need for new access roads which lead to damage existing landforms and vegetation.
- Land use for agricultural activity prior to use for construction activities shall be, as much as possible, restored to a state to allow the same agricultural activity to continue.
- Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion.
- Topsoil stripped from the work areas shall be used for landscaping works, and

- Watercourses, which have been temporarily diverted by the construction activities, shall be restored to their former flow paths.

7.14 Maintenance of Construction Equipment

The Contractor shall:

- Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the PSC.
- Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage channels or in sewer systems, and
- All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 100m from all cross drainage structures and important water bodies or as directed by the PSC.

7.15 Safety During Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

- Present details regarding maximum permissible vehicular speed on each section of road;
- Establish safe sight distance in both construction areas and construction camp sites;
- Place signs along and around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning.

All signs shall be in English and Samoan language and be constructed according to LTA specifications;

- Estimate maximum concentration of traffic (number of vehicles/hour);
- Use selected routes to the project site, as agreed with the PCM/PSC, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;
- Be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the PCM/PSC;
- Not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor;
- Maintain adequate traffic control measures throughout the duration of the Contract and such measures shall be subject to prior approval of the PCM/PSC;
- Carefully and clearly mark pedestrian-safe access routes;
- If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;

- Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;
- Conduct safety training for construction workers prior to beginning work;
- Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots, etc.) for construction workers and enforce their use;
- Provide post Material Safety Data Sheets for each chemical present on the worksite;
- Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to all workers and visitors. Encourage workers to share the information with their physicians, when relevant;
- Ensure that the removal of toxic substances be performed and disposed of by specially trained workers;
- During heavy rains or emergencies of any kind, suspend all work; and
- Brace electrical and mechanical equipment to withstand seismic events during the construction.

7.16 Environmental Training for Construction Workers

During construction there will be a potential for workers to damage protected areas and waterways adjacent to camps and work areas. The Contractor shall prepare an Environmental Training Plan for all construction workers addressing the following items:

- All Contractor's employees shall be required to comply with environmental protection procedures and they shall be able to provide evidence that they attended the training sessions detailed in the Plan;
- The Plan shall educate all construction workers on the following issues but not limited to them: traffic regulations and traffic management, protection of sensitive areas, protection of cultural and historical sites and resources, waste management, erosion control, health and safety issues, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, and general information on the environment in which they will be working;
- Establishment of penalties for those who violate the rules; and
- Proposed methods for conducting the training program, which shall include formal training sessions, posters, data in newsletters, signs in construction and camp areas and 'tool box' meetings.

7.17 Socio-Economic Measures

The objective is to minimise social disturbance and maximise community benefits from the project during construction works. Measures to achieve this objective are:

- Advise the local community including schools, churches, and hospitals of project plans in advance of the construction, and seek their views;
- Information should be posted at site office, LTA Office that will state location, duration, dates of any operations that generate noise, dust, or fumes or that affect traffic, and provide contact information for requests, concerns or suggestions. Adapt plans to take account of feedback as practicable.
- Avoid or minimize disturbances near living areas;

- Control run-off and manage sediments near garden and community areas;
- Ensure supervision of all works close to sensitive receptors to avoid or minimise disturbances
- Arrange employment and training for local people where possible;
- Include women and other community groups in project activities.

The projected disturbances in the communities are expected to be minor and temporary, and the Contractor will make appropriate arrangements during the construction period. The general practice is that Contractors wherever possible, employ workers from the local communities. The village leaders will be consulted when recruiting workers for the Contractors.

The WCR reconstruction provides for the commencement of Climate Resilience measures in line with the Government of Samoa's strategy through the improvement of storm water drainage, upgrading of road pavement and provisions for utility services. These enhancement features of the reconstruction project will significantly benefit all those who live along the reconstruction corridor as well as frequent users of the main arterial road from Saina to Faleolo Airport. Furthermore, the delivery of a more efficient and improved transport system will reduce heavy traffic and travel time and allow for an increase in more family leisure time.

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CHAPTER 8 CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT

8.1 Roles and Responsibilities

The LTA shall work closely with the MNRE-PUMA and the Project Supervising Consultant (PSC) to create an environmental unit/committee to manage the environmental and social effects of the WCR project throughout its life.

The Project Component Manager (PCM) will represent the LTA for all matters related to the project and will be responsible for overall coordination of ESMP implementation.

The PSC is responsible for supervising and monitoring of all construction activities and for ensuring that contractors comply with the requirements of the contracts and the ESMP. The PSC shall engage a suitably qualified staff with adequate knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor’s performance.

The Contractor shall establish an Environment Team (ET) with the Contractor’s Project Manager (CPM) as the Team Leader and overall responsibility. The Contractor shall ensure adequate resources are available to the ET for the implementation of the Contractor’s Environmental and Social Management Plan (CESMP) throughout the construction and maintenance period. The Contractor shall establish the ET and appoint a Workplace Safety and Environmental Officer (SEO) of suitably qualified and experienced staff to be tasked with co-ordination and implementation of environmental, social and safety requirements.

The SEO shall have extensive experience (at least five years’ experience) in environmental management, training, supervision and monitoring on construction projects, and be familiar with Samoa’s environmental legislatives requirements. The qualifications shall be approved by the LTA-PCM prior to commencement of the project. The SEO is required to work full time on site.

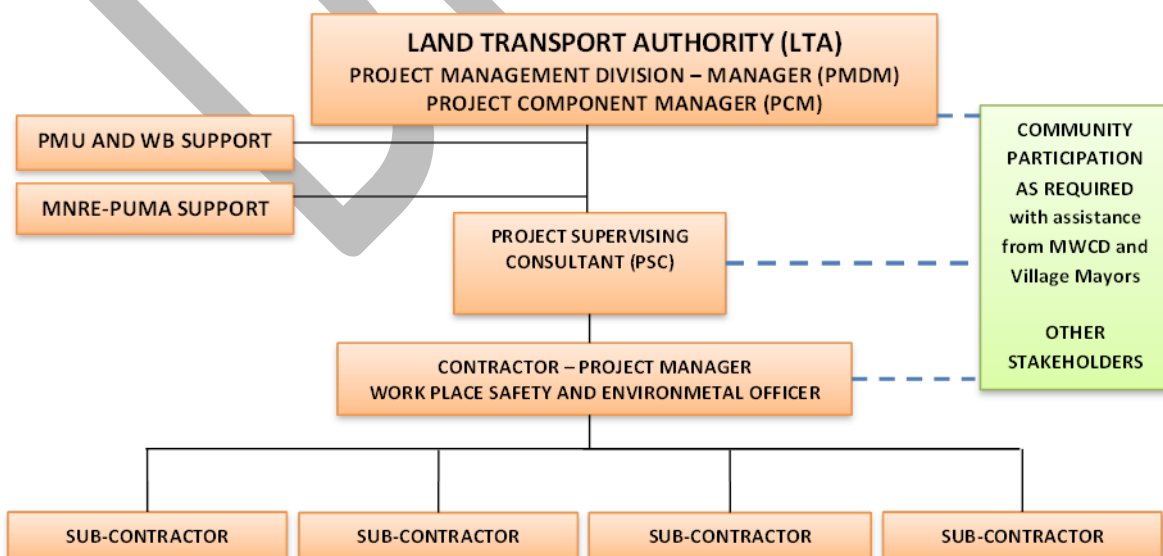


Figure 8.1: WCR Management Structure

8.1.1 Responsibilities of the PCM/PSC

The responsibilities of the PCM/PSC include the following:

- Supervise the Contractor's compliance with contract specifications, including the implementation and operation of environmental mitigation measures and ensure their effectiveness, and other aspects of the ESMP Implementation Plan. Major noncompliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the LTA. Contractors are also required to comply with national regulations governing the environment, public health and safety and are subject to compliance checks by the MNRE-PUMA/MOH;
- Regularly monitor the performance of the ET, verifying monitoring methodologies and results. In case the CPM/PSC considers that the SEO or any member of the ET fails to discharge duties or fails to comply with the contractual requirements, instruct the Contractor(s) CPM to replace the SEO or the member of the ET;
- Instruct the Contractor(s) CPM to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints;
- Supervise the Contractor's activities and ensure that the requirements in the ESMP and contract specifications are fully complied with;
- Instruct the Contractor(s) CPM to take actions to reduce impacts and follow the required ESMP procedures in case of non-compliance / discrepancies identified;
- Instruct the Contractor(s) CPM to stop activities which generate adverse impacts, and/or when the Contractor(s) fails to implement the EMP requirements / remedial actions instructed by the PSC or the MNRE-PUMA;
- Participate in the joint site inspection undertaken by the SEO/ET/PCM/PSC; and
- Adhere to the procedures for carrying out complaint investigation.

8.1.2 Responsibilities of the Contractors

The SEO and ET are responsible for implementation and management of the ESMP program. Regular environmental monitoring works, as required by the environmental legislation, shall be carried out by qualified laboratories and monitoring team. The laboratories and the monitoring team shall be considered members of the ET. The roles and responsibilities of ET and SEO are:

- Sampling, analysis and evaluation of monitoring parameters with reference to the EMP recommendations and requirements;
- Carry out environmental site surveillance to investigate and audit the Contractors' site practice, equipment and work methodologies with respect to pollution control and adequacy of environmental mitigation implemented;
- Review the success of the ESMP Implementation Plan to cost-effectively confirm the adequacy of mitigation measures implemented;
- Monitor compliance with environmental protection, pollution prevention and control measures, and contractual requirements;
- Monitor the implementation of environmental mitigation measures;
- Audit and prepare audit reports on the environmental monitoring data and site environmental conditions;
- Complaint investigation, evaluation and identification of corrective measures;

- Advice to the Contractor on environment improvement, awareness, proactive pollution prevention measures;
- Engage a qualified staff, preferably a Landscape Architect to review and monitor the Contractor’s submitted Landscape, Visual Impacts and Re-vegetation Plan, and to supervise the Contractor’s landscaping works;
- Follow the procedures in the ESMP and recommend suitable mitigation measures to the Contractor in the case of non-compliance / discrepancies identified. Carry out additional monitoring works within the specified timeframe instructed by the PEO; and
- Liaison with the Contractor and PEO on all environmental performance matters, and timely submission of ESMP Implementation Plan reports to the PEO, SES, and relevant administrative authorities, if required;

8.1.3 Grievance Redress Committee

In consideration of the major challenges and issues associated with grievance redress should they eventuate, it is recommended that a dispute resolution mechanism is put in place in which, as far as possible, all disputes are resolved at the community or village level. A community grievance committee is to be formed at the village level (for every village) which consists of the village Mayor, and three other members of the Village Council, which should mediate conflicts that arise at the village level. An appeal from the village grievance committee goes to a joint grievance committee made up of the 3 key officers representing the LTA (including the Public Relations Officer, Project Manager, and an Accounts rep), at least 2 representatives from the MNRE (including the Legal Officer and Land Division rep), and a representation from the MWCD. It is recommended that the team should be chaired by the LTA Project Manager. The LTA-Public Relations Officer from the joint grievance committee shall be the secretary of the committee and they shall meet once every week to address pertinent issues raised.

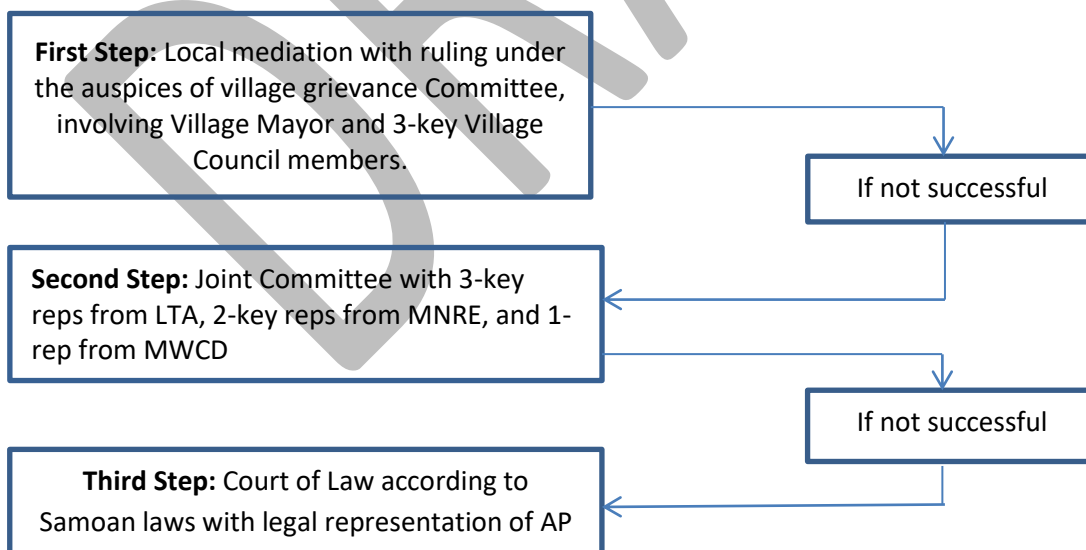


Fig 8.1: Grievance Redress Mechanism

The functions of the Grievance Redress Committee are:

- Provide support to affected persons (APs) on problems arising from damage or loss of assets/business area;
- Record the grievance of the affected persons, categorise and prioritise the grievances that need to be resolved by the Committee; and
- Report to the aggrieved parties about the developments regarding their grievances and the decision of the Project authorities.

The main objective of the grievance redress procedure will be to provide a mechanism to mediate conflict and cut down on lengthy litigation, which may delay such infrastructure projects. It will also provide people who might have objections or concerns about their entitlements, a public forum to raise their objections and through conflict resolution, address these issues adequately. The committee will undertake a highly consultative process for the project. The committee will provide ample opportunity to redress complaints informally, in addition to the existing formal administrative and legal procedures.

The major grievances that may require mitigations include:

- a) Affected persons not enlisted;
- b) Losses not correctly identified;
- c) Differences in perceptions and expectations on compensations for affected assets;
- d) Inadequate compensation/assistance or not in line with entitlement matrix;
- e) Dispute about ownership;
- f) Delay in disbursement of compensation/assistance; and
- g) Improper distribution of compensation/assistance.

It is the responsibility of the grievance redress committee to satisfactorily address all complaints brought by the APs. On the condition that an affected person is not satisfied with the decisions of the committee to the appeal level, such person has an opportunity to seek the intervention of the formal judicial mechanisms.

8.2 Grievance Redress Mechanism

8.2.1 Complaints Procedure and Grievances Redress Mechanism

The Contractor shall undertake the contracted activities in a manner, which will ensure that the works do not cause any unnecessary, adverse impacts on surrounding sites and villages.

The Contractor shall provide 48 hours' notice of entry onto private property to undertake works related to the contract.

The public has the right to approach the Construction Site Manager in the event of unexpected problems of nuisance from the construction work.

8.2.2 Complaints Procedure

All employees of the Contractor shall immediately report any complaints from site visitors, neighbouring villages, or the surrounding community to the Construction Site Manager.

All complaints received in respect of the construction work shall be recorded by the Site Manager in a Complaints Register, which shall be maintained by the Site Manager throughout the duration of construction work.

The register shall record:

- Date and time of complaint;
- Name and address of complainant;
- Name / nature of the event complained about;
- Details of complaint;
- Weather conditions at the time of which the incident complained about occurred;
- Action to prevent further similar complaints;
- Date of verbal response provided to complainant; and
- Date of written response sent (if required).

The Construction Site Manager shall respond to the complainant within 48 hours of the complaint being received, with a response that confirms the details of the complaint and which indicates what action is proposed or has been taken.

The Construction Site Manager shall provide a copy of all complaints to the Land Transport Authority (LTA) through the Project Supervising Consultant (PSC) within two working days of the complaints being made.

8.3 Grievance Redress Mechanism (GRM)

The following GRM procedure must be followed to address any social or environmental issues that may arise during the construction period:

- Affected Person (AP) to file a formal complaint with the LTA Project Component Manager (Ms. Titi Tutuvanu, direct phone line – 32176, email address – titi.tutuvanu@lta.gov.ws) if major i.e. related to land issues or damage caused by contractor machinery or with the Project Supervision Consultant (PSC) if minor issue;
- The PSC will record and register complaint and consult with the Contractor and Environmental, Health and Safety Personnel for a solution who will also keep a complaints register;
- The PSC is to respond within 24 hours of lodging the complaint;
- The PSC must respond with a resolution to the AP within 48 hours;
- For substantial complaints the same process applies as above, but the time to respond for discussions and meetings with the complainant to reach a resolution must be within 7 days;
- Note that for land issues, the timeframe for discussion and meetings may be more than 7 days;
- The LTA Project Component Manager (PCM) will maintain register of complaints and duplicate given to the AP;
- If complaint is dismissed, the AP will be informed of their rights to take their complaint to the next level;

- If AP is not satisfied with LTA decision, they may file a written complaint with the MNRE, PUMA division, at ground floor of the Tuiatua Tupua Tamasese building at Sogi, telephone – 23800, or directly contact the Assistant Chief Executive Officer – Ms. Fetolai Yandall, email address – fetolai.yandall@mnre.gov.ws, or Principal Sustainable Development Officer – Ms. Ferila Brown, email address – ferila.brown@mnre.gov.ws or Inspector Officer – Ms. Ruby Vavae, email address – ruby.vavae@mnre.gov.ws;
- The timeframe for response via email to MNRE, PUMA is within 2 working days and via correspondence within 5 working days. However, the timeframe for responding with a resolution varies and dependent on the level of difficulty of the complaint;
- If AP is not satisfied with MNRE, PUMA decision, they may take their grievance to the judicial system at their own cost however, if the Court shows that LTA have been negligent, AP may seek costs.

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CHAPTER 9 COMPLIANCE AND MONITORING PLAN

9.0 Compliance and Monitoring Plan

9.1 Monitoring Plan

The function of the Environmental Monitoring Plan is to identify the environmental monitoring requirements and to ensure compliance and that all the mitigation measures identified in this ESMP are implemented effectively. The environmental monitoring methodology adopted (refer Appendix D for details) for this project includes:

- Audit of detailed designs and any subsequent changes.
- Audit and approval of site environmental planning documents in line with the development consent.
- Consultations with communities and other stakeholders as required.
- Routine site inspection of construction works to confirm or otherwise the implementation and effectiveness of required environmental mitigation measures.

Following the audit, should the findings indicate non-compliance to environmental mitigation measures as identified in the ESMP, the Contractor(s) will be advised in writing by the PSC on behalf of the LTA Project Component Manager. The issued notice of non-compliance will identify the problem, including the actions the Contractor needs to take and a time frame for implementing the corrective action.

9.2 Monitoring Plan Reporting

Throughout the construction period, the Contractor(s) will include results of the ESMP monitoring (refer Appendix F: Monitoring Plan Inspection Checklist) in a monthly report for submission to the LTA who is responsible for submitting these monthly progress reports to PUMA and the PMU/WB.

The format of the monthly report shall be agreed with all agencies but is recommended to include the following aspects:

- Description and results of environmental monitoring activities undertaken during the month.
- Status of implementation of relevant environmental mitigation measures pertaining to the works.
- Key environmental problems encountered and actions taken to rectify problems.
- Summary of non-compliance notifications issued to the Contractor during the month.
- Summary of environmental complaints received and actions taken.
- Key environmental issues to be addressed in the coming month.

A day to day contract diary is to be maintained pertaining to administration of the contract, request forms and orders given to the Contractors, and any other information which may at a later date be of assistance in resolving queries which may arise concerning execution of works.

This day to day contract diary is to include any environmental events that may arise in the course of the day, including incidents and response, complaints and inspections completed.

During operations the LTA Project Component Manager will include an environmental management section as part of their normal reporting to LTA Senior Management. The environmental management section shall include an analysis of the operation monitoring programme, any environmental issues arising and recommendations (including cost estimates as required) for further action.

LTA is also responsible for quarterly progress reports to the WB. This quarterly progress report will include a section on environmental compliance and issues. This section will cover (as a minimum) the overall compliance with implementation of the ESMP, any environmental issues arising as a result of project works and how these issues will be remedied or mitigated, and the schedule for completion of project works.

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CHAPTER 10.0 CONTINGENCY PLANNING

The LTA Project Component Manager (PCM) is the contact person for emergency situations that may arise during the implementation of the CRWCR project. The PCM will be available 24 hours a day, seven days a week, and has delegated authority to stop or direct works. In the event of an environmental emergency, the procedures outlined below are recommended for LTA to consider for implementation.

A Contingency Plan is recommended to be prepared by the Contractors encompassing readiness to cyclone, tsunami and storm events. Its main purpose is to ensure all workers and in particular management are fully aware of their responsibilities in respect to human safety and environmental risk reduction. The Plan outlines procedures clearly delineating the roles and responsibilities of staff, define the functions to be performed by them, the process to be followed in the performance of these functions including tools and equipment to be kept in readiness, and an emergency medical plan. All of the Contractor's staff should undergo training/induction to the Plan.

The wet season coincides with the cyclone season in Samoa which is from the month of October to March. It is recommended that major earthworks and large scale construction activities should be limited to the dry season (April to September) however, storm and rain events can still occur during this period causing flooding and bringing high winds.

Monitoring weather forecasts, inspecting all erosion and sediment control measures and undertaking any remedial works required prior to the forecast rain or storm event is the responsibility of the Contractors.

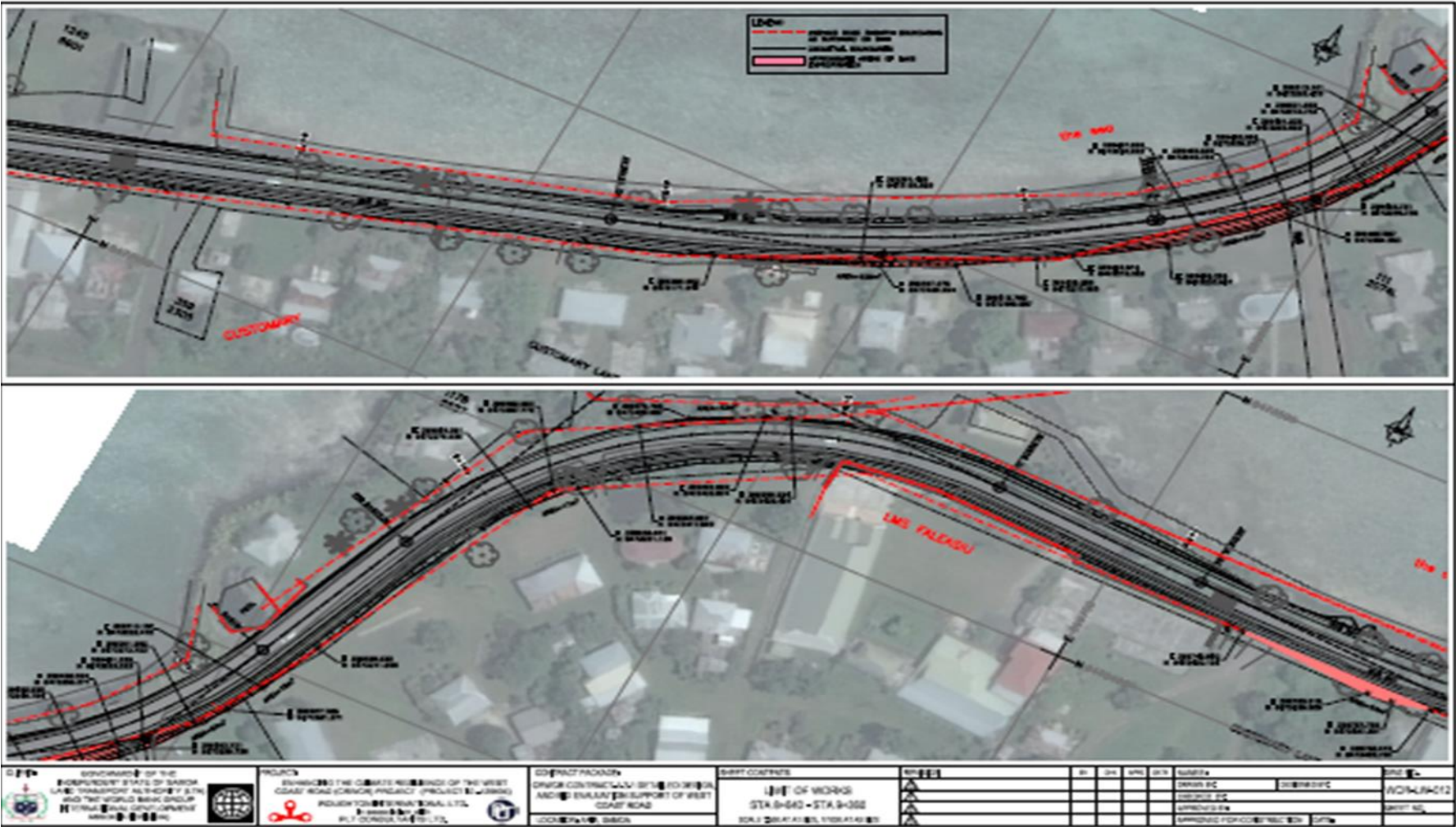
In general the Contractors will:

- Inspect daily weather patterns to anticipate periods of risk and be prepared to undertake remedial works on erosion and sediment control measures to suit the climatic conditions.
- Monitor the effectiveness of such measures after storms and incorporate improvements where possible in accordance with best management practice.
- Ensure appropriate resources are available to deal with the installation of additional controls as and when needed.
- Inform LTA if there are any concerns associated with the measures in place.

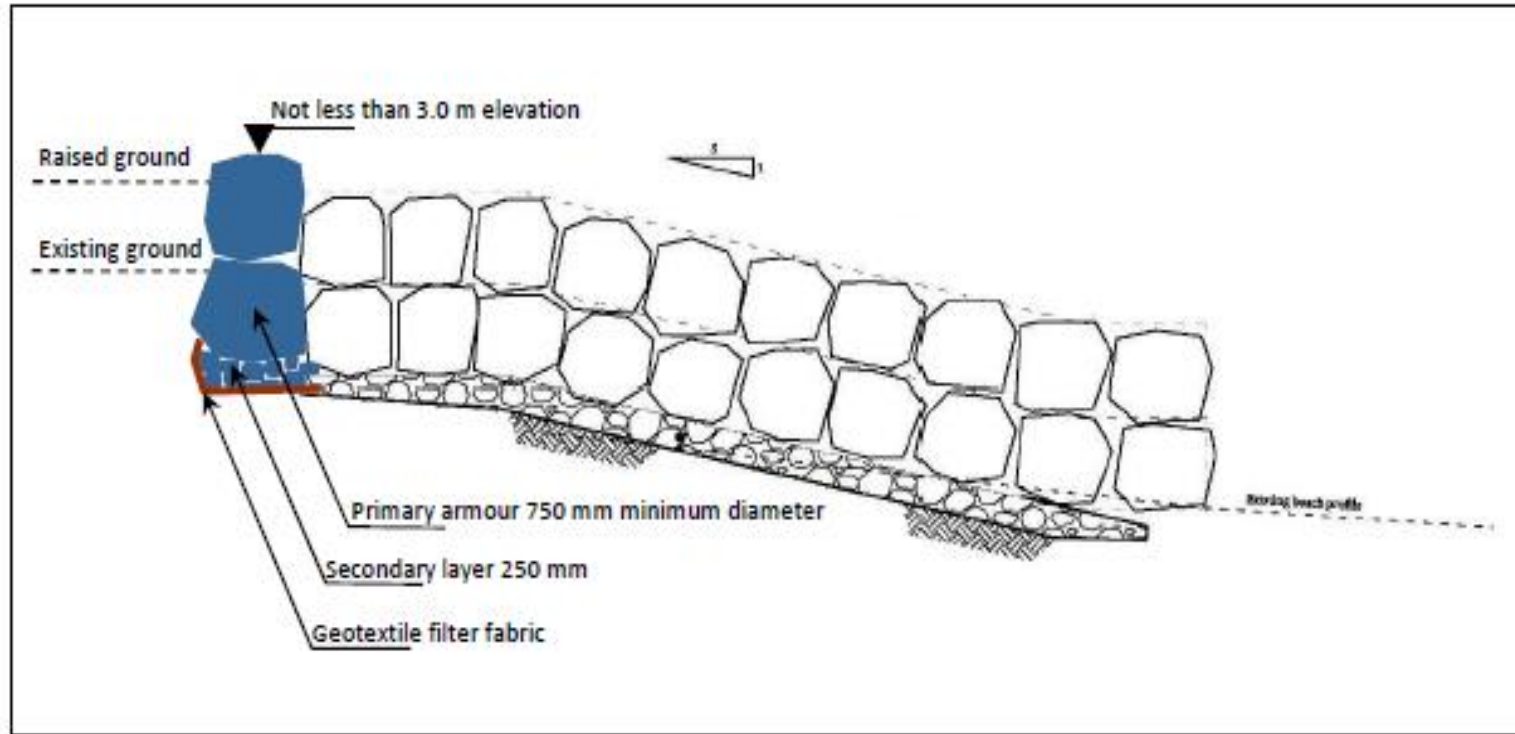
Appendix A:

Plan and Design Details

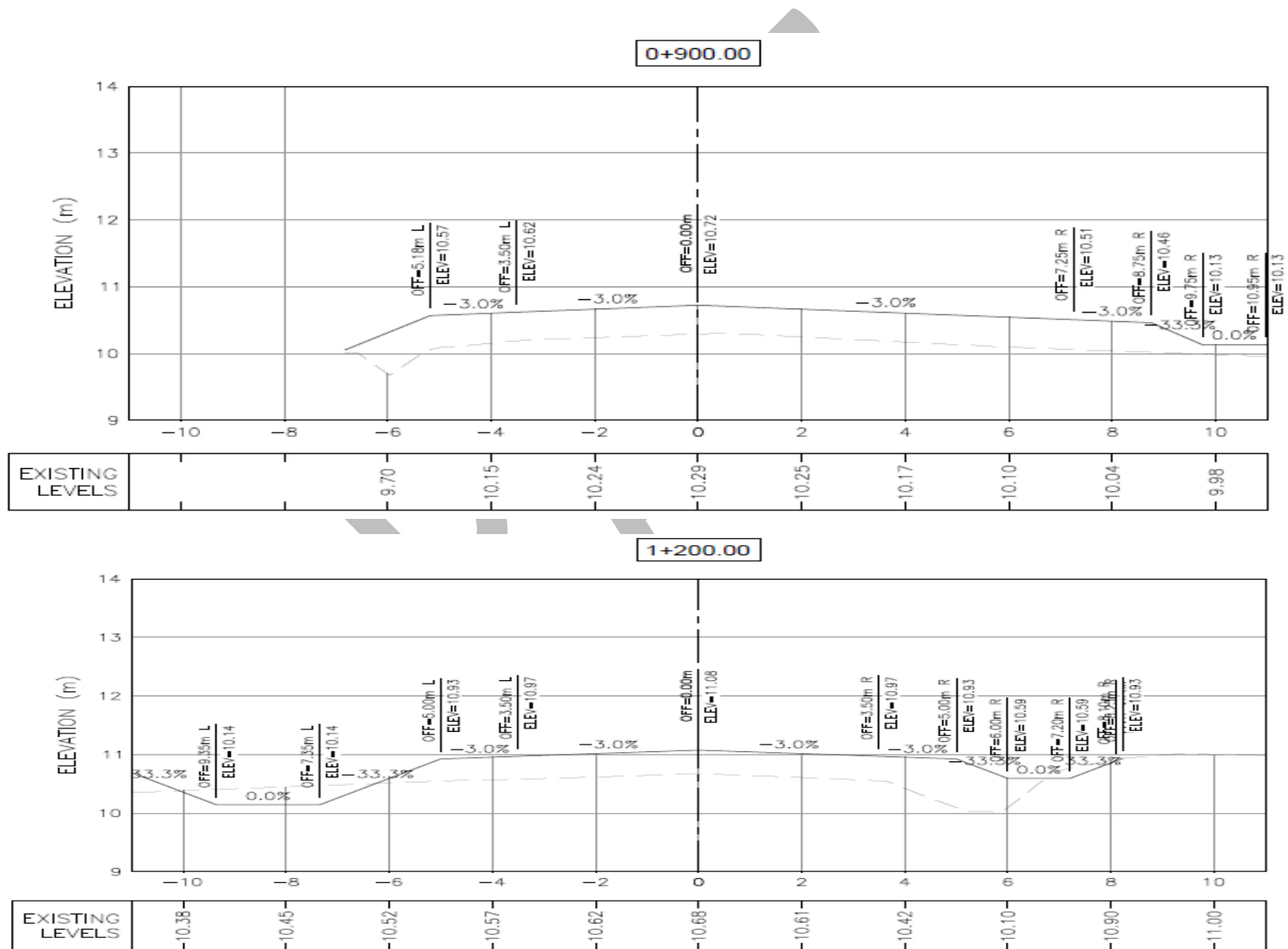
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WCR Horizontal Alignment – 20m road reserve



Rock Revetment – comprised new sections of WCR and replenish existing ones



WCR Cross Section – Vertical Profile

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Appendix B:

Development Consents

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Appendix B: Development Consent



MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT
Matāgaluega o Puna'oa Faalenatura ma Siosiomaga

Level 3, Tui Atua Tupua Tamasese Efi Building
(TATTE), Sogi., P.O Private Bag, Apia, SAMOA
Website: <http://www.mnre.gov.ws/>

Telephone: (+685) 67200
Fax: (+685) 23176
Email: info@mnre.gov.ws

Please address all correspondence to the Chief
Executive Officer, Private Bag, Apia, Samoa.
Faamolemole faatuatausi uma mal fesootalga
uma i le Ofisa Silii

Written approval of affected person(s)

Applicant details

Fill name(s):
Location of proposed activity:
Description of proposed activity (e.g. new house, earthworks):
.....
.....

Affected Person(s)

Full name(s):
Location of affected property:
Contact Details:

I am/we are the OWNER(S)/OCCUPIER(S) (*delete one*) of the property.
I have authority to sign on behalf of all the other OWNER(S)/OCCUPIER(S) (*delete one*) of the property.
You should only sign below if you support or have no opposition to approval of the application development consent you have been asked to consider.

1. I/We have been given details of the full and final proposal to which I/We are giving approval.
2. I/We understand that, if I/We give approval, the Agency will not take into account any actual or potential impacts of the activity on my/our property when considering the application. The fact that any such impacts may occur shall not be relevant grounds upon which the Agency may refuse to grant its consent to the application.
3. Further, I/We understand that any other time before the determination of the application, I/We may give notice in writing to the Agency that this approval is withdrawn.

Signature(s) Date.....

4. Land details:			
4.1 I am the:			
<input type="checkbox"/> Property owner		<input type="checkbox"/> Lessee (provide details)	
<input type="checkbox"/> Occupier		<input type="checkbox"/> Co-property owner (provide details below)	
<input type="checkbox"/> Agent (authorized by owner/lessee)			
4.2 Names of owner/occupier (other than the applicant) of the land to which the application relates:			
If you are not the property owner, then you are required to attach a written declaration from the owner(s) to which the development application applies with name and address details as required under section 38 of the Planning and Urban Management Act 2004.			
4.3 Location of development:			
4.3 Land tenure:			
<input type="checkbox"/> Freehold (complete section 5)		<input type="checkbox"/> Government	
<input type="checkbox"/> Customary (complete section 6)			
4.4 Legal description:			
Land registry	Volume: Parcel No:	Folio: Area (m ²):	Survey plan:
Please provide further legal description of additional parcels if your proposed development covers more than (1) one parcel.			
5. Freehold land:			
If the land is freehold or individually owned, you must attach a copy of the Deed of Conveyance and have the owner certify that he / she permits your project(s).			
I / We _____, certify that I / We own the land described in this application and grant the applicant permission to use the land as proposed.			
_____		_____	
Owner		Date	
6. Customary land:			
If a survey area available, please attach a copy. If not, please provide a detailed description of the land to which the application relates:			
Name of the land: _____			
Village: _____			
District: _____			
Please attach copy of Land and Titles Court decision as proof that the Sao/Metal has the pule/ameau over the customary land			
If the land is customary owned, you must present this application to the (Sa'o) Metal or at least two senior Metal responsible for the land for their consideration and signature.			

I/We, _____ and _____ certify that I/We are member of the _____ family, which is responsible for the land described in this application, and hereby grant permission to the applicant to use the land to which the application relates.

 Sr's / Metal

 Date

 Sr's / Metal

 Date

7. Attachments:

Documents required to be attached to this application

<input type="checkbox"/> Two copies of plans and drawings (drawn to scale) showing, where relevant:	<input type="checkbox"/> Site plan (drawn to scale) – showing all property boundaries, existing and proposed buildings, vegetation, ground contours, car parking, where relevant
<input type="radio"/> elevation plans	<input type="checkbox"/> Certified survey plan
<input type="radio"/> floor plans	<input type="checkbox"/> Written consent from property owners
<input type="radio"/> details of any signage	<input type="checkbox"/> Lease agreement
<input type="radio"/> photomontage	<input type="checkbox"/> Deed of Conveyance
<input type="radio"/> vehicle parking	
<input type="radio"/> design of earthworks	

8. Applicant declaration:

Information on this form is required to be provided under the Planning and Urban Management Act 2004 and is required to process your application.

I confirm that I have read and understand the requirements of this application and certify that all of the information provided on the application form is true and correct.

 Signature

 Date

 Print full name

Appendix C:

Mitigation Measures

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Appendix C: Mitigation Measures

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTATION LOCATION	ESTIMATED MITIGATION COSTS	EXECUTING AGENCY	SUPERVISING AGENCY
DETAILED DESIGN/PRE-CONSTRUCTION MOBILISATION STAGE					
Road Traffic Safety	Provide for Traffic Management Plan (TMP) to be developed by Contractor, to include signage, flag operators, personnel protective equipment (e.g. high visibility vest), and specific actions (e.g. regulating working hours for haul trucks, installation of speed bumps and prohibition of engine braking) to be implemented around sensitive receptors (e.g. residential dwellings, schools, hospital). TMP to include vehicle and pedestrian traffic. Include transport of materials and equipment to construction lay down area (likely to be located at the construction camp) in the TMP e.g. covering of loads, maximum speed, designated travel times and notification of police and other required departments (e.g. hospital and schools).	From port to airport (delivery of equipment) To and from the construction lay down area and the quarries	Minimal (requirement of Bidding documents)	Design Consultant and Contractors	Land Transport Authority (LTA)
Soil erosion	Minimise erosion and design erosion protection measures according to international good practice standards, including incorporation of effective	All locations	Minimal (part of standard design practices)	Design Consultant	PUMA & LTA Project Manager/PSC

	drainage systems (soakage pits) and consideration of surface flow paths. Works should be in accordance with Codes of Environmental Practice (COEP) 11 and 13.				
Dust / Odours / Air Pollution	Identify and locate waste disposal sites, stockpile sites and equipment (e.g. asphalt plant) at least 300 to 500 m downwind of any settlements or inhabited areas and 150 m away from any water bodies, streams or rivers, to minimise impacts on the environment and nearby population. The Contractor's ESMP should include a provision for quarry dust and noise control; all equipment including crushers, aggregate processors, generators etc. should / if possible, be located in the quarry pit to minimise noise and dust emissions. Works should be in compliance with COEP 8. Ensure all equipment is serviced and issued with warrant of fitness (as required). Any machinery deemed to be polluting the air must be replaced (or fixed) on instruction by the PUMA.	Construction lay down area	Minimal (part of standard design practices)	Design Consultant	PUMA & LTA Project Manager/PSC
Water and soil pollution	Stage site clearance activities to minimise the area of exposed ground and the duration of disturbance.	All components	Minimal (part of standard design and construction	Design Consultant Contractors	PUMA & LTA Project Managers/PSC

	<p>Earthworks to be in accordance with COEP 13; ensure sediment traps are in place prior to works commencing. Machinery in watercourses to be in accordance with COEP 11 intrusive approach is better suited. Minimise disturbance to watercourses; no excavations of the watercourse bed unless required, and limit exposed surfaces to 20 m from a watercourse and re-vegetate or seal as soon as practicable. Furthermore no land disturbance should occur directly adjacent or in the receiving marine environment which is located adjacent on the north of WCR. Minimise risk to groundwater and surrounding soil by developing a spill response plan and provide training to all contract workers on how to implement the spill response plan. Precautions should be in place to prevent wastewater and hazardous substances or materials entering the environment (e.g. fuel spillage or wastewater). The spill response plan should include factors associated with both the construction and operational phases and should be available at WCR works locations. Ensure bunded areas and hard stands</p>		<p>practices)</p>		
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	<p>are allocated at construction lay down area for the storage of fuel, lubricants and other potential substances required for the project. Water tight bunds to be able to contain 110% of volumes being stored or 25% if total volume greater than 1,000 L. Ensure wash down areas with respective collection and treatment systems are designated within the construction camp (e.g. settling pond or tank and concrete slurry treatment) prior to works commencing. Sanitation treatment system (e.g. removal of waste to landfill, compost or proprietary treatment system) is approved by the PUMA and SAA prior to implementation. If required by Ministry of Natural Resources and Environment (MNRE) and bore owner (Samoa Water Authority), prior to any site establishment or construction activities, sample groundwater at the potable bores within 100 m of APW (to be coordinated with MNRE, SWA and PUMA) to determine baseline conditions. Measure depth to groundwater and analyse samples for concentrations of pH, electrical conductivity, total</p>				
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	petroleum hydrocarbons (TPH) (for potential petroleum contamination), and total nitrogen (for potential sewage contamination), or as agreed with MNRE and PUMA.				
Water and soil pollution	Soakage pits should not be installed directly into a shallow aquifer. However drainage improvements are needed to reduce flooding impacts on surrounding residents. Oil water separators should be included to treat runoff from the apron and maintenance hangers.	All components	Minimal (part of standard design and construction practices)	Design Consultant	PUMA & LTA Project Managers/PSC
Water supply	The Contractors will need to ensure adequate supply of water for construction and personnel which does not adversely affect local community's water supply (e.g. rainwater harvesting or reclamation, permitted use of river, or use of reticulated supply).	All components	Minimal (part of standard design practices)	Design Consultant and Contractors	PUMA & LTA Project Managers/PSC
Sourcing aggregate material	Ensure aggregate is sourced from approved/ permitted quarry sources and are operating in accordance with the Samoa law. Prior to any quarries being selected for the WCR rehabilitation project, public consultation will be completed with any affected parties relating to each quarry site, whether it is an operating,	All components	Minimal (part of standard design and construction practices)	Design Consultant	PUMA / MNRE & LTA Project Managers

	<p>reopening or new quarry site. Should it be identified that a new quarry site is required for the WCR rehabilitation project, the requirements of the World Bank Resettlement Policy Framework will need to be implemented. Under Samoan law a Development Consent is required prior to the commencement of any new quarry enterprise. Consenting requirements will require Contractors to include provision for quarry specific plans including environmental management, health and safety and rehabilitation.</p>				
Solid waste generation	<p>Allow for re-use of as much material as possible within the WCR rehabilitation project, other projects, or for community use. The MNRE should be consulted for approval to receive waste material (e.g. at Tafaigata Landfill) that cannot be recycled, reused or returned to the supplier. When planning the construction lay down area, ensure temporary waste dump areas are allowed for and approved waste disposal sites / methodologies identified for removal of all solid waste. As early as possible in the pre-</p>	All locations	Minimal (part of standard design and construction practices)	Design Consultant and Contractors	PUMA & LTA Project Managers

	<p>construction preparation phase suitable receiving waste facilities) should be identified (e.g. Tafaigata Landfill, re-use for other roads or road patching material for LTA) and agreements put in place to transport (trans-boundary) project hazardous waste from Samoa. Storage areas shall be inspected regularly for leakage.</p>				
Hazardous substances	<p>Where possible fuel shall be obtained from local commercially available sources. Prior arrangement regarding quantity and type will need to be organised (LTA / PUMA to provide details of providers). In all WCR upgrade locations, fuel and chemicals should only be stored in designated areas that are designed to store and facilitate operations associated with it (e.g. re-fuelling).</p>	All locations	Minimal (part of mobilisation and construction planning)	Contractors	PUMA & LTA Project Manager
Community grievances	<p>Ensure that public consultation and disclosure communication is completed at regular intervals to ensure that the public are fully aware of the proposed WCR upgrade project. Consultation should include all aspects of the project including the WCR site, quarries and transport routes.</p>	All components	Minimal (part of mobilisation and construction planning)	PUMA Consultant	PUMA & LTA Project Manager
CONSTRUCTION STAGE					

Traffic (vehicle and pedestrian) and construction safety	Implement the TMP to ensure smooth traffic flow and safety for workers, passing vehicles and pedestrian traffic. Where appropriate, employ flag operators on the road to prevent traffic accidents. The workers shall have relevant safety equipment. The TMP should prohibit the use of engine breaking close to and through communities and inhabited areas, it should also regulate the working hours for the haul trucks.	Route from quarries and port to WCR	Safety equipment included in construction cost	Construction Contractors	PUMA & LTA Project Manager/PSC
Soil erosion	Minimise time and size of ground disturbing activities to workable size at any one time. Vegetation to be removed manually, strictly no use of herbicides/ pesticides. Take sediment control measures, such as silt traps/ponds/fences and bunding, to minimise sediment input into waterways. Keep construction vehicles on defined tracks. Re-vegetate disturbed areas that are not being paved as soon as practicable (loosen ground; apply topsoil; seed or plant as necessary).	All locations	Minimal (part of Standard construction practice)	Construction Contractors	PUMA & LTA Project Manager/PSC
Waste disposal	Ensure all construction waste material is re-used, recycled, returned to supplier, transported to Tafaigata	All locations	Minimal (part of standard construction	Construction Contractors	PUMA & LTA Project Manager/PSC

	<p>Landfill or removed out of the country depending on accepted waste streams at each facility.</p> <p>Ensure areas for waste collection, recycling and off-site disposal are clearly marked/sign posted. Segregate waste to avoid cross contamination, such as with contaminated material (hazardous substance).</p> <p>Install waste collection facilities at construction lay down area to allow for collection and packing of waste.</p> <p>Strictly no dumping of rubbish. Include awareness training in general environmental training.</p> <p>Workers must be provided with a sanitary system to prevent fouling of surrounding soils.</p>		practice)		
Water and soil pollution	<p>Hydrocarbons (lubricants / fuel) shall be collected and recycled, or disposed of according to Samoan regulations (likely required to be removed from the country).</p> <p>Spill response plan training completed for all construction workers.</p> <p>Precautions should be in place to prevent wastewater and hazardous substances / materials entering the environment (e.g. fuel spillage or wastewater), however should an</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	PUMA & LTA Project Managers/PSC

	<p>incident occur, the Contractor must have a spill response plan must be in place. The response plan should include details on the use of spill kits and absorbent items to prevent spills entering the receiving sensitive environment (ground, surface water). This spill response plan should be applicable to WCR project works areas (quarries, haulage and transport routes). A spill response plan should be in place for both the construction phase and operational phase. Zones for preliminary accumulation of waste should be designated in areas that will cause no damage to the vegetation cover or leach into groundwater or surface water (e.g. within construction lay down area on hard surface). Excavations are bunded to prevent ingress of water runoff and clean water diversion (e.g. sand bags, clay bund, or shallow trenches) are used to direct overland flow away from active work and storage areas. Soakage pits should not be installed directly into a shallow aquifer or be diverted to the receiving marine environment. Contaminated soil (e.g. hydrocarbon impacted) may be identified. For any soil identified as contaminated (visual</p>				
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	<p>or olfactory evidence), it shall be treated as contaminated fill and must either be disposed of internationally at an approved facility able to handle contaminated fill or left in-situ and sealed with an impermeable layer. Any course of action must be approved by the respective project's LTA Project Manager and PUMA.</p> <p>Minimise areas cleared of vegetation and stabilise slopes to prevent erosion. Cleared areas will be promptly re-vegetated. Works should be in accordance with COEP 7.</p> <p>Regular cleaning of access points to prevent dirt build-up on roads.</p> <p>Control overland drainage to prevent channelling and sediment transport by diverting flows away from exposed areas. Sediment laden runoff from excavations or stockpiles must be directed to a settling area or collected for dust suppression provided the runoff is not contaminated with any chemicals (e.g. fuel). Construct necessary temporary / permanent erosion and silt control structures.</p> <p>If required by MNRE and bore owner (SWA), during construction activities, sample groundwater at potable bores within 100 m of WCR (to be</p>				
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	<p>coordinated with MNRE, SWA and PUMA) to indicate whether construction activities have adversely affected groundwater quality. Measure depth to groundwater and analyse samples for concentrations of pH, electrical conductivity, TPH (for potential petroleum contamination), and total nitrogen (for potential sewage contamination), or as agreed with MNRE and PUMA.</p> <p>Contractors will not use heavy machinery when a less intrusive approach is better suited.</p>				
Generation of dust	<p>Use closed/covered trucks for transportation of construction materials. Any vehicle which is overloaded (exceed designed load limit) or is not covered properly shall be refused entry to the construction lay down area or material shall be refused delivery (if not to the construction lay down area).</p> <p>Cover or wet down stockpiles containing fine material (e.g. sand and topsoil) when not actively being used. Grassed where practical.</p> <p>Use, if practical, covers, such as gravel, on small exposed areas. Hydrocarbons shall not be used as a method of dust</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	PUMA & LTA Project Managers/PSC

	<p>control. All surfaces shall be constructed to their final design requirements as quickly as practicable. Keep work areas clean with regular sweeping. Due to freshwater supply constraints large scale water sprinkling should be kept to a minimum and only as required. Only small areas should be cleared of vegetation at any one time and re-vegetation should occur as soon as practicable. Dust masks and personnel protective equipment must be available for workers during dust generating activities (e.g. pavement milling).</p>				
Air pollution	<p>Ensure all equipment is serviced and issued with warrant of fitness (as required). Any machinery deemed to be polluting the air must be replaced (or fixed) on instruction by the LTA and PUMA. Turn off engines when possible to reduce idling and exhaust emissions. Waste materials are to be removed from the site and not burnt.</p>	All locations	Minimal (part of standard design practices)	Construction Contractors	PUMA & LTA Project Managers
Noise and vibration disturbances	<p>Noise must be in accordance with relevant noise levels detailed in the PUMA 'Planning Policy for Noise</p>	All locations	Minimal (part of standard construction	Construction Contractors	LTA / PUMA

	<p>Standards’ (Revised 2011). Minimise nuisance from noise, especially closer to residential areas and sensitive receptors, through establishment and communication to affected parties of standard working hours (7:00 am to 6:00 pm, Monday to Saturday) and avoid increase of noise and number of work equipment at peak hours. Try to schedule any noisy construction activities during normal working hours and avoid noisy work from 6:00 pm to 7.00 am and during weekends and public holidays. If possible, use noise barriers / screens or mounds to shield sensitive receptors. Use noise screens or mounds near residential areas. It is likely that some work will be completed at night, this will require approval by the LTA/ PUMA and notice to affected peoples provided at least one week prior to out of schedule works starting. Work on Sunday is restricted and is likely to only be approved in emergency situations. For works outside normal hours, approval must be obtained from LTA/MNRE and residents within 100 m of WCR must be notified 5 days before</p>		<p>practice)</p>		
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	<p>works take place. Regularly check and maintain machinery, equipment and vehicle conditions to ensure appropriate use of mufflers, etc. Workers in the vicinity of sources of high noise shall wear necessary protection gear rated for the situation they are being used. Signage to outline complaints procedure and contact details of recipient of complaints (e.g. phone number, physical address and email). Noise must be in accordance with relevant noise levels detailed in the PUMA 'Planning Policy for Noise Standards' (Revised 2011). The policy requires daytime (7am to 6pm) construction works not exceed 75 dBA, L10mins at the receiving property (residential, commercial, religious and industrial). Evening construction works (6pm to 10pm) shall not exceed 60 dBA, L10mins at the receiving property (residential, commercial, and religious) and 65 dBA, L10mins at industrial receiving properties. Night construction works (10pm to 7am) require approval from PUMA and LTA as noted in mitigation measures listed above.</p>				
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<p>Accident risks/Impacts on traffic safety</p>	<p>Arrange necessary measures for pedestrian and passer-by safety and all means of transportation safety (e.g. establish protection zones, by-pass these areas during transportation of materials, etc.) Relevant safety elements such as guardrails, road signs and delineators, pavement markings, barricades and beams, warning lights shall be installed. In some cases a flag operator or traffic control supervisor could be engaged around the specific work site.</p>	<p>All locations</p>	<p>Safety equipment included in construction cost Minimal (part of standard construction practice)</p>	<p>Construction Contractors</p>	<p>PUMA / LTA</p>
<p>Loss of archaeological artefacts or sites</p>	<p>Work to stop in specific location of unearthed artefacts or site. Fence the area to limit access and notify LTA and PUMA immediately for instruction to proceed.</p>	<p>All locations</p>	<p>No marginal cost</p>	<p>Construction Contractors</p>	<p>LTA / PUMA</p>
<p>Landscape degradation</p>	<p>Contractor to include provision for construction camp and lay down area rehabilitation following the completion of the construction phase. Restoration of quarries to be completed in accordance with quarry consent. Restoration of landscape after completion of rehabilitation works; restore the vegetation cover in accordance with the surrounding landscape and any required design</p>	<p>All locations</p>	<p>Minimal (part of standard construction practice)</p>	<p>Construction Contractors</p>	<p>LTA / PUMA</p>

	(e.g. grass land or shrubs). Use plant species characteristic for the landscape in the course of restoration of the vegetation cover.				
Hazardous substances and safety and pollution	<p>Store and handle hazardous substances in bunded, hard stand or designated areas only. Bunded areas to drain to an oil water separator which will need to be constructed or a mobile proprietary unit imported specifically for use on the WCR project. Bunds to contain 110% of total volume required to be stored or 25% of total volume if total volume is over 1,000 L. Provide hazard specific personnel protective equipment to workers directly involved in handling hazardous substances (e.g. chemical or heat resistant clothing, gloves). Complete list, including safety data sheets (SDS) for each hazardous substance stored or used shall be accessible at all times. Signage to be posted in storage areas identifying all chemicals present. Precautions should be in place to prevent wastewater and hazardous substances / materials entering the environment (e.g. fuel spillage or wastewater), however should an</p>	All locations	<p>Safety equipment included in construction cost Minimal (part of standard construction practice)</p>	Construction Contractors	PUMA & LTA Project Managers

	<p>incident occur, the Contractor should must spill response plan must be in place. The response plan should include details on the use of spill kits and absorbent items to prevent spills entering the receiving sensitive environment (ground, surface water). This spill response plan should be applicable to all WCR rehabilitation and upgrade project works areas (WCR, quarries, and haul routes). A spill response plan should be in place for both the construction phase and operational phase.</p> <p>Spill kits and training of use to be provided to all workers during toolbox meetings. Spill kits to contain personal protective equipment (PPE) for the spill clean-up (e.g. appropriate gloves [nitrile] and overalls), material to contain the spill and absorbent pads, and a heavy duty rubbish bag to collect absorbent pads or material.</p> <p>Waste oil to be collected and removed abroad to an approved facility (for disposal or cleaning) at completion of works.</p>				
Loss of biodiversity	If during course of construction work, particularly vegetation clearance and excavations any bird, reptile or	All locations	No marginal cost	Contractors	LTA / PUMA / MNRE

	mammal species is identified as being potentially impacted (e.g. nesting bird in area of proposed vegetation clearance) work is to stop in the specific location of the find and the LTA, MNRE, and PUMA notified immediately for instruction to proceed.				
Health and safety	<p>Prepare site specific safety plans specifying responsibilities and authorities. Health and safety documentation to include all areas of the WCR rehabilitation and upgrade project work areas (e.g. WCR, quarries and haul routes). Ensure all occupational health and safety requirements are in place on construction sites and in work camps. Construction lay down area to be fenced to prevent access by unauthorised personnel.</p> <p>First aid training to be provided as required to site workers with basic first aid services to be provided by Contractor e.g. stretcher, vehicle transport to hospital.</p> <p>Provide education on basic hygiene practices to minimize spread of diseases.</p> <p>Increase workers' HIV/AIDS and</p>	All locations	<p>Security included in construction cost</p> <p>Included in construction costs</p>	Contractor	PUMA / LTA

	<p>sexually transmitted disease (STD) awareness, including information on methods of transmission and protection measures.</p> <p>Prohibit usage of drugs and alcohol on construction sites. Install lights and cautionary signs in hazardous areas.</p> <p>Establish footpaths and pull-off bays along roads through villages, near markets, schools and other community facilities.</p> <p>Limit construction activities from 7:30 am to 6:30 pm to limit exposure to dust, noise etc.</p> <p>Enhance safety and inspection procedures.</p> <p>Ensure use of PPE.</p>				
<p>Damage to assets and infrastructure</p>	<p>Maintain high standard of site supervision and vehicle and plant operation to reduce risks of damage to water, power and telecommunication lines.</p> <p>Prepare procedures for rapid notification to the responsible authority (LTA/PUMA and service providers).</p> <p>As a result of WCR upgrade project construction activities any damage to assets or infrastructure must be reported to the LTA/PUMA and service</p>	<p>All locations</p>	<p>Dependent on asset/ infrastructure and level of damage</p>	<p>Contractors</p>	<p>PUMA / LTA</p>

	<p>provider and rectified at the expense of the Contractors. Provide assistance with reinstatement, in the event of any disruption</p>				
Community grievances	<p>Ensure that public consultation and disclosure communication is completed at regular intervals to ensure that the public are fully aware of the WCR upgrade project program of activities. Consultation should include all aspects of the project including the airport site, quarries and transport routes. Signage should be used in public areas along the WCR upgrade project sites advising the complaints procedure and contact details of key project individuals responsible for responding to issues raised.</p>	All components	Minimal (part of standard construction practice)	PUMA Consultant	PUMA & LTA Project Managers
WCR local business grievances	<p>Ensure that local businesses including stall owners are included in the public consultation and disclosure communication process throughout the construction phase. Regular communication should be made with affected parties to ensure that they are fully aware of the proposed program of works. Signage should be used in public areas around the vicinity of WCR advising</p>	Airport	Minimal (part of standard construction practice)	PUMA Consultant	LTA / PUMA

	the complaints procedure and contact details of key project individuals responsible for responding to issues raised.				
OPERATIONAL STAGE					
Hazardous substance management	<p>Strictly apply and enforce manufacturer's recommendations for handling and storage. These measures include sealing of drums, and avoiding extreme heat.</p> <p>Compliance with international good practice.</p> <p>Security of storage areas to facilitate transport, handling and placement to be maintained (e.g. fences and locks fixed immediately if broken or vandalised).</p> <p>Complete list, including SDS for each chemical stored or used shall be accessible at all times. Signage to be posted in storage areas identifying all chemicals present.</p> <p>Staff to wear manufacturers recommended PPE (e.g. gloves and overalls) when handling or mixing hazardous substances.</p> <p>Emergency vehicles are to be serviced and maintained at existing workshop areas.</p>	All airport compounds	No marginal cost (standard operating procedure)	LTA	PUMA

Appendix D:

Monitoring Plan

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Appendix D: Monitoring Plan

PARAMETER TO MONITOR	LOCATION	MONITORING	FREQUENCY	RESPONSIBILITY
DETAILED DESIGN/PRE-CONSTRUCTION PHASE				
Traffic safety	Design documents	Ensure TMP established for project.	Prior to sign off of final designs	LTA Project Managers
Soil erosion	Design documents	Proposed construction scheduled for 2016 and 2017. Designs include erosion protection measures	Prior to sign off of final designs	LTA Project Managers
Water supply	Design documents	Proposed water source and supply network to be included in designs.	Prior to sign off of final designs	LTA Project Managers
Stormwater management	Design documents	Proposed stormwater management / drainage design (e.g. use of oil-water separator) to consider impacts on hydrology, receiving environments and also contamination risk	Prior to sign off of final designs	LTA Project Managers
Quarry operations	Quarry	Upon confirmation of which quarries are to supply aggregate verify quarry operations to ensure any required permits or approvals are in place. Ensure TMP is included in procurement documentation for transport of materials from the quarries to the airport.	Prior to contract award	LTA Project Managers
CONSTRUCTION PHASE				
Agreement for waste disposal	Construction Contractor's records	Permits and/or agreements with local waste disposal providers (e.g. Tafaigata Landfill) and licensed recycling operators. Inspection of disposal sites.	Documentation viewed prior to construction works starting. Weekly as applicable to schedule of works.	PUMA compliance inspector
Soil erosion	Areas of	Inspections at sites to ensure silt fences, diversion	Weekly inspection	PUMA compliance

	exposed soil and earth moving	drains etc. are constructed as needed and operating effectively. Inspection to ensure replanting and restoration work completed.	as applicable to schedule of works and after site restoration	inspector
Waste disposal	At WCR construction and quarry sites	Inspection to ensure waste is not accumulating and evidence waste has been stockpiled for removal to licensed landfill (Tafaigata Landfill), removal from Samoa as hazardous, recycling or returning to supplier. Inspections to ensure waste streams are sorted for re-use, recycling or waste to landfill.	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Water and soil pollution	At WCR and drainage easement construction sites	Inspection of sites to ensure waste collection in defined area; spill response plan in place and workers trained at all WCR upgrade project locations. Complete spill kits available where hazardous substances sorted and handled. Inspection of site to ensure effective sediment load, water and drainage management. Any results from groundwater sampling are submitted to MNRE, owner (SWA) and PUMA with remedial action points if background/baseline conditions are exceeded. Any encounters with potentially contaminated soil (based on visual or olfactory observations) are reported to PUMA / LTA. Inspect soakage pits siting directly above any underlying aquifer (if present).	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Dust	At construction sites, access roads, quarries	Site inspections. Regular visual inspections to ensure stockpiles are covered when not in use and trucks transporting material are covered and not overloaded.	Weekly inspection as applicable to schedule of works	PUMA compliance inspector

	and adjacent sensitive receptors		and on receipt of any complaints.	
Noise	At work sites and sensitive receptors	Site inspections to ensure workers wearing appropriate PPE when required. Measurement of noise level with hand-held noise meter not to exceed 70dB. Public signage detailing complaints procedure and contact people/person on display. Noisy machinery is replaced or fixed as soon as problem arises or on instruction by PUMA.	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Air pollution	At work sites	Site inspections to ensure equipment and machinery operating without excessive emissions. If an issue is reported the contractor is responsible for replacing or fixing the equipment to the satisfaction of PUMA.	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Storage of fuel, oil, bitumen, etc.	At work sites and project construction camps. Contractors training log.	Regular site inspections to ensure material is stored within bunded area and spill response training for workers completed. Visual inspection of spill kit for completeness and accessibility. Inspection to ensure hazardous materials storage containers and signs displayed clearly.	Weekly as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Vehicle and pedestrian safety	At and near work sites	Regular inspections to check that TMP is implemented correctly (e.g. flags and diversions in place) and workers wearing appropriate PPE.	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Construction workers and staff safety (personal protective	At work sites	Inspections to ensure workers have access to and are wearing (when required) appropriate personnel protective equipment e.g. for handling hazardous	Weekly inspection as applicable to schedule of works	PUMA compliance inspector

equipment)		materials). MCIL Health and Safety Policies/WB/IFC Guidelines have been implemented.	and on receipt of any complaints.	
Community/local business safety	At work sites	Inspections to ensure signs and barriers restricting access are in place and pedestrian diversion routes clearly marked (whether for access to a shop or home or particular route). Consultation with business representatives to ensure disruption is minimised.	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Community grievances	At work sites	Monitor public awareness campaigns and community engagement procedures.	Weekly as applicable to schedule of works and on receipt of any complaints.	PUMA I / LTA
Local businesses grievances	At work sites	Monitor public awareness campaigns and local business engagement procedures.	Weekly as applicable to schedule of works and on receipt of any complaints.	PUMA / LTA
Materials supply	Quarry and work sites	Inspections to ensure compliance with TMP and permits in place for transporting loads over 3 tonnes (if applicable) Evidence that trucks are not overloaded and loads are covered e.g. complaints register, evidence of debris on the road.	Weekly visual inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Climate change and coastal hazards	At work sites	Consultation and site inspection to ensure compliance with an approved Disaster Management Plan/Emergency Preparedness and Response Plan.	Immediately after an event	PUMA compliance inspector
OPERATION PHASE				

Accidents with hazardous materials or wastes	WCR	Accident report	Immediately after accident	PUMA/LTA
Drainage system operational with reduced flooding incidences	WCR	Clean out of soakage pits, culverts, documented and inspection of grass swales after mowing shows grass height in swale is higher than surrounds	Soakage pit – after storm events to clear blockages and annually to remove sediment. After grass mowing.	PUMA / LTA
Waste disposal	Tafaigata landfill and disposal sites	Inspection to ensure waste is not accumulating and evidence waste has been stockpiled for removal to licensed landfill (Tafaigata Landfill), removal from Samoa as hazardous, recycling or returning to supplier. Inspections to ensure waste streams are sorted for re-use, recycling or waste to landfill	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA / LTA
Water and soil pollution	WCR	Inspection of sites to ensure waste collection in defined area; spill response plan in place and workers trained at WCR upgrade project locations. Complete spill kits available where hazardous substances sorted and handled. Inspection drains on site to ensure no blockages present or maintenance required.	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA/LTA

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Soil erosion	Areas of exposed soil and earth moving	Inspections at sites to ensure silt fences, diversion drains etc. are constructed as needed and operating effectively. Inspection to ensure replanting and restoration work completed.	Weekly inspection as applicable to schedule of works and after site restoration	PUMA compliance inspector
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Water and soil pollution	At WCR and drainage easement construction sites	<p>Inspection of sites to ensure waste collection in defined area; spill response plan in place and workers trained at all WCR upgrade project locations. Complete spill kits available where hazardous substances sorted and handled.</p> <p>Inspection of site to ensure effective sediment load, water and drainage management.</p> <p>Any results from groundwater sampling are submitted to MNRE, owner (SWA) and PUMA with remedial action points if background/baseline conditions are exceeded.</p> <p>Any encounters with potentially contaminated soil (based on visual or olfactory observations) are reported to PUMA / LTA.</p> <p>Inspect soakage pits siting directly above any underlying aquifer (if present).</p>	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Dust	At construction sites, access roads, quarries and adjacent sensitive receptors	Site inspections. Regular visual inspections to ensure stockpiles are covered when not in use and trucks transporting material are covered and not overloaded.	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Noise	At work sites and sensitive receptors	<p>Site inspections to ensure workers wearing appropriate PPE when required.</p> <p>Measurement of noise level with hand-held noise meter not to exceed 70dB.</p> <p>Public signage detailing complaints procedure and contact people/person on display.</p> <p>Noisy machinery is replaced or fixed as soon as problem arises or on instruction by PUMA.</p>	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
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Storage of fuel, oil, bitumen, etc.	At work sites and project construction camps. Contractors training log.	<p>Regular site inspections to ensure material is stored within bunded area and spill response training for workers completed.</p> <p>Visual inspection of spill kit for completeness and accessibility.</p> <p>Inspection to ensure hazardous materials storage containers and signs displayed clearly.</p>	Weekly as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
Vehicle and pedestrian	At and near work	Regular inspections to check that TMP is implemented	Weekly inspection as	PUMA compliance

safety	sites	correctly (e.g. flags and diversions in place) and workers wearing appropriate PPE.	applicable to schedule of works and on receipt of any complaints.	inspector
Construction workers and staff safety (personal protective equipment)	At work sites	Inspections to ensure workers have access to and are wearing (when required) appropriate personnel protective equipment.e.g. for handling hazardous materials). MCIL Health and Safety Policies/WB/IFC Guidelines have been implemented.	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector
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Materials supply	Quarry and work sites	Inspections to ensure compliance with TMP and permits in place for transporting loads over 3 tonnes (if applicable) Evidence that trucks are not overloaded and loads are covered e.g. complaints register, evidence of debris on the road.	Weekly visual inspection as applicable to schedule of works and on receipt of any complaints	PUMA compliance inspector
Climate change and coastal hazards	At work sites	Consultation and site inspection to ensure compliance with an approved Disaster Management Plan/Emergency Preparedness and Response Plan.	Immediately after an event	PUMA compliance inspector
OPERATION PHASE				
Accidents with	WCR	Accident report	Immediately after	PUMA/LTA

hazardous materials or wastes			accident	
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Appendix E:

WCR Consultation Report – May 2017

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Community Consultation Records (CCR)

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1	Project Progress Meeting #1 – 4/5/15	
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4	Meeting with LTA and MNRE – 10/7/15	
5	Meeting with Utilities – 14/9/15	
6	Consultations with Families on WCR Easements: start 23/9/15 – 1/10/15	
7	Consultations with village Mayors and representatives 27/3/17	

Contract 1.2.1- Enhancing the Climate Resilience of the West Coast Road Detailed Design and Bid Evaluation Support

MINUTES OF PROGRESS MEETING NO.1

Date: 04/05/2015	Time: 2PM	Venue: LTA Board Room – Vaitele
Attendees:	LTA: Matamu James Moeono (MJM) – Project Management Division Manager Maverick Wetzell (MW) – Project Management Division Civil Engineer Michael Anderson (MA) – Project Component Advisor Titi Tutuvanu-Schwalger (TTS) – LTA Civil Engineer IPA/PMU : Leiataua Isikuki Punivalu (LIP) – PMU Manager Haeminda Jayasinghe (HJ) – PMU Procurement Engineer RI-PLT: Naty Ruby Ulmas (NRU) – Highway Engineer / Deputy Design Team Leader (Chairperson) Carlos Santos – Project Engineer Peseta Konelio Tone (PKT) – Environmental and Social Impact Specialist Peseta Simon Tone (PST) - Country Manager	
Apologies:	Nil	
1. WELCOME AND INTRODUCTIONS NRU welcomed meeting attendees and roundtable introductions.		
2. PROJECT UPDATE NRU provided a summary of the project progress to date through a Powerpoint presentation. Hard copies of the presentation slides were issued to the meeting attendees beforehand. The following comments and queries were made and raised during the presentation: <ul style="list-style-type: none"> - Topographic survey is complete. - Topographic drawing is 90% complete with the remaining 10% pertaining to the insertion of the cadastral survey information near completion. - MJM asked if the cadastral survey information to be inserted includes the drainage easements and whether any additional drainage easements are required i.e. in addition to the drainage easements identified in Beca’s drainage design. NRU advised that drainage easements are included in the cadastral information and that additional drainage easements are being considered. NRU explained that the final number of drainage 		

easements required is subject to the final design.

- MA asked if RI has a copy of the Tonkin and Taylor Quarry Assessment Report. It was confirmed that RI has a copy of this report.
- Pavement design is based on Austroads design standards. MJM asked whether any comparison is being made to other applicable standards for pavement design purposes. NRU advised that the pavement design engineer is using design standards considered suitable to the project.
- NRU advised that, while the Austroads design standards are being used for the road geometric design, the design speed is governed by the Road Safety Audit Report and the design speed for the road is 60km/HR. NRU explains that the WCR has no clear road hierarchy and because of the density of uncontrolled local access design speed is safety risks to design higher than 60kph.
- LIP requested clarification on where chainage 0m (CH0) is.
- NRU advised that CH0 is at the westernmost/Airport end. It was noted that this will allow for North to be at the top of the layout drawings.
- NRU explains the relation of MSL to Land Datum. Advised that 2m above MSL as required in the TOR will only affect less than 500m (0.20%) of the project road length, not the same 10% as stated in the TOR.
- NRU explains to affect 10% the selected elevation shall be 2.6m. NRU explains that climate change specialist recommended desirable road elevation can be Elev 3.0m which is 2m above the highest tide level recorded,

3. ISSUES AND RISKS

NRU advised that RI require 3D contour information from MNRE for drainage design purposes. PKT added that MapInfo files from MNRE can only be released through a MOU and requested LTA's assistance in sourcing the required information from the MNRE.

NRU advised that RI's surveyor is using digitized pdf files from MNRE for cadastral survey information. MJM commented that digitized pdf files may have accuracy limitations and recommended that RI submit a request for information to MJM listing all information required from MNRE and/or LTA.

NRU advised that 2m, rather than 1.5m, wide sealed shoulders are being considered as vehicles pulling over on to a 1.5m wide shoulder will impede traffic flows i.e. a safety issue.

MJM advised that RI's design should be based on 1.5m wide sealed shoulders due to the Client's budget constraints.

MA added that wider road shoulders will impact on longitudinal drainage given the road reserve width constraints.

NRU commented that the majority of the existing road is too low relative to the adjacent berms. This results in poor pavement drainage and poor pavement performance.

LIP commented that the TOR requires a whole-life cost-benefit analysis to be carried out to determine the most cost effective solutions for various pavement scenarios.

MJM stressed the importance of RI coordinating with the various utilities service providers for design requirements pertaining to utilities services.

NRU advised that it is RI's intention to work in close liaison with the utilities service providers as the design progresses. The impact of the design on existing utilities services is also contingent on the available road reserve which will be better defined once the cadastral survey information has been imported in to the design drawing.

MJM commented that it is preferred that the utilities services are located outside of the carriageway where practical for maintenance purposes.

MA advised that, other than for drainage easements, land take needs to be avoided at all costs. RI to submit a request for information to MJM listing all information required from the MNRE and/or LTA.

RI to base their design on 1.5m wide road shoulders.

4. INFORMATION TRANSFER

MJM requested information from RI on the extent, as a % of overall road length, that the existing road would need to be raised based on 2.25m, 2.6m and 3.0m above MSL.

NRU

MJM requested a copy of RI's proposed drawing template showing the title block for the Client's review.

MJM advised that the current communication and information transfer system using multiple random emails between RI and the Client and vice versa is untidy and needs improvement. The Client's preference is for more regular progress meetings at which many of the issues can be discussed and addressed.

PKT explained RI's proposed initial consultations meeting with the village mayors (Pulenuu) as previously advised by the Design Team Leader. It is intended to use the LTA meeting house at Vaitele for this meeting. There will be some costs involved including transportation and lunch for the Pulenuu. MA advised that such expenses are covered by the Client. MJM requested that RI provide a cost estimate to the Client for the initial consultations meeting with the village mayors. RI to provide information as requested.

RI to provide information as requested

RI to provide a cost estimate to the Client for the initial consultations meeting.

5. CONTRACTUAL AND OTHER MATTERS

MJM advised that RI has requested a time extension of one month for Deliverable No. 2 (Specifications) which is overdue. A formal response to RI's request will follow. PST and NRU commented that, from a technical perspective, the Project Specifications are dependent on the design and that the timing of this deliverable should reflect this dependency.

LIP advised that the Inception Report submitted by RI varies somewhat from the Technical Proposal in terms of the design services being carried out (refer a copy of LIP's email to MJM regarding "PMU Comments on the Inception Report" issued hardcopy to RI at today's meeting). MJM emphasized that the Client requires an updated program from RI as soon as possible. This can be in the same format as the one issued at the Kick-off meeting, but updated to reflect the actual sequencing of the various activities. Note that the updated program is a separate requirement to the updated personnel schedule previously submitted by RI.

MJM expressed his concerns with the Design Team Leader's limited availability in Samoa stating that Form Tech 6 included in the Contract applies. NRU advised that she is only authorized to comment on technical matters and that this issue needs to be addressed through the Design Team Leader.

NRU advised that Harold Bofinger, RI's Pavement and Geotechnical Specialist, is scheduled to arrive back in Samoa on the 14th of May 2015.

6. NEXT MEETING

Tentatively Scheduled for the 18th of May 2015 at 10am at the LTA Board Room – Vaitele.

Contract 1.2.1- Enhancing the Climate Resilience of the West Coast Road Detailed Design and Bid Evaluation Support

MINUTES OF CONSULTATION MEETING WITH UTILITIES

Date: 20/05/2015	Time: 10.00AM	Venue: LTA Meeting Room – Vaitele
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Attendees:	<p>LTA: Matamu James Moeono (MJM) – Project Management Division Manager Maverick Wetzell (MW) – Project Management Division Civil Engineer IPA/PMU : Leiataua Isikuki Punivalu (LIP) – PMU Manager Haeminda Jayasinghe (HJ) – PMU Procurement Engineer MWTI: Leota Kapeneta Perelini (LKP) – ACEO, Land Transport SWA: Petaia Mafulele (PM) – Manager Rural Operations and Maintenance B/SKY: Reupena Amuimuia (RA) – Team Leader CCN Ronnie Reti (RR) – Technician/Engineer RI-PLT: Naty Ruby Ulmas (NRU) – Highway Engineer / Deputy Design Team Leader (Chairperson) Dr Harold Bofinger (HB) – Pavement Specialist Carlos Santos – Project Engineer Peseta Simon Tone (PST) - Country Manager Peseta Konelio Tone (PKT) – Environmental and Social Impact Specialist</p>			
Apologies:	Non-attendance by EPC and Digicel who were invited for the consultation			
Item	Discussion	Action Required	By Who	By When
7. WELCOME AND INTRODUCTIONS	ST welcomed meeting attendees and introduction of NRU			NOTE
<p>8. PURPOSE OF MEETING</p> <p>NRU stressed the importance of working together with the Utilities to ensure the successful implementation of the WCR project. The presentation slides and information sharing conveyed the following message:</p> <ul style="list-style-type: none"> - To prevent any mishaps that may happen during the course of the project (example shown of light pole in the middle of a newly constructed road intersection), working closely with utilities is essential focusing on the three C's: Co-ordination / Co-operation / Communication, which will ultimately result in cost savings for the project both short term and long term. - Secondly, obtaining the most accurate data available and sharing of information from the Utilities including the Client-LTA is tantamount to preparing a design that considers all the relevant and appropriate information. - Stressed the importance of the five P's in planning to ensure the success of the design and the project as a whole which entail – proper preparation prevents poor performance. - Presented a summary of the design work carried out to date which include the topographical survey from Faleolo Airport to Saina, road alignment based on the 20m road boundary from existing road centerline, and preliminary longitudinal and vertical alignments. - Presented a diagrammatic presentation of the road cross-section for the 20m road corridor that includes the carriageway, sealed shoulders, grassed perm, drainage and location of utilities to optimize the full 20m boundary with a view of future developments for discussion. 				
<p>9. GENERAL DISCUSSION</p> <ul style="list-style-type: none"> • MJM stressed the importance of cost consideration in the design because of available funds. • NRU advised that currently, services are close to or under the sealed section. So when the seal pavement is extended these will need to be relocated away from the sealed surface to avoid having to dig the pavement up should water leak or other utility work required in the future. • PST also shared the same view with the need for the Client and Utilities to determine whether the requirement is relocation or an upgrade hence costs implications and responsibilities can be allocated. Shared examples of Client/Utilities issues encountered during the recently completed Vaitele Street Road Widening project and the resultant arrangements between the Client, Utilities, and Contractor i.e. some costs were covered by the project particularly relocation, and others including upgrading were allocated to the Utility provider under their own arrangement 				

with the Roding Contractor.

- PM of SWA stressed that the WCR will have a major impact on their services and it would be better to replace their lines which are relatively recent installations for the most part, then have the new lines commissioned for supply before de-commissioning the old ones as this will ensure a continuous supply to all customers. To leave their lines under the pavement would not be advisable as any leaks would require the new pavement to be dug up.
- PST noted PM's comments on the recently installed line and the proposed new line and that this will be a matter for the Client and the Utility providers to work out who and how to cover costs. Acknowledge also is the impact of leaking on the structural integrity of the pavement, etc. Suggested that the Utilities provide BOQs for the required work, followed by the discussion and decision on whom to cover what costs, etc.
- NRU raised and supported by PST the need for road crossings for Utilities to be identified by the utilities so that these can be discussed and included in the design
- RR of Bluesky expressed that as carried out for the Vaitele Street Road Widening Project, that instead of relocating their services, the lids can be raised and heavy duty covers can be installed.
- MJM suggested that these can be sorted out and addressed between RI/PLT and Utilities but stressed that the project covers relocation and modifications required by the project costs only and not new lines or upgrades of services.
- MJM raised the issues of cadastral boundaries and whether these services would be outside the road 20 meter reserve and where they sit relative to the longitudinal drainage. Stressed the importance of having close consultations between RI/PLT with the Utilities for their design requirements.
- NRU advised that as previously undertaken, RI/PLT will continue to work closely with the utilities service providers as the design progresses. The road alignment will be checked on the basis of the 20m road corridor from the existing road center-line as the impact of the design on existing utilities services is also contingent on the available road reserve which will be better defined once the cadastral survey information has been confirmed. As per preliminary road alignment, some light poles may need to be relocated and the numbers will be confirmed once the final alignment has been confirmed.
- MJM commented that it is preferred that the utilities services are located outside of the carriageway where practical for maintenance purposes.
- RR requires one conduit to be installed by the project for future use and confirm that B/Sky can work with the Road Contractor to address new requirements to avoid any issues.
- LIP advised that if required, the road alignment can be adjusted / moved to avoid having to relocate electric/light poles, etc.
- NRU advised that some relocation of Power poles cannot be avoided because of site restrictions, etc. but will check with the geometrics of the road if safe to do so. This was supported by MJM.
- MJM suggested that RI/PLT confirm with EPC what their requirements are and that they may have funds to carry out their requirements.
- PKT requested Utilities and the Client to provide all available info and data on services to facilitate and to ensure the relevancy of the design.
- PM confirm that SWA can provide the required info and data. RA also confirms that B/Sky can provide the required info and data.
- MJM raised the issue of the cadastral survey and property boundaries and their impact on the road alignment, drainage and the Utilities. Also raised the issues faced by Beca on a previous assignment where the issue of a discrepancy between the survey carryout out along the WCR and the data provided by MNRE surfaced.
- NRU commented that this is a real issue and needs to be confirmed with regards to the proposed road alignment. This was supported by PST.
- LKP of MWTI commented that the existing road with its intended road reserve of 20m and 30m, did carry out land compensation when SPDC carried out he works about 40years ago, and

suggested that LTA/RI-PLT with MWTI meet up with MNRE to discuss this in detail.

- MJM agreed to organize this once LTA have had time to discuss this further.

All agreed to meet up once LTA have confirmed a time for a meeting with MNRE.

LTA and SWA to confirm what is covered under the project

RI to co-ordinate with Utilities

RI to consult with EPC

LTA and Utilities to provide all info and data on WCR

SWA and B/SKY to provide available data

MJM to organize a meeting with MNRE/LTA/MWTI/RI-PLT

10. CONSULTATION FINISHED

PKT thank all that attended the consultation on behalf of the Client / PMU /RI-PLT. Consultation finished at 11.30am.

Lunch provided by RI/PLT

11. CONTACT DETAILS OF ATTENDEES	LAND TRANSPORT AUTHORITY (LTA)	PHONE/MOBILE	EMAILS
	Matamu James Moeono (MJM) – Project Management Division Manager	7579004	james.moeono@lta.gov.ws
	Maverick Wetzell (MW) – Project Management Division Civil Engineer	7573005	maverick.wetzel@lta.gov.ws
	IPA/PMU : Leiataua Isikuki Punivalu (LIP) – PMU Manager	7776021	ipa@ipa.com.ws
	Haeminda Jayasinghe (HJ) – PMU Procurement Engineer	IPA	haeminda@yahoo.com
	MWTI: Leota Kapeneta Perelini (LKP) – ACEO, Land Transport	21611	kperelini@mwti.gov.ws
	SWA: Petaia Mafulele (PM) – Manager Rural Operations and Maintenance	7704440	Petaia@swa.gov.ws
	BLUESKY: Reupena Amuimuia (RA) – Team Leader CCN	7500889	ramuimuia@blueskysamoa.com
	Ronnie Reti (RR) – Engineer	7500116	rreti@blueskysamoa.com
	RI-PLT: Naty Ruby Ulmas (NRU) – Highway Engineer / Deputy Design Team Leader (Chairperson)	20109	natyrubyhanoi@yahoo.com
	Dr Harold Bofinger (HB) – Pavement Specialist	20109	hebofinger@icon.co.za
	Carlos Santos – Project Engineer	20109	carlosantos.eng@gmail.com
	Peseta Simon Tone (PST) - Country Manager	20109/7512330	simon.tone@samoasonline.ws
	Peseta Konelio Tone (PKT) – Environmental and Social Impact Specialist		konelio.tone@samoasonline.ws

**CONSULTATION WITH THE SNs (Village Mayors) FROM SAINA – SATAPUALA
WEDNESDAY 26th MAY, 2015. 10.00am MWCD HALL**

PRESENT:

Matamu James Moeono	LTA – PMU Manager
Maverick Wetzell	LTA – Engineer
Peseta M. Sua	MWCD/IA
Moevasa Reti	MWCD/IA
Atuaia M. Liukney	MWCD/IA
Peseta Konelio Tone	RI/PLT Consultants
NB. List of all Village Pulenuus and Reps that attended the meeting are noted at the end of the minutes	

UPU FA’AFEILOA’I – PESETA MULINUU SU’A

WELCOME REMARKS said by Peseta Mulinuu Su’a (MWCD/IA Representative)

TATALO – SAPA’U (FORMER SN O LEVI & ALAMUTU

Opening Prayer said by Sapa’u

PRESENTATION – PESETA KONELIO TONE OF RI/PLT CONSULTANTS

FOLASAGA in SAMOAN

Sa fa’aali le ata o le auala tele amata mai Satapuala seia paia Saina. Na faaalila e Peseta i se ata fa’ataatia o le toe fausiaina ma le faalateleina o le auala tele e amata atu i Saina seia pa’ia Satapuala.

IN ENGLISH

RI/PLT Consultants presented a video clip of the main road starting from Saina to Satapuala and then discussed the Samoa Government’s plan to reconstruct the road to take in the 20m road reserve (10m on each side of the existing road centerline) with 3.5m carriageways, 1.5m sealed shoulders to facilitate pedestrian movement and bus stops, 1.5m grassed verge and allowing for drainage and utilities.

IN SAMOAN

O le fuafuaga a le Malo mo le toe faalateleina ma faaleleia o le auala ina ia aua nei aafia gofie i suiga o le tau ua iai nei, e tusa ma le 20m lona lautele, 10m mai le laina ogatotonu o le auala o loo iai nei lona itu e lua (3.5m faataina mo taavale & 1.5m faataina mo road shoulders). O road shoulders nei e aafia ai se vaega e savavali ai tagata, faapea le tutu ai o taavale ma pasi, ona sosoo ai lea ma se vaega mo alavai ina ia tata’i ese ai le vai mai le ono aafia ai o le auala faapea se avanoa mo le SWA, EPC, Telecommunication, ma o se fuafuaga ua leva ona mafaufau iai le Malo, ae sa fa’atali lava se fesoasoani mai fafo mo le fa’atinoga o lea vaega. O lea la poloketi o lo’o fuafua e faatupeina e se nonogatupe mai le World Bank.

IN ENGLISH

RI/PLT Consultants conveyed the Government’s plan to reconstruct the road to meet climate resilience requirements that has been in the pipeline for a while with previous consultations undertaken in 2009 and 2012, but the Government was in the process of securing funding to finance the project. Funding from the World Bank has now been secured to fund the project.

Expressed also the extend of Climate resilience requirements that stipulates the road must meet certain criteria that include raising the level of the road in some areas, improving foreshore protection where it requires, providing effective drainage, designing and constructing a more resilient pavement, specification consideration, and so on.

IN SAMOAN

Sa fa'asolo pea le fa'aaliga ma faamatalaga o ata o le auala ma lona taatiaga seia tau mae'a lava afioaga uma o le aafia i lea fuafuaga.

IN ENGLISH

Discussed the existing road alignment with both permanent and temporary structures shown in the video clip for all villages included in the project with emphasis on areas along each village where widening the road footprint could impact on hedges, fences and village pools that are located close to the road. Also conveyed to the Village Mayors was that the new road alignment will follow the existing road centerline with necessary considerations to minimize the impact of the project on the environment, some permanent structures, utilities and the people and their properties. Possible issues that arise will be addressed through consultations with LTA/MNRE and all the key stakeholders affected including the landowners. This will ultimately inform the design and the construction methodology.

RAISED ISSUES

COMMENT IN SAMOAN

SN Toamua – Saunoa Leaoaniu Patolo, e 'au lava lo latou Afioaga i soo se fuafuaga a le Malo, ae pau lava se talosaga pe mafai ona ta teisi aga'i i tai le auala pea o'o mai i lumafale o le falesa EFKS ona e lata tele mai i luma le falesa.

COMMENT IN ENGLISH

SN Toamua – Leaoaniu Patolo agreed to the plan as presented but requested for shift of the road alignment further away (move towards the seaside) at Toamua village as the Church (EFKS), in particular the driveway and ramp is too close and possibly be less than 10m from the existing centerline.

RESPONSE IN SAMOAN

Sui LTA – Saunoa Matamu James Moeono, o le taimi nei fa'atoa tapena le galuega, ao talosaga o le a ta'atia sei toe taga'i ai le Pulega i le taimi e faatino ai le plan, sei mae'a le design a le consultants.

RESPONSE IN ENGLISH

LTA Rep- Matamu James Moeono responded that the project is in its initial phase and welcomed the requests for design and road alignment consideration but will await the completion of the consultants design.

COMMENT IN SAMOAN

SN Levi & Alamutu – Saunoa Sapa'u po o lea le faamoemoe o le a toe fai ai le auala, po o ni taligamalo po o nisi fuafuaga?

COMMENT IN ENGLISH

SN Levi & Alamutu- Sapa'u questioned the reason for project?

RESPONSE IN SAMOAN

LTA – Saunoa Matamu ua leva ona fa'ataatia le fuafuaga a le Malo ae o lea fa'atoa maua le tupe mai le World Bank e fa'atino ai.

RESPONSE IN ENGLISH

LTA – Matamu explained that the project has been planned for some time but has just secured funding from the World Bank to implement it.

COMMENT IN SAMOAN

SN Faleula – Saunoa Leaso Tuvale sa tataua ona invite se sui o le Ekalesia Metotisi i le consultation lea ona e le aia le Afioaga i le pa a le Ekalesia Metotisi, tei ua afaina i le faiga o le auala.

COMMENT IN ENGLISH

SN Faleula – Leaso Tuvale said a member of the Methodist Church should have been invited as the village does not have the authority on the Church's fence but could be affected by the construction of the road.

RESPONSE IN SAMOAN

RI/PLT Consultants – Na tali Peseta o le fonotaga toe faaauau muamua lenei ma Sui Pulenuu mo le faamoemoe, ae a mautimoe loa le aafiaga o nisi o mea totino a le lautele o tagata nuu o loo alala ma papa aao I afoaaga taitasi, aemaise ai foi Ekalesia o loo aafia I lenei galuega, ona faafesootai loa lea ma ni faatalatalanoaga ma se maliega mo le faatinoina o le galuega. Ae sa talosagina foi le mamalu o Tofi o Nuu taitasi mo la latou lagolagosua I fuafuaga ua tapena e le Malo mo le manuia o ona tagata nuu.

RESPONSE IN ENGLISH

RI/PLT Consultants – Peseta responded that this consultation is with the village Mayors, and it is the continuation of other consultations that were held previously on the WCR project, and once confirmed that some hedges, fences and other temporary or permanent structures will be affected as well as land, then the land owners will be consulted. Stress also the importance of the support from the village Mayors on all matters relating to consultations with villagers and land owners within each village.

COMMENT IN SAMOAN

SN Salioa & Mataiilili – Saunoa Saili pe mafai foi ona tu'utu'u agai i tai le faiga o le auala aua ne'i 'aia lumafale o le Ekalesia o le Au Paia o Aso e Gata ai.

COMMENT IN ENGLISH

SN Salioa & Mataiilili – Saili requested for a shift towards the seaside to avoid affecting the front of the LDS Church compound.

RESPONSE IN SAMOAN

RI/PLT Consultants – Na tali Peseta o le taatiaga o le auala fou e taumafai lava ina ia aua nei aafia ni mea totina e mafai ona faasaoina. O le taumafaiga lava ina ia faaleleia le auala ma a mafia lava ona tuutuu i gatai le auala e aunoa ma se aafia ai o le saogalemu o tagata ma taavale feoai, ia o le aano lava lea o le faamoemoe o le Malo.

RESPONSE IN ENGLISH

RI/PLT Consultants – Peseta responded that the request will be considered and that the new road alignment which will follow the existing road alignment as close as possible will endeavor to minimize any impact on properties and the environment.

COMMENT IN SAMOAN

SN Utualii – Saunoa Moala Pomare o iai ni giveway spot i totonu o auala nei e pei o le design ina o auala i Vailoa ma Apia.

COMMENT IN ENGLISH

SN Utualii – Moala Pomare asked if there any give way spots/median strips on the road similar to the road design for Apia and Vailoa.

RESPONSE IN SAMOAN

Sui LTA/RI/PLT Consultants – o le fuafuaga a le Malo e tatau ona oo atu ia Novema ua mae'a uma fa'atalatalanoaga ma le ata faataatia o le galuega, ae masalo o Fepuari 2016 ua amata fa'atino le galuega.

RESPONSE IN ENGLISH

LTA/RI/PLT Consultants – The Government's plan is that the design and ongoing consultation phase will be completed by November and hopefully the construction will begin by February 2016.

COMMENT IN SAMOAN

SN Utualii – Saunoa Moala pe totogi la lauu ia o le a afaina i le toe suaina o le auala, ae fa'afefea foi fanua ia e ta'i atu ai outlets o drainages.

COMMENT IN ENGLISH

SN Utualii – Moala if there is a plan to compensate trees affected in the project and the family lands used for drainages outlets.

RESPONSE IN SAMOAN

Sui LTA – Saunoa Matamu e iai laau toto e totogi i se vaega o tupe o le poloketi lea, pei o niu ma ‘ulu.

RESPONSE IN ENGLISH

LTA Rep – Matamu explained that some trees will be paid for by the project. (E.g. coconut trees & breadfruit trees)

IN SUPPORT

RI/PLT Consultants – Sa faaalua e Peseta, o loo iai faiga faavae ua maea on faataoto e le MNRE ma le LTA ua faapea foi ona agatutusa ma fuafuaga a le WB mo le fausiaina o auala tetele, o loo aofia ai lava ma le fa’amaninoga o ituaiga natural resources e aofia ai ma laau e tataua ona tauai pea fai e aafia i soo se fuafuaga a le Malo.

IN SUPPORT

RI/PLT Consultants – Peseta explained that there are templates used by MNRE, LTA that are in line with the WB requirements that stipulates the types of Natural resources including plants that should be compensated if affected by roading projects funded by the WB.

COMMENT IN SAMOAN

SN Nono’a – Saunoa Tilialo pe mafai ona silasila ane le Malo i le fa’asao a Nono’a aua nei afaina pe a fai le auala, ona o se fa’asao foi o loo faamoemoe ai le Afioga mo le Atinae o le Tamaoaiga, pe le tataua ona fai ai se auala laupapa.

COMMENT IN ENGLISH

SN Nono’a – Tilialo requested for the Government through LTA and the Design Consultant to consider the Villages conservation area and pool (fisheries nursery) with their preference not to be affected and if it is possible to build a bridge.

RESPONSE IN SAMOAN

LTA/RI/PLT Consultants – o le fuafuaga ua tapena a le Malo mo le faalauteleina ma le faaleleia o le auala, ua faataua ai le faaititia o le aafiaga o meatotino e aofia ai ma faasao a aiga ma nuu taitasi. O le a tagai iai le Malo e auala atu i tapenaga a le Pulega a le LTA ma le kamupani ua filifilia e tapenaina le ata o le galuega, poo le tonu le auala e mafai ai ona faaititia le aafiaga o le faasao.

RESPONSE IN ENGLISH

LTA/RI/PLT Consultants – the request is noted and that consideration in the design will take into account possible means to minimize any impact on the conservation area and pool (fisheries nursery).

WRAP UP by Peseta Mulinuu – MWCD.

By Peseta Mulinuu, o lea na fa’ailoa e le RI/PLT Consultants aemaise foi le Sui o le LTA, o le consultation muamua lea na o le faatalanoaina o le design, a o lesi feiloaiga o le fa’ataatia ai ata o fanua o le aafia i le faalauteleaga o le auala.

Peseta reiterated to the SN’s that this is just first phase of consultations for the design of the road. The next consultation will look at the road map and the lands that will be affected by the project.

EXPRESSION OF APPRECIATION AND ‘FAAFETAI TELE’

Peseta Konelio Tone thanked all that attended the consultation on behalf of LTA and RI/PLT Consultants.

LTA provided lunch and \$20 Tala pasese for all village Mayors and reps that attended.

LIST OF VILLAGE PULENUUS AND REPS THAT ATTENDED

VILLAGE	PULENUU	PHONE
SAINA	Tofa Vuti Soonalole	8401538
TOAMUA	Tofa Leoaniu Patolo Sasauli	7714791
FALEULA	Tofa Leaso Sefo	7234241
MALIE	Faamausili Ioane	7207170
AFEGA	Tofa/Susuga Fata Saifoloi	7244606
TUANAI	Tofa Logo Futialo	7236334
LEAUVAA SASAE	Tofa Sagote Laki	E lei auai mai
LEAUVAA SISIFO	Tofa Vaifale Soe	Na faanoi mai ua le avanoa
LEVI ALAMUTU	Afioga Sapau Vitale	42261
LOTOSOA	Faumuina Muti	Na faanoi ua le avanoa
SALEPOUAE	Tofa Vaivaimalemalo Vesi	7256880
NONOA	Tofa Tilialo Tinou	42572
UTUALII	Tofa Moala S. Pomare	42050/7262695
TUFULELE	Tomaimano Mika	7735861
FALEASIU (SAPULU MA LEALALII)	Tofa Fesolai Mailo	Lei auai mai
FALEASIU (MOAMOA MA TAUOO)	Tofa Moala Reupena	Lei auai mai
FASITOOOTA (SALIOA MA MATAILILI)	Tofa Sailimalo Loloata	8427810
FASITOOOTA (AVANO MA SATUI)	Tofa Tauauvea Ene Soi	7621462
NOFOALII	Tofa Ili Talilama	42790
LEULUMOEGA	Tofa Tiata Vailiga	42521
FASITOOTAI	Tofa Sevealii Valuniu	7286375
VAILUUTAI	Tofa Leaitua Taua	7741846
FALEATIUI	Tofa Mapuiletoo Vaotofu	7620662
SATAPUALA	Tofa Solialofa Faamau	7222874
OTHER VILLAGE REPS		
LEULUMOEGA	Moega Pale	8405083
NOFOALII	Agaseata Koroseta	7315503
FASITOOTAI	Togoana Sua	8485444

**MINUTES FOR MNRE / LTA & Roughton / PLT (KONELIO TONE)
MEETING #2, AT MNRE CEO OFFICE
10TH JULY 2015, 10:30am**

PRESENT:

Sala Josephine	MNRE (ACEO - Legal)
Filisita	MNRE (Land Division – ACEO)
Asi	MNRE (Surveyor)
Konelio	Roughton/PLT
Michael Anderson	LTA
Maverick Wetzell	LTA
Malcom Esera	LTA
Anelisa Auelua	LTA

OPENING:

Meeting commenced with Filisita welcoming everyone present and handing it over to Maverick for a recap of last week's meeting and subject of meeting today.

LTA

Maverick acknowledged Filisita and thanked MNRE for hosting the meeting at their premises and hand it over to Michael for the days discussion.

LTA

Michael went on to say that the current project will be within the boundaries as per survey map prepared in the 1970s with a road reserve of 30m.

Roughgton/PLT

According to Konelio, during onsite inspections and visual observations as well the information provided by MNRE indicate that the road does not show a 30m road reserve or clearance and that there is occupation at some areas.

MNRE

Asi suggested the map and plan is old and need to be surveyed again if compensation will be paid.

LTA

Michael said compensation already paid and overall its just a reconstruction but no widening and the only issue for compensation will be for the easements.

MNRE

Sala suggested that they have learned from past experience of such cases and it is best for LTA to get a surveyor to find legal boundaries because of occupation.

Asi also refer to past cases of such and advises LTA that they should do it properly to avoid delay in construction also World Bank prefers to pay out compensation first before construction.

And Compensation cannot be paid out if there's no proper survey.

LTA:

Maverick suggested that design should be ready by mid September this year and wanted to know if the map we will be using is legal then we will work according to it and MNRE will accept when we come back after the redefinition survey.

WAY FORWARD:

It was established that LTA should carry out a redefinition survey immediately as Konelio pointed out there was no redefinition survey in Roughgton/PLTs' TOR. LTA will work out how many surveyors to be attached at this work as to avoid any time wasted. Fit design according to plan and MNRE will deal with the compensation.

Discussion for the day moved on to the Easements.

Roughgton/PLT

Konelio pointed out that there are about 27 easements along the WCR using BECA original designs, with proposed, actual and alternative easements. Some existing easements will need to be relocated /redirected as there are new buildings being constructed on site.

MNRE

Again Asi suggested that a site visit needs to be carried out and that it needs to have a proper survey plan for easements.

Sala stated that we should start identifying easements for compensation purposes particularly the potential difficult ones.

Asi emphasised on the easements being surveyed and advertise for quotes from surveyors.

LTA

Michael informed the committee there are 4 surveyors that LTA usually uses their service and will invite them to bid.

CONCLUSION:

1. LTA will carry out redefinition Survey for the legal boundaries
2. Site Visit for the easement to be carried out following week within stretch of two days and will organize by LTA.
3. Sala suggested if LTA needs assistance for payment for the surveyors then should contact them as soon as possible and they will assist.

NEXT MEETING:

Members will be advised the day and time for next meeting.

Minutes prepared by Anelisa Auelua of LTA.

CONTRACT 1.2.1 REHABILITATION OF WEST COAST ROAD PROJECT

AGENDA ITEMS AND MINUTES OF MEETING WITH LTA AND UTILITIES, MONDAY 14/9/15, 2.30pm

Present:

LTA: Maverick Wetzel (MW), Michael Anderson (MA), Malcolm Esera (ME)
PMU: Ofeira Faasau (OF)
Blue Sky: Peseta Nafai (PN), Ronnie Reti (RR)
SWA: Jolivette Thompson (JT), Patience Kinnare (PK)
RI/PLT: Peseta Konelio Tone (PKT)

Apologies: Petaia Mafulele (PM) – SWA Rural Division

EPC and Digicel – Invited but non-attendance.

MW

Welcomed everyone and explained the aim and focus of the follow-up meeting to ensure that Utilities are fully consulted and involved in the preparation of the design for the WCR.

PKT

- Reiterated that this is the follow-up meeting for all Utilities together with the Client, with the initial full Utility consultation and a number of specific utility provider sessions already conducted.
- Stressed the tight remaining time frame for design preparation, and the urgency for the required information to be submitted to ensure that necessary and appropriate considerations are taken into account.
- Advised all that the discussion will follow the items set out in the agenda, and handed everyone a copy of a typical WCR cross-section drawing for reference in the discussion of service

locations. The typical cross-section shows the existing road (sealed carriageway and unsealed shoulder widths), as well as the proposed road details with sealed carriageway and sealed shoulder widths, verge and drainage swales.

1. Confirm location of existing services and relocation – EPC poles, Bluesky poles, SWA lines/valves/hydrants;

PKT

- Stressed the need for all the service providers to confirm the locations of their existing services, and where they would prefer to relocate them should they be required to do so. RI/PLT have provided each service provider with a list of possible affected assets and for Utilities to confirm these.
- Stressed the need for EPC and Bluesky to identify which utility supply poles are theirs, in particular those that are within 6m from the existing road centreline, as these may require to be relocated. Will have to raise this with EPC at another forum – utility specific.
- Also raised the need for the LTA to confirm and agree with the Utilities on what services are to be affected and what mitigation measures are to be implemented, including upgrading, relocation or new installation.
- Highlighted also the importance of taking a long term view, with ease of maintenance considerations, minimal impact on new road, as one of the key deciding factors on whether to maintain status quo, relocate, upgrade or new installation.
- Stressed the tight time frame required for the Design Consultant to complete the Design and urged the Utilities to provide all the information they have on their assets along WCR and to prepare BOQs for affected assets to be included in the total project costs at the earliest.

MW

- Supported these points adding that experience from Vaitele Street widening stresses the real need for Utilities to work closely with LTA in design preparation to minimise any un-necessary issues at the Construction stage.

RR

- Pointed out that Bluesky have an underground line as well as the overhead lines from Saina to the Airport (i.e. full length on the project). Confirmation also that they have provided some information and are in the process of compiling the list of affected assets and the BOQ for the project.

PN

- Confirmed support that Bluesky will provide the necessary information as required at the earliest.

JT

- Confirm that SWA have provided some information on their services along WCR and will try and provide the required information including the BOQ for affected assets at the earliest.

2. Incorporate utilities in typical road cross section – agree on where to locate or relocate.

- General discussion based on the typical road cross-section with all agreeing that the services need to be outside of the proposed new sealed pavement, at where the 1m verge is or after the verge and within the 20m ROW, for ease of maintenance.
- General agreement that Utilities are to propose whether their existing services are to be relocated, particularly water supply due to impact on road, raised and upgrade covers as the case for some Bluesky chambers, or new installation altogether due to impact on existing services.
- The BOQs for these affected services will be included in the total costs for the project.

3. Finalise Utilities requirements – overhead or underground requirements;

- General discussion on EPC and Bluesky requirements, with focus on Bluesky services as EPC is not represented.
- Bluesky confirmed that they require both underground (by the road side) and overhead lines to the customers. Bluesky to look at the number of affected poles for relocation, as well as consideration for their underground line if require relocation.
- For SWA, confirmation that their focus is on considerations for relocation, upgrading or new installation, and will provide confirmation on these soon.

4. Confirm the extent of EPC/MNRE arrangement for lights – numbers, specs, etc.

- General agreement that this will have to be discussed between LTA/EPC/MNRE and confirm their requirements.
- LTA to organise a meeting with both EPC and MNRE for confirmation.

5. Road crossings – what to do with existing ones and do they need upgrading, proposed locations for new ones, and if common for all or otherwise and what type, etc.;

- SWA confirm that they have a number of underground road crossings
- Bluesky confirm that they only have overhead road crossings
- SWA agree to evaluate the number of crossings that they currently have, and propose if require to be upgraded and also if additional new ones needed.
- Bluesky also agree to assess and consider if require underground road crossings.
- General acceptance of a common trench and to use a similar approach as done for the Vaitele street widening with the Utility conduits/pipes running along the same crossing where the drainage line is situated.

6. Utilities to provide BOQs for affected services to be included in the total project costs;

Both SWA and Bluesky agree to provide the BOQs for affected assets to be included in the Total project costs.

7. Costs implications to be confirmed by LTA on what is covered in the project, and what is the responsibility of the service provider;

MW

- Stressed that the project has limited funding and would only consider covering costs for relocation of services, with any upgrading and new installations to be covered by the Utility provider.

Both SWA and Bluesky pointed out that costs involved would be great and the WCR would need to absorb some costs to make this viable for them.

PKT

- Advised SWA and Bluesky to prepare BOQs for affected services and considerations for costs will be discussed between the LTA and Utility provider as required.

8. Establish deadline for receiving all these information and data.

PKT supported by MW

- Stress that time is of the essence and would appreciated if the required information and BOQ for affected assets be provided by each Utility provider by the end of the week
- Both SWA and Bluesky agree that they will do their best to provide these by the end of the week

MW

Thanked all that attended and urged SWA and Bluesky to do their best to provide the required information at the earliest.

Attendees Contact Details:

Name	Organisation/Designation	Phone	Email
Maverick Wetzell	LTA – Manager, PMD	7573005	Maverick Wetzell <maverick.wetzell@lta.gov.ws>
Michael Anderson	LTA – PCM, PMD	7722552	'Michael Anderson' <michael.anderson@lta.gov.ws>
Malcolm Esera	LTA – Engineer, PMD	7573006	'Malcolm Esera' <malcolm.esera@lta.gov.ws>
Ofeira Faasau	IPA/PMU – Asst. Procurement Specialist	20842 or 7735325	'Ofeira Faasau' <ofeira@ipa.com.ws>
Peseta Nafoi	BlueSky – Manager, Technical Division		'Peseta Nafoi' <pnafoi@blueskypacificgroup.com>
Ronnie Reti	BlueSky - Engineer	7500116	'ronnie reti' <rreti@blueskypacificgroup.com>
Jolivette Thompson	SWA – Engineer, Asset Management Unit	7504442	'Jolivette Thompson' <jolivette.thompson@swa.gov.ws>
Patience Kinane	SWA – Engineer, Rural Operations Division		'Patience Kinane' <patience.kinane@swa.gov.ws>

CONSULTATIONS WITH FAMILIES ON WCR EASEMENTS - SEPTEMBER 2015

1. DATE:23/09/15

VILLAGE: VAILUUTAI (approximate chainage:)
 VILLAGE MAYOR: LEAITUA TAUA FALEFITU
 FAMILY: TUTUILA ETI WILLIAMS
 MNRE REP: FILISITA HEATHER and PETA ARIETA
 ROUGHTON / PLT REP: PESETA KONELIO TONE
 LTA REP: ANELISA AUELUA

Our Consultation Team met with representatives of the family Sava’auli and Manua’e Williams. They are ok with the proposed work. They were also informed of the surveyors who will be surveying the area where the easements are located.

2. DATE:23/09/15

VILLAGE: FASITOO TAI (Approximate chainage: 4+540.00)
 VILLAGE MAYOR: SEVEALII VALUNIU
 FAMILY: FAUMUINA FELISE TOLEAFOA
 MNRE REP: FILISITA HEATHER and PETA ARIETA
 ROUGHTON / PLT REP: PESETA KONELIO TONE
 LTA REP: ANELISA AUELUA

Our Consultation Team met with the representative of the family Faamuina Felise Toleafoa. We informed him of the proposed work and on the easements and he has no objection to it. The family was also informed of the surveyors who will be conducting surveying work at the easements.

3. DATE:23/09/15

VILLAGE: FASITOO TAI (approximate chainage: 4+540.00)
 VILLAGE MAYOR: SEVEALII VALUNIU
 FAMILY: LEALAISALANOVA POUTOA

MNRE REP: FILISITA HEATHER and PETA ARIETA ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our Consultation Team met with the Lealaisalanoa Poutoa who is the High Chief for the family and we informed him of the proposed work and where the pipes will be laid using part of his land and that the pipes will be covered. He gave his support and agreement with the proposed route of the pipes through his land. He was also informed of the surveying that will be conducted by the surveyors on the easements.

4. DATE:23/09/15

VILLAGE: LEULUMOEGA TUAI (Approximate chainage: 4+540.00)
VILLAGE MAYOR: TIATA VAILIGA
FAMILY: TAMATIMU SAUILUMA LEALAISALANOA
MNRE REP: FILISITA HEATHER and PETA ARIETA ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Discussed with Tamatimu the proposed work for the road and the easements and that there will be a team of surveyors visiting the easements, doing work on the easements. He expressed his support and acceptance of the proposed work.

5. DATE:23/09/15

VILLAGE: LEULUMOEGA TUAI (Approximate chainage: 4+794.00)
VILLAGE MAYOR: TIATA VAILIGA
FAMILY: ANILAU PETAIA
MNRE REP: FILISITA HEATHER and PETA ARIETA ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with the representative of the family, Pe'a Sione we discussed the proposed work on the road and easements. He requested for the easement to be buried all the way to the sea because the current easement is open and when there's strong flow of water it overflows the easement flooding their front yard. We informed him of the surveyors who will be carrying out some surveying on the easements.

6. DATE:23/09/15

VILLAGE: LEULUMOEGA TUAI (Approximate chainage: 5+100.00)
VILLAGE MAYOR: TIATA VAILIGA
FAMILY: MANUAO UGAPO I'U
MNRE REP: FILISITA HEATHER / PETA ARIETA ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with the representative for the family Fenumiai Tugaga, we discussed with him the proposed work and he informed the team of the support of the family. He was also informed of the surveying work that will be conducted by the surveyors on the easement.

7. DATE:23/09/15

VILLAGE: NOFOALII (Approximate chainage: 6+258.00)
VILLAGE MAYOR: ILI TALILAMA GASEATA TAU
FAMILY: MATAGITAU SOPA LUI

MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with the representative for the family Elena Lui. We discussed with her the proposed work on the road and the easements. The current easement is open, and she requested for some pipes and to have it underground.

8. DATE:23/09/15

VILLAGE: FASITOO UTA (Approximate chainage: 9+741.00)
VILLAGE MAYOR: TAU'AU VE'A ENE
FAMILY: MANOA LAMEKO
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with the representative for the family Senerita Lameko, we discussed the proposed work with her and she gave the support of her family for the work. She was also informed of the surveying work that will be conducted on the easement.

9. DATE:25/09/15

VILLAGE: FALEASIU (LEALALII) (Approximate chainage: 9+934.00)
VILLAGE MAYOR: FESOLAI TOEASO
FAMILY: FIAME SAUVAO
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with the representative for the family, Oliveta Vaeoso and we discussed with her the proposed work on the road and the easements. We were informed by Oliveta that their family has buried the easement because they requested for pipes to direct the flow of the water to the sea but did not receive any. So she was told the easement will go through the same area and pipes will be buried below. She agreed and was also informed of the surveyors who will be carrying out work at the easement area.

We were joined by Claire Forbes of World Bank.

10. DATE:25/09/15

VILLAGE: FALEASIU (LEALALII) (Approximate chainage: 10+373.00)
VILLAGE MAYOR: FESOLAI TOEASO
FAMILY: SĀ FESOLAI FAMILY
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

We met up with a representative of the family whose shop is beside the easement, Tiresa Fesolai Mose Taouma. She was told of the works for the road and the easement, we asked if there were any problems faced by the family but she told us no. We noticed rubbish being dumped in the easement so we asked her to ensure that rubbish is not dumped in the easement. She was also informed of the surveyors and their work on the easements.

We were joined by Claire Forbes of World Bank

11. DATE:25/09/15

VILLAGE: FALEASIU (SAPULU)
VILLAGE MAYOR: MOALA REUPENA
FAMILY: APULU ME'I FAMILY
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with laneta Suti the representative for the family, we informed her of the proposed work for the road and easement. She told us that there has been no problem with the easement as water flows ok during rainy season. She was advised on the surveyors work as well. We were joined by Claire Forbes of World Bank.

12. DATE:25/09/15

VILLAGE: UTUALI
VILLAGE MAYOR: MOALA S POMARE
FAMILY: TALITOELAU DEREK
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

We spoke with Talitoelau Derek member of the family and we were told that they covered the easement because it flooded their front yard. The easement was open and they requested for pipes but it never got to them. Talitoelau gave his agreement after informing him of the works that will be conducted to the easement and how there will be pipes this time and it will be covered as well. He was also told of the surveyors visit as well. We were joined by Claire Forbes of World Bank

13. DATE:25/09/15

VILLAGE: MALIE (Approximate chainage: 18+755.00)
VILLAGE MAYOR: FAAMAUSILI SIONE TAUAFU
FAMILY: SATINI PULOU
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with Alofa Satini as representative of the family and she was informed of the work for the road and easements. It's an open easement and we were informed that when its heavy rain water overflows from the easement and onto their front yard. They were told of the surveyors visit as well. We were joined by Claire of World Bank.

14. DATE:25/09/15

VILLAGE: MALIE (Approximate chainage: 19+186.00)
VILLAGE MAYOR: FAAMAUSILI SIOE TAUAFU
FAMILY: TELE'A GALUVAO
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Representative of the family Seneuefa Tele'a informed us of the problem that they face with the easement, it overflows flooding their land during heavy rain fall. They requested for larger pipes to avoid the overflowing from occurring in future. She was told of the surveyors visit and their work on the easements.

15. DATE: 25/09/15

VILLAGE: MALIE (Approximate chainage: 19+732.00)

VILLAGE MAYOR: FAAMAUSILI SIOE TAUFAFU

FAMILY: LEULUPOLU NIKO

MNRE REP: FILISITA HEATHER and PETA ARIETA

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

Our team met up with Lagi Parisa representing the family, we informed her of the proposed road work and easements. She expressed her concern on the current easement, when its high tide it comes all the way up to the back of their house. She also requested for some pipes and to have the easement go underground. Lagi was informed of the surveyors visit so that she will be aware of their presence on their land.

We were joined by Claire Forbes of World Bank.

16. DATE: 25/09/15

VILLAGE: AFEGA (new @ Approximate chainage: 17+094.00)

VILLAGE MAYOR: FATA SAIFOLOI

FAMILY: LALAU MASE

MNRE REP: FILISITA HEATHER and PETA ARIETA

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

Our Consultation Team first met with the family on the 21st of September 2015, the family was represented by Lalau Mase and her two daughters, she and her daughters were informed on the works for WCR including Easements and the proposed easement on her land, and explaining how her land was favourable and best for the easement as we are trying to relocate the existing easement from its current place because of the Village Pool. And that there was also another possible area but it's too shallow and does not meet WB standard. The family was informed on the easement based underground and it will be covered, also whatever building or crops affected with the works will be reinstated and crops compensated. The family's bathroom is located right at the area that is needed for the easement. Lalau expressed her concern on the risk of the easement and drainages being overflow because that's what they have experienced in the past during rainy season, and it flows onto their land. However Peseta explained that they have carried out investigations and surveys of the area and the pipes can withhold overflowing as raised by Lalau. Our team were then told of two rivers further inland to the village which flows from Leauvaa, Levi and Tuanai which connects to another river further inland of the village. He mentioned they have always been affected when these river overflow as it runs all the way to the road and therefore affect the families on the coastal area of the village.

Peseta then responded that the cause of the flooding as mentioned by these streams/creeks should be addressed first because that is the cause to the flooding and advised the village Mayor to prepare a letter to inform the concerned Government Ministries of the problem they are facing.

On our initial meeting Lalau told us to come by again her place sometime that week to get their response because she needed to discuss it with her children.

On the 25th of September we visited the family again and we were told that they have agreed on the proposed easement to be located at their land.

17. DATE: 29/09/15

VILLAGE: FALEULA (Approximate chainage: 20+070.00)

VILLAGE MAYOR: LEASO SEFO

FAMILY: LANCE MULIAGATELE

MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with Lance and his wife and we discussed with them the works for the road and easements. He expressed his disappointment with the easement and how it has affected his land and he requested for pipes and have it underground.

18. DATE: 29/09/15

VILLAGE: PUIPAA (Approximate chainage: 23+388.00)
VILLAGE MAYOR: LEAOANIU PATOLO SASAULI
FAMILY: PUIPUI FATU
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Our team met up with Puipui Fatu and he was informed of the works on the road and easements for WCR. He told us that his family has supported the work and asked to have it on the boundary with their next door neighbour.

19. DATE: 29/09/15

VILLAGE: PUIPAA (Approximate chainage: 24+244.00)
VILLAGE MAYOR: LEAOANIU PATOLO SASAULI
FAMILY: TUJU MARGRAFF
MNRE REP: FILISITA HEATHER and PETA ARIETA
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

Met up with Tupu Margraff and he was informed of the road and easement work for the WCR. He told us that they are greatly affected during heavy rainfall and the rear side of the easement is higher than the front side.

20. DATE:01/10/15

VILLAGE: FALEULA (Approximate chainage: 21+348.00 & 21+537.00)
VILLAGE MAYOR: LEASO SEFO
CHURCH: METHODIST CHURCH
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

We met up with the President of the Methodist Church of Samoa Rev Apineru Lafai and he was informed on works for the road and easements along the WCR and he gave his church's support. He was also informed of the surveyors visit to the premises for their work on the easements.

21. DATE:01/10/15

VILLAGE: TUANAI (Approximate chainage: 16+775.00)
VILLAGE MAYOR: LOGO F FUTIALO
CHURCH: CATHOLIC (St THERESE)
ROUGHTON / PLT REP: PESETA KONELIO TONE
LTA REP: ANELISA AUELUA

We met with the Chairman of the Lands Committee for the Catholic Church of Samoa and informed him of the WCR works for the road and easements. He was given a copy of the alignment of the easement

on the Church's land at Tuanai. He was also informed of the surveyors work on their premises for the easement.

22 DATE:01/10/15

VILLAGE: FALEULA (Approximate chainage: 20+447.00)

VILLAGE MAYOR: LEASO SEFO

CHURCH: FALEULA CATHOLIC CHURCH

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

We met up with the Chairman of the Church Tuala Henry Silva and we informed him of the WCR works for the road and easements. He requested the easement to be covered for the safety of the children during rainy season and to protect them from falling in. He was also informed of the surveyors who will be working on the easement on their premises.

23. DATE:01/10/15

VILLAGE: PUIPAA (Approximate chainage: 23+388.00)

VILLAGE MAYOR: LEAOANIU PATOLO SASAULI

FAMILY :VEATAULIA TAGALOA LENI

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

We met up with Veataulia Tagaloa Leni who is the representative of the family and we discussed the road and easement work for WCR. We asked Veataulia for permission to have the easement put further to his land as the next door neighbour has settled on the easement. They accepted our request and gave their support for the work. They were advised that their crops will be compensated but there will be no compensation for the land used.

They were also informed to expect surveyors conducting work on their premises.

24. DATE:01/10/15

VILLAGE: PUIPAA (Approximate chainage: 22+358.00)

VILLAGE MAYOR: LEAOANIU PATOLO SASAULI

FAMILY :PUNI IOELU

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

Met up with Filisoanuu loelu the representative for the family, and informed him of the road and easement work. He informed us of the problem that they face during heavy rain, their front yard is always flooded and requested pipes to divert the flow of water and to be placed underground. He was also informed of the surveyors who will be conducting work on the easement.

25. DATE:01/10/15

VILLAGE: MALIE (Approximate chainage: 19+376.00)

VILLAGE MAYOR: FAAMAUSILI SIONE TAUAFU

FAMILY :TINEI FILIMAU

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

Met up with Tinei Filimaua and discussed with her works on the road and easements. She mentioned the easement is shallow and requested for pipes and to have it go underground.

26. DATE:01/10/15

VILLAGE: FALEULA ((Approximate chainage: 20+310.00)

VILLAGE MAYOR: LEASO SEFO

FAMILY :TUILIMU VAITOFIGA

ROUGHTON / PLT REP: PESETA KONELIO TONE

LTA REP: ANELISA AUELUA

Met up with Tuilimu Vaitofiga, he told us that there is no problem faced by them but he requested the chamber/dome covers to be replaced and he has a total of 4 chamber/dome covers on their property to be replaced. He was told to expect surveyors who will be conducting work on the easement.

**Summary of WCR Consultation
Saina – Satapuala, Friday 24th March 2017
Land Transport Authority, Vaitele**

Meeting was officially opened by LTA Acting CEO Muagututi'a Mark Tominiko and he welcomed the representatives of villages from the WCR.

Peseta Konelio Tone played a video on the current status of WCR. He informed those present that the recently completed Vaitele Street is 30m wide (road reserve) but the work for the WCR from Saina to Faleolo will be 20m (road reserve).

Seiuli (Utualii)

If Government will commence with the work, if there will be crops will there be any compensation?

Konelio

There is compensation for crops that is used for consumption but it doesn't include hedges.

Seiuli(Utualii)

If the hedges are within the 20m or behind the 20m will it still be compensated?

Peseta

There is no compensation but if it's within the 20m we will consult the family directly.

Faumuina Sio (Saleimoa)

Enquired on the village fish nursery reserve more than 20 years it's useful for anyone in the village, but it's very close to the road, what will happen to our reserve?

Peseta

Yes, designers are aware of this fish nursery reserve and that plans for the road will consider a gate/screen opening and other works that will be carried out in consideration of this particular reserve.

Sagote Mulitalo(Leauvaa)

How many lanes?

3 ½ m both sides with drainage.

Personal belongings of villages, you are saying crops will only be compensated, we do not go against the Government but what about our personal belongings? For eg: Leauvaa and its lights and fence, what will happen to it?

Peseta

The surveyor has carried out the survey of the 20m road reserve and the new road alignment will follow the current road centreline. The location of these lights and fences will need to be confirmed if they are within the 20m reserve or outside. It is the intention to minimise any impacts on properties affected.

Leaupepe (Fasitoo Uta)

Will the footpath continue to our village?

Peseta

At the moment this is not included and the design allows for 1.5 m sealed shoulders on both sides for pedestrians.

Seiuli Utualii

Will there be medium range?

Peseta

At the moment, there is no consideration for a medium strip, but I guess it depends on the funding but there will be a 1 ½ m sealed shoulder on both sides for pedestrians to use.

Apulu Ale Iosefa (Faleasiu)

You are mentioning the breadfruit tree but most of the families do not have breadfruit but land is affected.

Peseta

As mentioned within the 20m and road reserve, if any crops is affected it will be compensated, but if land is affected our team will consult the family directly but the road will be 20m.

Ogotia Talosaga (Leulumoega)

Land and the 3-5m Road Reserve which is owned by Government it is taking too much of peoples land. Why didn't they come to mow the lawn and maintain it?

Filisita

We are just Public servants informing you of our service, the road widening of 20m, the current road has not covered the 20m. If we continue with the widening then it will reach the 20m. If land and crops is affected it will be compensated but not all land will be affected with the works. We will insist with the width of 20m. Affected land will be confirmed once the design is ready. This will not be our last meeting, there will be another meeting with our panel to remind and to explain areas that will be affected.

Leaoanui Gatoloai (Village Mayor-Toamua)

Asking if there is anything new from what was discussed before? He has already informed his village of the works and no one will oppose or dispute the work, but just to remind on areas that needs to be saved are graves and the village pool.

Peseta

There are no changes from what we have discussed before.

Kuki Soonalole (Village Mayor) Saina

A lot of crops is mentioned today but our village still haven't received their compensation. The work starts of at Saina in case Saina stops the work.

Filisita

Compensation has already been issued.

Seiuli

This is not a new thing, but is it confirmed that the 20m has been paid to the families? Has there been any MOU with families whose land are affected with the construction of Easements? There were consultations and they should not plant or do anything else on top of this area, will there be any alterations of the road due to the fact that families land will be affected with the easements?

Safuta

There are private surveyors and it all depends on the design of the work, if land is affected based on the design it will be discussed amongst MNRE, the family and Government. Families will be consulted on the easements.

Seiuli

Land that is not compensated but are used for easements, it has been noticed sometimes water flows a different direction from where the easement is located.

Peseta

It is the intention with the design and plans being prepared to avoid issues such as these from occurring.

Tafili (Nofolii)

When will work commence?

O le a se tofa ale Malo, o afea e faatino ai galuega?

Peseta.

The different stages of the consultation process has been on-going for a number of years to ensure all the communities and stakeholders affected understand and are aware of the extent of the project, but will pass it over to Malcolm of LTA for possible commencement time.

Malcolm

Designs are nearly finalised and work should commence end of this year for Saina to Malua and Malua to Faleolo towards the end of 2018.

Leaupepe Fasitoo Uta

Boundaries of Faleasiu why not reclaim the coastal area and save the other side?

Peseta

The plan by Government for the work is to reconstruct the road within its 20m reserve.

Filisita

Reclaims are expensive, a lot of funds will go into paying it rather than use it on other important payouts such as pensions.

Safuta

We will use boundaries of both sides if we insist with the design.

Maugasasae Sapaii (Levi Saleimoa)

There's a request for the bridge at Lotoso'a, because there are 4 rivers behind the bridge but it's closed and it has blocked the flow of the water. We are requesting if this bridge be opened again including the ones at Levi, Fuilala and Vaipovi.

Peseta

Your request is noted for the LTA and government to consider and in preparing the design.

Fesola'i (Faleasiu)

Since the design is just in its early stage, there's a place for cars, and pedestrians what about bicycle?

After the Tsunami we were encouraged to plant the Talie (tropical almond tree)... but that is not compensated just banana, breadfruit and others what about Talie? Another issue is the utilities?

After a road is constructed, its dug up again because SWA or EPC wants to do works why not come at the same time while the road is being constructed to avoid the road being dug up again

Peseta

1st question: Planning and Adjusting the design has been carried out for a long time, now at the final stage is finalising the design and it was done according to the areas that was identified during the first stage and taking into account the climate change, natural disasters such as tsunami.

3 question: There is a great understanding and close communication between the utilities and consultations have been conducted addressing the issues raised. They are all included so that we can utilise the time and planning for this work.

Filisita

2nd question: After construction of every sea wall the Government through MNRE distributes plants such as talie (tropical almond tree), the issue with compensation of this tree will look into it.

Vuki (Saina)

With the 20m no one will dipute or intervene but once the easement is placed nothing can be done above the easement. Is the land which the easement is located compensated? What about crops that will be affected beyond the 20m boundary? Because land is affected and family will not have any more use of that particular area.

Peseta

Drainages beside the road are located according to the 20m but if land is affected the family will be consulted accordingly.

Seiuli

It's not the drainage beside the road, it's the easement/

E le o alavai i autafa o le auala ae o le alavai lea e tatai ese mai ai le vai mai luga o le auala (easement)

Safuta MNRE

A lot of consultations and discussions have been carried out by MNRE and families but will look into it. If anything does arise during the laying of the easements we will consult because these easement are surveyed.

Apulu

Is the compensation same for a crop that was planted for 3 months to 10 years and a crop that was just planted?

Safuta

It depends on its use if \$2 but at least you are getting money.

This is the beginning of the year please don't plant anything else starting from today.

Pulenuu o Tuiaana

Suggesting in future consultations to have only the Village Mayors present to discuss issues of such and will inform their villages accordingly.

Fasitoo – Uta

What about if branches are affected? Is there any compensation?

Peseta

A lot of land are being affected with the tide and erosion due to climate change and necessary measures are required to be considered in the road design to address and minimise their impact.

Tuifea

The soil being taken away from the work can families use it?

Peseta

With road construction, once the contractor wins the bid to conduct the work as specified, they take over everything, so it's between you the village and the contractor to discuss and negotiate.

Consultation concludes...

Panel:

Peseta Konelio Tone – Roughton/PLT Consultants

Malcolm Esera – LTA (Projects Division)

Filisita Heather – MNRE (ACEO, Land Division)

Safuta Toelau – MNRE (ACEO, Surveyor)

Anelisa Auelua – LTA (Public Relations Officer)

LIST OF PARTICIPANTS

CONTRACT 1.2.1 ENHANCING THE CLIMATE RESILIENCE OF THE WEST COAST ROAD DETAILED DESIGN PHASE AND BID EVALUATION SUPPORT					
'VILLAGE REPRESENTATIVES' GENRAL CONSULTATION MEETING ATTENDANCE LIST					
FRIDAY 24 TH MARCH 2017, 10.00am, LTA FALE, VAITELE					
	NAME AND SIGNATURE	VILLAGE	DESIGNATION	PHONE	EMAIL
1	Goga Pulemanu	Falula	Sui Tamaitai	7221751	
2	Hele Elane	Salemo	sui tamaitai	7233501	
3	Aina Savao Aina	Faleasiu	Sui Tamaitai	726389	
4	Kusila Hunt	Malie	sui tamaitai	7721365	
5	Lea Mugaia	Malie	sui ole nuu	7271534	
6	Maala Hui	Utua	Kulinasalii .S	7631986	
7	Leapepe F. Amosa	Fasito'outa	Sui ole nuu	7722835	
8	Pulu. Faafou.	Fasito'outa	Sui matai	7722683	
9	Leapepe Toloto	Fasito'outa	Sui Aua	7247522	
10	Youni Nui. Sio	Nonoa	Sui matai	-	
11	Eugene Kalefa	Nonoa	Sui matai	7756733	
12	Mahinaaga Sola	Kotoga		7236252	
13	Sagaga P. Igama	Lotosoa		7742802	
14	Iminadi S. Poma	Utua	S/N.	7262695	
15	Vaea S. Iliala Puka	NONOA	SN	7511200	

	NAME AND SIGNATURE	VILLAGE	DESIGNATION	PHONE	EMAIL
16	Leaitua Tauā.F.	Vailuntai	Pule Nuu	9486448	
17	Apule Alofaeta	Faleasiu	Pule Nuu.	7623324	
18	Tunumafono.P.	Toamua.	Member ^{the} Village _{of}	722-885	
19	VUKI Soonalole	SAINA	Pulenuu	8401538	
20	Taufono Aon A	Vailuntai	matai o/a nuu	7605240	
21	Jeswai DRALI.F.	FALASIU	Matai de Nuu	7506649	
22	Vaivaimalundlo.Yesi	Salapuae.	Sui Nuu	7256880	
23	Lotoausia.LUATUA.E	Salapua'e	Sui Tamaitai	7288913	
24	Logo M	Tuamoi	Sui o Nuu	7236334	
25	TITIA YALIGA	Suitia	PULENUU SUI DE NUU	7264922	
26	Sapote.Mulitalo	Leanaa	Sui de nuu	7264933	
27	Olotia TALOSACA	LEULUMOEGA	Sui o/a Nuu	7221188	
28	Leasini.P.	Toamua	Sui Nuu	7214791	
29	Sapote	Faga	Sui-Sapotea	7222874	
30	TAFU/LE	TAFU/LE	MANO		
31	Vaavili L.Schmalckun	A+Levi Salimoa	L.Schmalckun	8452977	—
32	Mauqunara	A+Levi Salimoa		722488	—

'VILLAGE REPRESENTATIVES' GENRAL CONSULTATION MEETING ATTENDANCE LIST					
FRIDAY 24 TH MARCH 2017, 10.00am, LTA FALE, VAITELE					
	NAME AND SIGNATURE	ORGANISATION	DESIGNATION	PHONE	EMAIL
1	Tomaimano. M.	Tufulele	Pule Nuu	7271497	
2	Lhili. M.	Tufulele.	S. Tamaitai		
3	Tofi. Muelivao.	Utafuu	Qui Nuu	7270128 7222599	
4	Pala Fito	Vailuatai	Pule Nuu. Tamaitai	766683	
5	Tafi Lauano	Satapueta	Sui Komiti		
6	LEALOGIE TAI	TOAMUA.	MATAI OLE Nuu	7224660.	
7	Fonemaitu Falamko	LEULUMOGA T	MATAI OLE Nuu	7223359	
8	Taus Letelo	Tuanai	Faifautusi	7645936	
9	Faatoaga Ope	Saina	STN	7220401	
10	Kauroe T.	Faleasiu.	Aulevuu.	7220180	(7220180)
11	Jamie Hekelele	Faleasiu	Taitai Komiti	766198	
12	Ili Tala	Nofodii	Pule Nuu	76	42790
13					

Appendix F:

ESMP Monitoring Plan Inspection Checklist

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Appendix F: ESMP Monitoring Plan Inspection Checklist

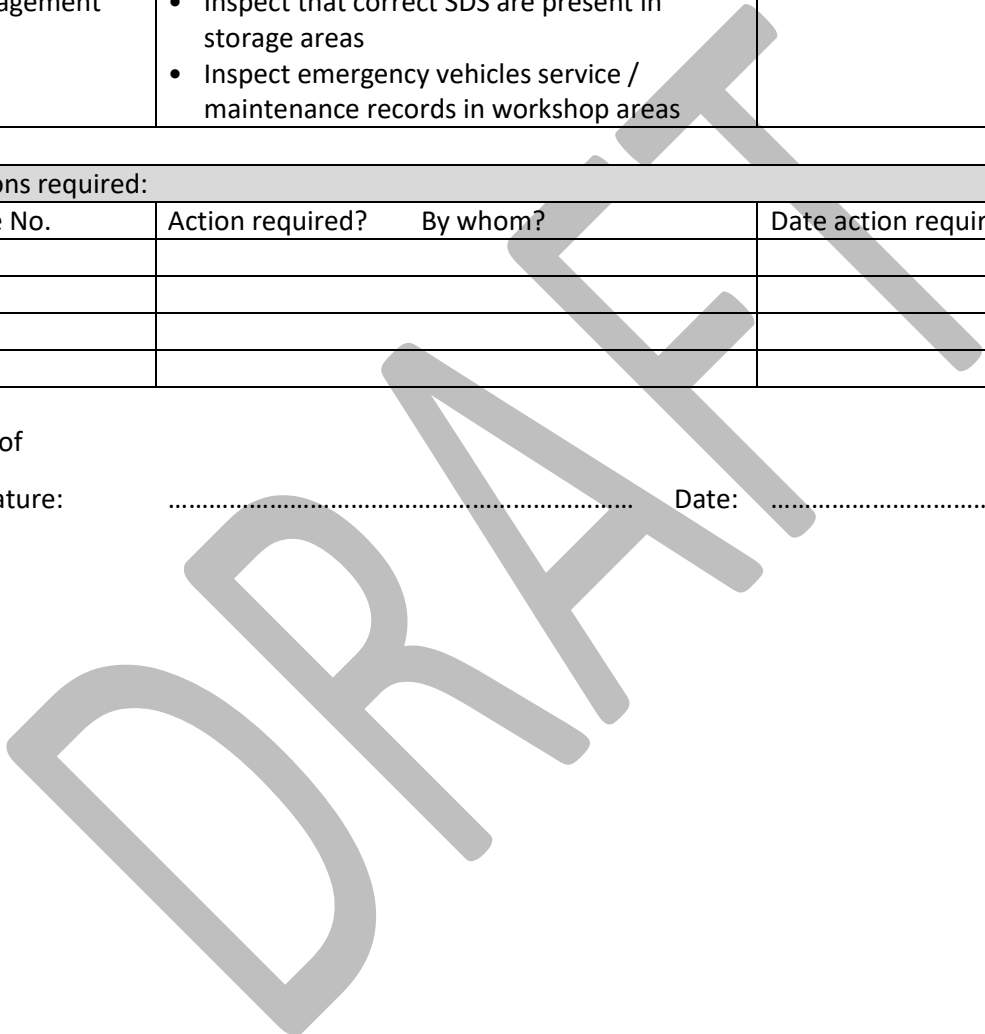
Location:
Auditor:
Audit Date/Time (Start):
Audit Date/Time (Finish):

Environmental issue:	Inspection areas:	Requirements met?
1.0 Construction Phase		
1.1 Soil erosion	<ul style="list-style-type: none"> Silt fences and diversion drains in place Replanting and restoration work completed 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.2 Waste accumulation and Disposal Agreements	<ul style="list-style-type: none"> Good housekeeping around the work sites Waste stockpiled in defined areas with signage ready for removal Waste/recycling permits/agreements in place 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.3 Soil and Water Pollution	<ul style="list-style-type: none"> Waste collected in defined area on impermeable ground Appropriate spill response plan/kit in place for waste area Freshwater lens water quality results sighted Drainage and soakage systems visually inspected 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.4 Dust	<ul style="list-style-type: none"> Stockpiles covered or kept wet when not in use Visual inspection of ambient dust conditions on site and at nearby sensitive locations Truck transport are covered 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.5 Noise	<ul style="list-style-type: none"> Workers wearing ear protection as required Noise level maximum of 75Dba L 10mins (during day time construction works) Noise assessment to be completed at nearby sensitive receptor locations 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.6 Hazardous Substance Storage (fuel/oil/bitumen)	<ul style="list-style-type: none"> Hazardous substances within bund on impermeable surface Spill kit complete and accessible Spill training completed 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.7 Traffic Management Plan Implementation	<ul style="list-style-type: none"> Traffic Management Plan (TMP) implemented and evaluated to assess appropriate throughout course of construction phase PPE is being worn by workers 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:
1.8 Personal Protective Equipment (PPE) Use	<ul style="list-style-type: none"> Workers have access to, and using appropriate, PPE for the task 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:

1.9 Community safety	<ul style="list-style-type: none"> Public signage of complaints procedure Signs and fences restrict or direct pedestrians and public where appropriate 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:	
2.0 Operational Phase			
2.1 Drainage Maintenance	<ul style="list-style-type: none"> Inspect to check for signs. Also for blockages and debris, particularly after storm events 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:	
2.2 Hazardous substance management	<ul style="list-style-type: none"> Inspect hazardous substance storage containers and storage areas Inspect that correct SDS are present in storage areas Inspect emergency vehicles service / maintenance records in workshop areas 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:	
Actions required:			
Issue No.	Action required?	By whom?	Date action required?

Sign of

Signature: Date:



Appendix G:

Summary of Affected Assets

(NOTE THAT THIS APPENDIX WILL BE ATTACHED ONCE THE DATA IS FINALISED)

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