

Pacific Aviation Investment Programme (PAIP) - Samoa

Integrated Environmental and Social Management Plan - Faleolo
International Airport (APW)



AECOM

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(APW)
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Integrated Environmental and Social Management Plan - Faleolo International Airport (APW)

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Glossary and Abbreviations

AC	Asphalt concrete
ACP	Apia Concrete Products
AGL	Aeronautical Ground Lighting
AGMO	Assistant General Manager for Operations
AP	Affected Person/People
APW	Faleolo International Airport
ARFF	Aircraft rescue and firefighting
CARs	Civil Aviation Rules
China Eximbank	Export-Import Bank of China, a state bank solely owned by the Chinese government and under the direct leadership of the State Council
COEP	Codes of Environmental Practice
CEAR	Comprehensive Environmental Assessment Report
EA	Executing Agencies
EHS	Environmental and health and safety
EIA	Environmental impact assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
ESMF	Environmental and Social Management Framework
GDP	Gross domestic product
GoS	Government of Samoa
Ha	Hectares
HMA	Hot mix asphalt
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IA	Implementing Agency
ICAO	International Civil Aviation Organisation
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
IPCC	Intergovernmental Panel on Climate Change
IESMP	Integrated Environmental and Social Management Plan
LTA	Land Transport Authority
MAF	Ministry of Agriculture and Fisheries
MNRE	Ministry of Natural Resources and Environment
MOWP	Method of Works Plan
MWTI	Ministry of Works, Transport and Infrastructure
NGOs	Non-government organisations
OP	Operational Policy

PAIP	Pacific Aviation Investment Program
PCCSP	Pacific Climate Change Science Program
PEAR	Preliminary Environmental Assessment Report
PIB	Public Information Bulletin
PISA	Preliminary Integrated Safeguards Assessment'
PPE	Personal protective equipment
PSC	Project Steering Committee
PST	Project Support Team
PUMA	Planning and Urban Management Agency
PUM Board	Planning and Urban Management Board
RCP	Representative Concentration Pathway
SAA	Samoa Airport Authority
SAIP	Samoa Aviation Investment Project
SCG	Shanghai Construction Group
SDS	Safety data sheets
STD	Sexually transmitted diseases
SWA	Samoa Water Authority
TFSU	Technical and Fiduciary Services Unit
THR	Threshold
TMP	Traffic Management Plan
TWY	Taxiway
WB	World Bank

Executive Summary

The Pacific Aviation Investment Program (PAIP) is funded by the World Bank (WB) and has the development objective to (i) improve the safety, security, efficiency, management and environmental sustainability of airports, and (ii) improve regional harmonization of aviation safety standards. In August 2014, the Government of Samoa (GoS), through the Implementing Agency (IA), Samoa Airport Authority (SAA), entered into a financing agreement. As part of the regional PAIP, the Samoa Aviation Investment Project (SAIP) has been established and is currently being implemented with the support of the WB. SAIP is part of a series of projects under the PAIP, which involves similar activities in Tonga, Tuvalu, and Kiribati.

This phase of the SAIP is to enable air transport infrastructure and operations of Faleolo International Airport (APW) to meet International Civil Aviation Organisation (ICAO) standards, and to improve sustainability of the airport and civil aviation of Samoa.

The SAIP is a Category B project under WB environmental and social screening guidelines and requires the development of a site specific Environmental and Social Management Plan (ESMP). Due to the nature of the project it is expected that most environmental impacts will be site specific, few if any are irreversible, and mitigation measures can be readily designed and implemented. The WB involuntary resettlement policy OP/BP4.12 is not triggered by the components of the SAIP. The ESMP is required to identify and assess environmental and social issues associated with the proposed activities, and develop mitigation and management measures consistent with World Bank requirements.

The WB funded SAIP program consists of two primary tasks:

- Rehabilitation and resurfacing of existing airport pavements (including drainage) and upgrade of apron and taxiways.
- Upgrade of navigational aids and lighting.

In addition, a project funded by the Export Import Bank of China will upgrade the existing terminal building (to be undertaken by Shanghai Construction Group [SCG]).

The SAIP and terminal building upgrade are considered within the same Project Area of Influence as defined by the WB OP4.01, Annex A and impact on each other (e.g. apron works and aerobridges). The link between the two projects requires an integrated and consistent approach to environmental and social assessment and mitigation across both projects. The tool for ensuring the consistency across both projects is the development of this Integrated Environmental and Social Management Plan (IESMP).

The scope of this IESMP considers both projects and includes information on mitigation, monitoring, capacity development and training, 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 SAIP and terminal upgrade projects. However given that the SAIP and terminal works at APW primarily involves the rehabilitation of existing infrastructure, 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 (potentially including hydrocarbon contaminated soils in the vicinity of the apron fuel hydrant system).
- 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 port and quarry to APW.
- Disposal of waste materials.
- Safety hazards for workers and users of the facilities where upgrades are occurring.
- Freshwater demand and potential source.
- Wastewater discharges.

- Construction camp establishment and dis-establishment.

This IESMP is designed to address these issues through:

- Implementation of this IESMP through the Contractor ESMPs for the terminal upgrade and the SAIP project.
- Regular supervision and monitoring of the implementation of the IESMP (refer IESMP monitoring plan).

1.0 Introduction

1.1 Background

The Pacific Aviation Investment Program (PAIP) is funded by the World Bank (WB) and has the development objective to (i) improve the safety, security, efficiency, management and environmental sustainability of airports, and (ii) improve regional harmonization of aviation safety standards.

In August 2014, the Government of Samoa (GoS), through the Implementing Agency (IA), Samoa Airport Authority (SAA), entered into a financing agreement with WB. As part of the regional PAIP, the Samoa Aviation Investment Project (SAIP) has been established and is currently being implemented with the support of the WB. SAIP is part of a series of projects under the PAIP, which involves similar activities in Tonga, Tuvalu, and Kiribati.

The SAIP is currently implementing key investment activities under the project with particular focus on runway upgrading, navigational aids/aeronautical ground lighting (AGL), and other operational requirements to support ongoing and improved compliance and operational standards. The SAIP also strengthens the management of two existing projects, upgrades to the Faleolo International Airport (APW) terminal (through funding from China Eximbank) and upgrades to the runway, taxiways and apron (WB funded).

APW on Upolu, is Samoa's only certified international aerodrome. Fagali'i also has international flights to American Samoa. Apia, Samoa's capital is located on Upolu and is the most populated island in Samoa. APW serves as the main link for international travel to Samoa from Fiji, Australia, New Zealand and American Samoa. Agricultural exports and increasing tourism are primary sectors of income for the local economy. The majority of incoming tourists and passengers are Samoans living overseas.

In order to ensure consistency in the application of GoS legislation, donor safeguard policies and identification of environmental and social impacts and mitigation across all APW upgrade projects (i.e. SAIP and the terminal upgrades) an Integrated Environmental and Social Management Plan (IESMP) is required. The IESMP provides a framework for mitigation of the impacts and development of specific Environmental and Social Management Plans (ESMPs) for each projects detailed design and construction stages. The IESMP also provides the basis for consultation and public disclosure during the project preparation phase with details of stakeholders and outcomes included in the subsequent ESMPs and detailed designs.

1.2 SAIP Objective and Integration with Terminal Upgrade Project

The SAIP objective is to enable air transport infrastructure and operations of APW to meet International Civil Aviation Organisation (ICAO) standards, and to improve sustainability of the airport and civil aviation of Samoa.

The SAIP became effective in August 2014. Subsequently the Government of Samoa secured a loan agreement with the Government of China (via the China EXIM Bank) for the extension and reconstruction of the APW terminal to be constructed by Shanghai Construction Group (SCG). A review of the preliminary designs for the new terminal indicated that four new air bridges are to be constructed, which will have an impact on the design of the apron works which are to be funded by the World Bank. Furthermore, the timelines of the terminal building construction and runway works will overlap. Hence, the terminal investment is considered to be a "linked" project in accordance with WB Operational Policy (OP) 4.01 Environmental Assessment as the projects and interdependent and will be undertaken essentially in parallel. Being a linked project, the environmental and social management measures for the terminal construction will be required to meet the World Bank's requirements. Following discussions between SAA, SCG, World Bank and the Samoan Government's Planning and Urban Management Agency (PUMA) it was agreed that an Integrated Environmental and Social Management Plan (IESMP) would be the appropriate instrument to jointly manage the environmental and social impacts of the terminal and runway projects.

1.3 Integrated Environmental and Social Management Plan Objectives and Scope

The SAIP is a Category B project under WB environmental and social screening guidelines and requires the development of a site specific Environmental Management Plan (EMP). The SAIP and terminal building upgrade are considered within the same Project Area of Influence as defined by the WB OP4.01, Annex A and impact on each other (e.g. apron works and aerobridges). The link between the two projects requires an integrated and

consistent approach to environmental and social assessment and mitigation across both projects. The tool for ensuring the consistency across both projects and compliance with GoS national legislation and WB environmental and social safeguards is this IESMP. The scope and scale of the overall SAIP suggests that environmental impacts will be site specific, few if any are irreversible, and mitigation measures can be readily designed and implemented.

The objective of the IESMP is to provide a framework for managing the airport upgrade works in a manner that incorporates the principles of environment sustainability while minimising potential adverse effects on the local community and the environment.

To achieve this objective the IESMP outlines the mitigation measures required for avoiding or minimising the potential impacts of the works and provides a monitoring program to confirm effectiveness of the required mitigation measures. Roles and responsibilities are clearly defined for all stages of the project works and execution of project works. The IESMP also provides the details of how the community and stakeholders are to be engaged and the mechanisms for ongoing consultation and communication.

This IESMP is limited to the scope of works as described in Section 2.0 of this document and addresses impacts and mitigation measures identified at each stage of the project's execution, namely detailed design, construction and operation. This IESMP 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 IESMP form the minimum requirement for reducing impacts on the environment as a result of works associated with the project.

1.3.1 Environmental Safeguards Document Hierarchy and Development

The PAIP has an Environmental and Social Management Framework (ESMF) which outlines the key steps and procedures in screening and assessment of environmental and social issues related to the PAIP (generally). The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts. It 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. It defines roles and responsibilities, and provides guidance for the IA, Executing Agencies (EA) (respective country's ministries) and the respective countries Civil Aviation Authorities for developing the environmental and social safeguards documents in compliance with respective WB operational policies (namely OP/BP4.01, OP/BP4.10 and OP/BP4.12) and respective country environmental requirements.

The development of the ESMP documentation is dynamic and creates a hierarchy of documents as the project progresses which reflect the stage for which the document is produced e.g. project appraisal and scoping, detailed designs or further information becomes available (e.g. as a result of consultation with stakeholders and the general public). The diagram below shows the hierarchy and development of these SAIP documents to date, culminating in the development of the Contractor's ESMPs which specifically details how the Contractor will implement requirements of the IESMP. Issues, impacts and mitigation measures identified in superseded ESMPs are incorporated into subsequent versions unless they have been addressed through design or other means, in which case this is identified in the ESMP. Only those documents showing a date have been drafted, all others are either in progress or are yet to start. The Contractors are required to comply with this IESMP and use it to identify what mitigation measures need to be implemented. The Contractors ESMPs will document implementation and specific measures that will be used based on their construction methodology (as identified in Section 2.0). The compilation of information for this IESMP was started by CB Group and culminated in a comprehensive report summarising the existing terminal project contractor's Environmental Impact Assessment (EIA) (Shanghai Construction Group (SCG), September 2014) and pavement EMP (Ineco/ SMEC, July 2015). This comprehensive CB Group report is titled '*Preliminary Integrated Safeguards Assessment*' (PISA) and was used as the basis for developing this IESMP.

The finalised IESMP should be included with all physical works procurement bid documents and final contracts for all components of the SAIP (e.g. pavement (runway, taxiway and apron); runway lighting and air navigational aids; and terminal upgrade).

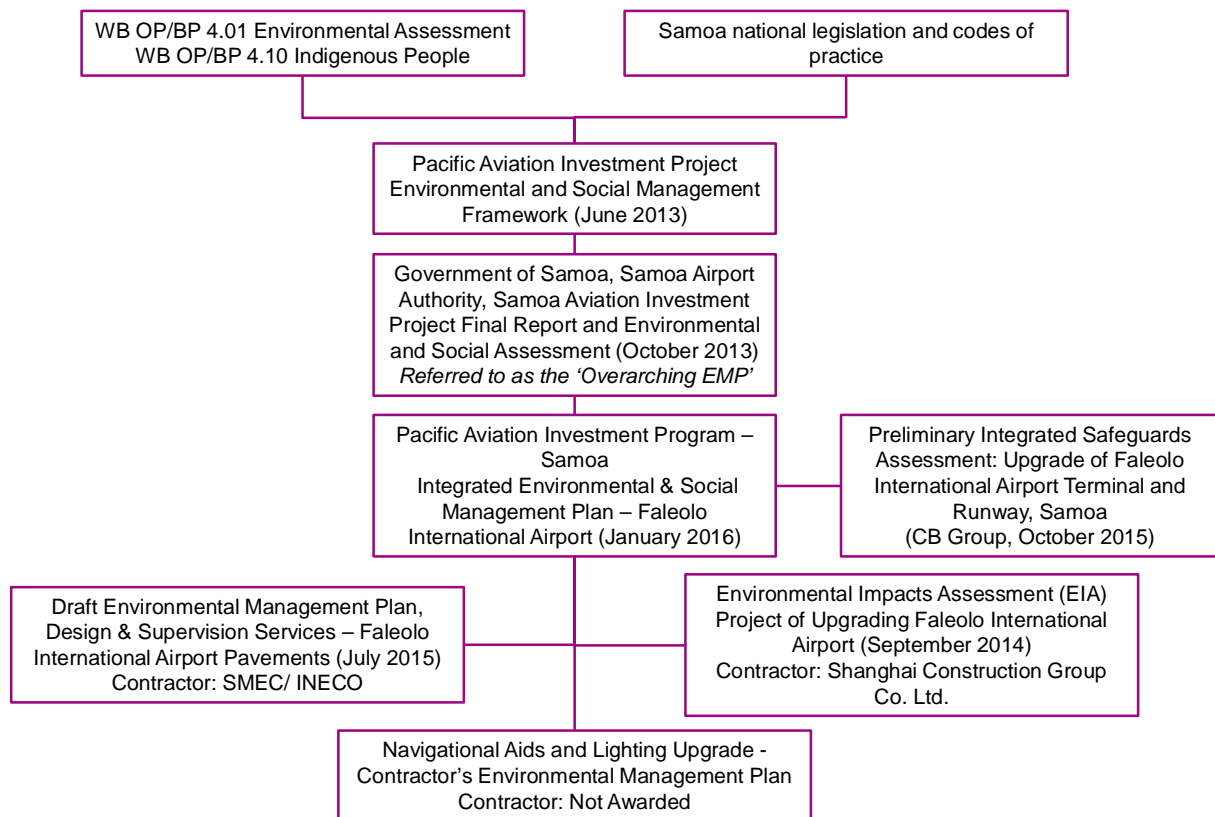


Figure 1 Environmental and social safeguard document hierarchy

1.4 IESMP Methodology

The methodology used to develop this IESMP is as follows:

- Review of the PAIP and SAIP environmental and social safeguard documents and SAIP contractors' EMP and the terminal upgrade project EIA (refer Figure 1), including draft IESMP (CB Group, 2015) and IESMP Terms of Reference (Contract Ref. SAA/SSS/S-B06.15A).
- Meet 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 quarry updates.
- Draft the APW IESMP based on information review and consultation with SAA and PUMA.
- Submit to the Technical and Fiduciary Services Unit (TFSU), SAA and GoS (PUMA) and the WB for review prior to consultation, update according to comments and feedback from all parties.
- Consultation in and around APW with site specific Public Information Bulletin (PIB) available in hard copy conducted by a SAA engaged consultant.
- Incorporate outcomes as required from consultation into final APW IESMP to be disseminated to contractors already appointed (to update the pavement and terminal ESMPs/EIA) and include as required in future bidding documents.
- Submit to TFSU, SAA, GoS (PUMA) and WB for final review.

This IESMP is a dynamic document that can inform the detailed designs and provide the basis for development of contractors ESMPs or future EIAs. SAA is responsible for ensuring the IESMP is up to date and reflects current SAIP objectives, scope and components. Prompts for review of the IESMP and potential updates include:

- Detailed design and construction methodologies are defined for different project components.

- Unforeseen or un-documented impacts are identified or arise due to further information obtained (e.g. through a technical study or consultation) which places constraints on design and construction methodologies.
- Large scale 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 IESMP. 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 IESMP.

A number of SAA 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 IESMP and be updated accordingly. The documents are listed as follows at the stage of development at the time of writing this version of the IESMP.

- Samoa Aviation Investment Project Final Report and Environmental and Social Assessment. Prepared by Government of Samoa, Samoa Airport Authority, October 2013.
- Preliminary Integrated Safeguards Assessment: Upgrade of Faleolo International Airport Terminal and Runway, Samoa. Prepared by CB Group, 24 October 2015.
- Draft Environmental Management Plan, Design & Supervision Services – Faleolo International Airport Pavements. Prepared by Ineco/ SMEC, 23 July 2015.
- Draft Detailed Design Report, Design & Supervision Services – Faleolo International Airport Pavements. Prepared by Ineco/ SMEC, 21 July 2015.
- Annex 3 Operable Execution Method at an Airport. Design & Supervision Services – Faleolo International Airport Pavements. Prepared by Ineco/ SMEC, 21 July 2015
- Environmental Impacts Assessment (EIA) Project of Upgrading Faleolo International Airport. Prepared by ARMJAS Designs Environmental Management Consultancy Services, September 2014.

2.0 APW Upgrade Description of Works

2.1 Overview of Works

The upgrade works consist of three primary tasks:

- Rehabilitation and resurfacing of existing airport pavements and upgrade of apron and taxiways including associated drainage works.
- Upgrade of existing terminal building.
- Upgrade of navigational aids and lighting.

The description of works provided in this section has been based on current draft detailed designs by Ineco/SMEC and SCG and detail provided in the CB Group PISA.

2.1.1 Pavement Upgrade (Runway, Apron and Taxiways)

The pavement upgrade component of works encompasses asphalt pavement rehabilitation for the apron, taxiway (TWY) and turning areas and rejuvenation treatment of the runway, with potential localised asphalt rejuvenation at the aprons and runway turning ends. The APW runway is 3 km in length and 45 m in width, with 7.5 m wide shoulders on either side. There are two aprons, referred to as eastern and western aprons. ICAO aerodrome reference code is 4E and has an orientation of 08-26. Figure 2 shows the general layout of the airport.



Figure 2 APW general existing airport layout (Source: Aerial photography from Google Earth Pro, dated 4 January 2015.)

The majority of international services originate in Australia and New Zealand generally using B737-800, B767 and A320 aircraft and occasionally B747 aircraft during the peak Christmas/New Year periods. International services between Fiji and Samoa including the weekly return Nadi/Apia/Honolulu service using the B737-800/700 and ATR aircraft, while the American Samoa services use Dornier 328 and 228 aircraft. The pavement design is based on a useful life of 20 years which included traffic forecasts (provided in the *Draft Faleolo International Airport Master Plan (2010 – 2030)*, KVA Consult Limited).

Approximately 1 km of badly cracked runway pavement areas has been identified as being critical areas requiring rehabilitation. Drainage also needs to be considered in the detailed designs of the pavement upgrade. TWY A and localised zones of the eastern apron have been identified as requiring total demolition of the existing pavement package, compacting soil improvement and reconstruction. In all other areas of the airfield, the removal of existing asphalt concrete and occasionally the granular base is proposed to rebuild with new asphalt concrete. With the complete reconstruction of TWY A, a temporary turn pad is required at threshold 26 (THR 26). There is a fuel hydrant system in the apron which will require alteration for the apron upgrades. At this stage the requirements for the fuel hydrant system are to accommodate the increased pavement levels.

A summary of the proposed pavement rehabilitation work and locations are presented in Table 1.

Table 1 SAIP proposed pavement works and location

Airfield Work Area	Location	Rehabilitation Works
Threshold 08 Area	100 m from beginning of runway and 45 m width	<ul style="list-style-type: none"> - Remove 10 cm of existing Hot Mix Asphalt (HMA) - Reconstruction with 15 cm new HMA
Runway West Side	From 100 m point eastward to 1.8 km point of runway and ± 10 m width (20 m central strip)	<ul style="list-style-type: none"> - Remove 10 cm of existing HMA - Reconstruction with 15 cm new HMA
	From 100 m point eastward to 1.8 km point and remaining width	<ul style="list-style-type: none"> - Milling of 1 cm of existing HMA - Overlay with 6 cm of new HMA
Runway East Side	From 1.8 km point to 3 km and width of ±10 m of runway (20 m central strip)	<ul style="list-style-type: none"> - Remove 10 cm of existing HMA - Remove 5 cm of existing granular base - Reconstruction with 20 cm of new HMA
	From 1.8 km point to 3 km and remaining runway width	<ul style="list-style-type: none"> - Milling of 1 cm of existing HMA - Overlay with 6 cm of new HMA
Taxiway A and Inner	Eastern taxiway (TWY A) and north pavement section immediately adjacent to apron	<ul style="list-style-type: none"> - Total demolition of existing pavement - Compaction and subgrade improvement in all areas ensuring CBR ≥6% - Reconstruction with 10cm of new AC, 25 cm of new Asphalt Treated Base and 40 cm of Granular Base
	Shoulders	<ul style="list-style-type: none"> - Milling 1 cm of existing asphalt mixture - Overlay with 6 cm of new asphalt mix until reach necessary level
Taxiway B	Western taxiway (TWY B)	<ul style="list-style-type: none"> - Remove 10 cm of existing HMA - Reconstruction with 15 cm new HMA
Apron	Pavement directly north of main terminal building	<ul style="list-style-type: none"> - Milling of 1 cm of existing HMA - Overlay with 6 cm of new HMA

Based on the pavement works detailed in Table 1 the following volumes of materials have been estimated.

Table 2 Pavement upgrade estimated volume of materials

Material	Estimated Volume/ Area
Demolition and removal of HMA	9 m ³
Compaction of base/ subgrade	137 m ²
Milling of HMA	1.2 m ³
Tack coat	228 m ²
Prime coat	137 m ²
Asphalt Concrete (AC) 1	23 ton
AC 2	34 ton
AC 3	9 ton
Excavation of aggregate	10 m ³
Crushed aggregate	6 m ³
Grooving	136 m ²
Jetseal Fuel proofing	16 m ²

Source: Ineco/ SMEC, 2015. *Draft Environmental Management Plan, Design & Supervision Services – Faleolo International Airport Pavements.*
Prepared for Samoa Aviation Authority

Additional work is proposed on the Eastern Apron, to rectify deficiencies in the pavement performance and to accommodate three new aerobridges proposed as part of the terminal upgrades. The detailed scope and design of this additional work is to be confirmed based on topographical and geotechnical investigations underway. The additional apron work is likely to include an extension of approximately 9,000 m² of pavement in the form of:

- Widening of TWY A.
- Extension of the apron immediately in front of the terminal.
- Extension of the apron between TWY A and TWY B.
- Code E apron extension on the eastern side of terminal (approximately 4,000 m²).

As the detailed design has yet to be commenced the estimated volume of material presented in Table 2 excludes requirements for the apron extension (other than as included in Table 1).

2.1.2 Terminal Building Upgrade

The current terminal is aged and requires upgrading in compliance with international standards. This will improve the efficiency and capacity of the terminal facilities to accommodate the growing number of passengers and aircraft movement. The terminal upgrade encompasses construction of a new terminal building with three aerobridges; renovation of the existing terminal to connect with the new terminal building as one; and reconstruction and extension of the existing car parking facility.

The terminal upgrade work is expected to be undertaken in three stages, consisting of:

Stage 1: West Wing Renovation

The existing departure terminal (west side of the terminal) will be renovated and modified to hold the new arrival and baggage areas.

Stage 2: East Wing Terminal Extension

The new east wing terminal building with three aerobridges will have a total floor area of 12,573 m². This new terminal will include the existing terminal building (5,500 m²).

Stage 3: Central Terminal Renovation and Car Parking

The central part of the terminal building houses the existing arrival zone. The renovation will convert the area to immigration, courtyard and a meet and greet areas. The newly renovated area to the west will be operating as the arrival area and the eastern wing will operate as the departure and check-in areas. The new and renovated terminals will be integrated to function as one operational structure which includes the courtyard area to be shared as a meeting space and connection to all areas of the terminal.

Three car parking areas are proposed for arrivals, departures and employees respectively along the southern side of the terminal. The upgraded parking areas are approximately 19,000 m² in total area. The major works will be the re-organisation of the cargo car park and structural work on the upper carpark retaining wall. The detailed design estimates that approximately 1,000 m³ of aggregate is required to cover about 500 m² of car park area.

2.2 Alternatives

The airport is existing infrastructure which requires maintenance work and upgrades to ensure continued operation. Alternatives regarding design approach and methodology were explored however budgets and constraints around land and natural resource availability limited the selection of design and construction methodology. The designs and proposed construction methodology must be selected based on the most effective use of natural resources, labour, ease of ongoing maintenance, effects on the local environment and community.

2.3 Construction Methodology

The contract for the terminal upgrade design and construct has been awarded to SCG who have mobilised to site. Detailed designs for the terminal have been finalised. The Design and Supervision contract for the SAIP pavement works has been awarded to Ineco/ SMEC and draft detailed designs are complete with additional studies underway to assist in finalising the detailed designs. The navigation aids and lighting design has yet to be drafted.

A detailed construction methodology for the either the SAIP or terminal upgrade project has not been confirmed.. Where information regarding construction methodology has been provided in the supporting documentation this has been documented and assessed as part of this IESMP development.

2.3.1 Method of Works Plan (MOWP)

The Method of Works Plan (MOWP) is a required document for any major construction works within the boundaries of an airport. The MOWP sets out the operational requirements for maintaining a functioning airport throughout the construction process. It includes the concessions and alternative arrangements that may need to be made (e.g. alternative aircraft parking apron) and staging of the construction process while ensuring the safety and security of all personnel, the community and aircraft and continued operation of the airport throughout construction works.

An Operable Execution Method draft plan has been produced for the draft detailed pavement designs. This document provides a programme of non-flight times, procedures for runway clearance (FOD), safety and communication protocols.

2.3.2 Materials and Equipment

Aggregate for pavement works and concrete for the terminal construction will be sourced locally while the majority of other materials and equipment for each component of the SAIP and terminal works will need to be imported. All cargo whether air or ship will need to be processed in accordance with Samoan quarantine and customs laws which require fumigation (proof of) of materials and equipment and declarations by personnel (specifically regarding communicable diseases).

2.3.3 Aggregate Supply

Testing of aggregate supplies (from local quarries and deposits) has yet to be undertaken to determine the most suitable source for the pavement upgrades. The Contractors are required to use existing quarries and material supply companies with valid operating licenses. SCG has identified Apia Concrete Products (ACP) as their supplier of concrete for the terminal construction works.

To date three quarry sites have been investigated to determine legality of the operation and known environmental or social constraints. The three potential quarry sites are shown in Figure 3. The Olo quarry site is not an option due to potential groundwater impacts.



Figure 3 Potential quarry locations on Upolu (Source: Google Earth 2015, accessed November 2015.)

Current feedback from PUMA (Ms. F. Brown, personal communication, 20 November 2015) regarding environmental and social constraints associated with the proposed quarry locations is presented in Table 3.

Table 3 Potential quarry sites for aggregate source – constraints and opportunities

Quarry Site	Constraints/ Opportunities	Status and Pursuit Recommendation
Saleimoa Quarry (Privately owned)	<ul style="list-style-type: none"> - Dust generation and noise complaints requiring PUMA intervention. Issues to be addressed before quarry can continue operating. - Licenced to Apia Concrete Products - Existing road surface (West Coast Road) is unlikely to withstand additional haulage. Land Transport Authority (LTA) concerned that haul route will further deteriorate if this quarry used. If a Development Consent is granted for future works, it is likely there will be a condition to repair the road. - Strength designation of rock is very high to extremely high¹. 	'Existing use' right Recommendation: Preferred source. Testing be undertaken to confirm suitability of aggregate.

¹ Tawake, A.K. and Talia, L., 2007. Samoa, Technical Report on Aggregate Sources Assessment in Selected Part of Upolu and Savai'i Islands. EU-EDF8 – SOPAC Project Report 74. Available from <http://ict.sopac.org/VirLib/ER0074.pdf>

Quarry Site	Constraints/ Opportunities	Status and Pursuit Recommendation
Alafua Quarry (Government owned)	<ul style="list-style-type: none"> - No known constraints or opportunities. - Quarry rock generally suitable for building and road construction but may contain weak to moderately strong material not recommended for high stress applications². 	<p>Closed. New Development Consent application required (EIA required). Application would be required to meet COEP8 and include a Quarry Management Plan.</p> <p>Recommendation: Site environmental screening assessment to determine any site constraints which would make consenting or operation difficult and unlikely to succeed.</p>
Olo Quarry	<ul style="list-style-type: none"> - Adverse groundwater impacts. - Community freshwater supply and business dependent on this groundwater resource. 	<p>Previous development application declined.</p> <p>Recommendation: Not to be pursued. No further investigation.</p>

2.3.4 Construction Camp and Lay Down Areas

Construction camps (residential or for equipment and facilities) are often required for projects of this scale. 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 collection of waste. Residential camps tend to be used for long term contractors and will be used by SCG for the terminal upgrade. The SAIP project components will not take as long to construct as the terminal upgrades so workers will likely use local accommodation rather than be accommodated in a residential construction camp. Mitigation measures described in Section 7.0 and Appendix C are applicable to all areas affected by SAIP components and terminal upgrades, including the construction camps. This section highlights aspects of site establishment and construction camp set up that will require implementation of mitigation measures.

Establishment

The SCG have established a residential/ office construction camp within the APW boundaries. This camp was granted Development Consent and issued conditions for construction and operation of the camp (reference DCA No 257/15, 15 July 2015). All construction camps must operate in accordance with the Code of Environmental Practice (COEP) 5 – Construction Camps and conditions of the Development Consent. The SCG camp is located south west from the terminal near the cargo car parking area. The SCG camp is 6,050m² and features perimeter fencing made of aluminium sheeting (2 m high). The camp facilities include:

- Prefabricated, air conditioned units containing 35 sleeping units, 16 offices, conference room, 2 dining areas, 2 kitchen areas, 4 store rooms, a boiler room and shared toilet and shower.
- Washing sinks have been set up adjacent to the staff quarters area at the western section of the camp for cleaning and other hygienic purposes.
- 8 car parking spaces along the eastern boundary for 8 parking spaces.
- Open recreational space in the eastern section of the site.
- Two septic tanks for sewage treatment, one situated at the north-west corner and the other along the south east corner.
- Water tanks used for alternative water supply, main source is the mains water supply network
- Stormwater is conveyed by pipes to the northern grassed slopes of the camp for soakage.
- Hazardous substance storage, machinery and construction materials are stored in areas adjacent to the fence along the south west and south east of the site.

Figure 4 and Figure 5 show the location of the SCG camp and the camp layout.

² Tawake, A.K. and Talia, L., 2007. *Samoa, Technical Report on Aggregate Sources Assessment in Selected Part of Upolu and Savai'i Islands*. EU-EDF8 – SOPAC Project Report 74. Available from <http://ict.sopac.org/VirLib/ER0074.pdf>

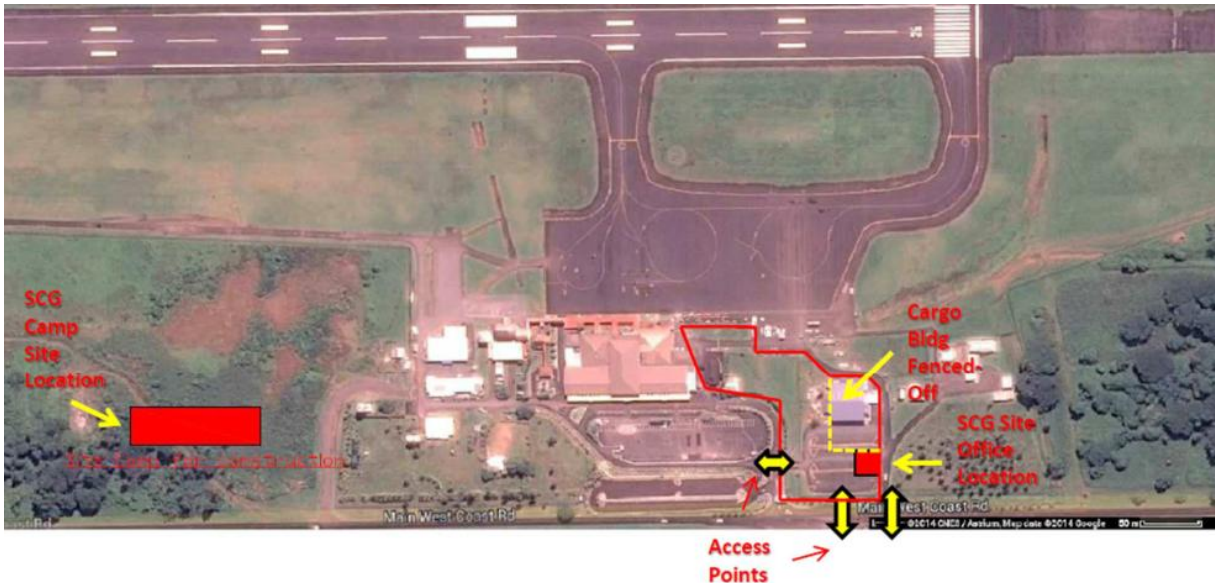
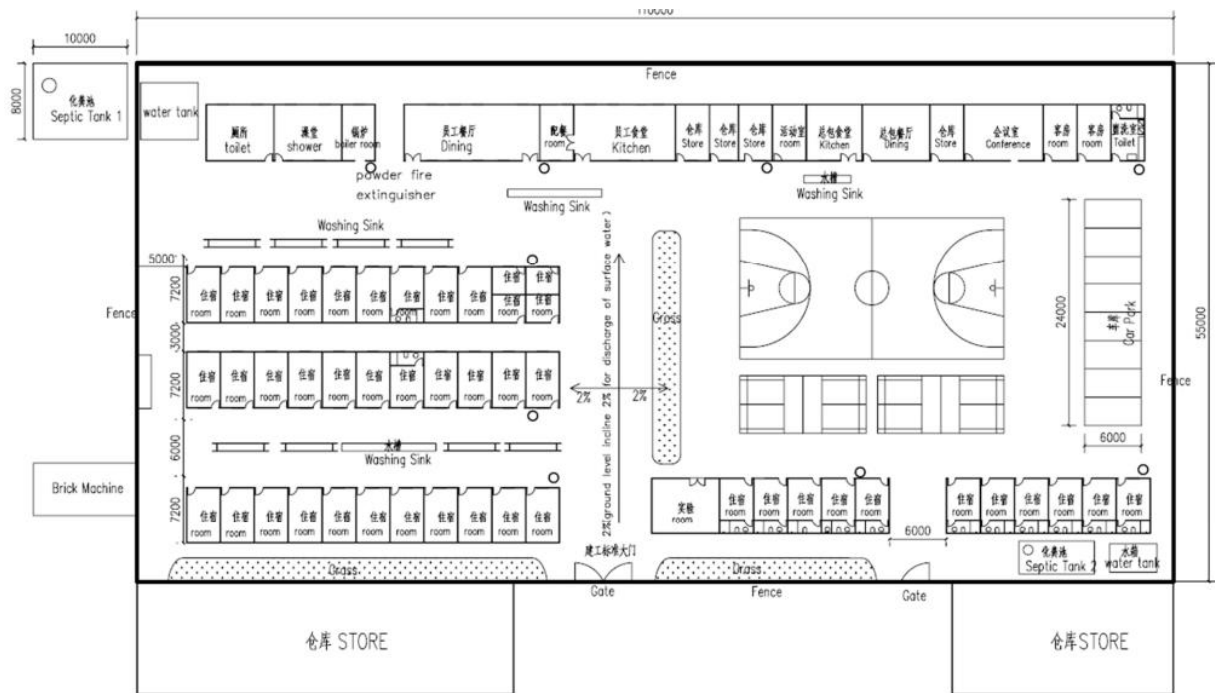


Figure 4 SCG camp location south west from terminal, adjacent to cargo building and car park (Source: CB Group, 2015)



Master Plan for Camp Site

Figure 5 SCG camp layout (Source: CB Group, 2015)

Construction camps for other project components should be located within the APW boundary on the southern side of the runway to reduce the potential impacts on the coastal environment and away from the coastal inundation zone which has potential to be affected by high tide storm surges (refer to Section 4.1.6 for further details on flooding).

Haul Routes

Haul routes within the APW boundary will need to be marked on the ground and to be agreed with SAA and identified in the MOWP. All movements within the APW boundaries will need to adhere to these routes. Haul

routes external to APW (e.g. from port, quarry, suppliers) will need to be agreed with LTA and specific consultation undertaken with potentially affected people (e.g. local community adjacent to the identified haul route and schools). All consultation and agreements are to be documented in writing with signatures from attendees at meetings and or signed letters outlining the terms of any agreements. There may be a requirement to complete condition assessments of selected routes in consultation with LTA to ensure public roads are not left damaged by the SAIP related construction traffic. All haul routes and transport to and from the construction camp, particularly of materials and equipment, must occur on the existing road network and measures undertaken to prevent accidents, dust, spillages, noise and vibration nuisance (e.g. wheel wash, covering of loads, servicing of vehicles). Once quarries and haul routes have been identified, the Contractor's ESMP should assess the potential impacts and specify which mitigation measures (as detailed in Section 7 and Appendix C) are applicable. A Traffic Management Plan (TMP) will be required to identify the routes, locations of sensitive receptors (e.g. villages and schools), location of specific mitigation measures and conditions of use (e.g. travel between specific times, load limits).

Temporary lay down areas for stockpile of material or equipment may be suitable to reduce the need to transport items on the road. All temporary stockpiles must be kept small (no higher than 2 m) and bunded to prevent dust and sediment laden runoff being generated. If need be the stockpiles should be wetted or covered to prevent dust. Lay down areas should not be sited near sensitive receptors (refer Section 5.4) nor within the coastal inundation zones on the northern side of the runway. Any land required for a temporary lay down area will need to be negotiated with the customary owner and lease holder.

Hazardous Substances

Allowance for hazardous substance storage must be provided for in a secure area of the construction camps. Equipment parking and workshop areas must be located on hard stand areas. Runoff from hard stand areas used to store machinery or workshops will need to be collected and treated (e.g. oil water separator) to prevent contamination of soil or water bodies. Hazardous substances (e.g. fuel, lubricants, oil and paint) must be stored in a rain protected bunded area.

Waste

Solid waste is to be sorted and collected within the camps for recycling, disposal to landfill or removal from island if hazardous. Only consented landfills are authorised to accept waste. Tafaigata landfill on Upolu is consented, Any inert aggregate waste (asphalt or basecourse material) should be either recycled on-site where possible or provided to the LTA to be used on GoV road projects e.g. road patch work. The Contractor's ESMP should confirm whether used (empty) bitumen drums may be returned to the supplier or crushed and disposed of to landfill. Any hazardous waste (e.g. contaminated soil / water, empty containers which contained hazardous substance [oil, lubricant, paint, diesel]) generated during the construction works would have to be exported from Samoa to a landfill in a country approved to accept such waste.

There is no reticulated sewer network on the island, septic tanks are utilised. Therefore temporary toilets and disposal or treatment of wastewater will need to be in accordance with the Ministry of Works, transport and Infrastructure (MWTI) and SAA advice (for example construction and training in use of composting toilet facilities).

Health and Safety

The construction camps must have available all personal protective equipment (PPE) that may be required by workers at any time during the project and processes in place for ensuring all workers are issued the correct equipment for their tasks. All occupational health and safety requirements must be in place and workers trained in necessary procedures (e.g. spill response plan). Health and safety requirements that meet the IFC Environmental, Health and Safety General Guidelines and the Samoa Codes of Environmental Practice (where relevant) must be applied to all aspects of the SAIP (including airport operations, quarries and transport routes) and terminal upgrades.

2.3.5 Duration and Timing of Construction Activities

The works are to be completed under different contracts for the different types of work. The Contractors have yet to be appointed for the all components of the SAIP therefore exact duration of the works is not yet known. However, the indicative time scales for the physical portion of the works are estimated as follows in the probable order of commencement:

- Terminal – estimated total 111 weeks (end date to be confirmed), including:
 - Stage 1 West Wing Renovation – 34 weeks.

- Stage 2 East Wing Terminal Extension (three aerobridges, new power centre and car park) – 55 weeks
 - Stage 3 Central Terminal Renovation and Car Park – 22 weeks.
- Pavement rehabilitation – 26 weeks (*to be confirmed based on final detailed designs*), commencing mid-2016.
- Navigational aids and lighting – 40 weeks (*to be confirmed by detailed design*).

To maintain airport and runway operations and safety of contractors, construction work will be scheduled around flight times which may result in night time and seven day activity on site. Normal working hours for development projects in Samoa is 7.30 am to 6.30 pm, Monday to Saturday. Due to the constraints of the airport operation written agreement would be required from PUMA to formalise any work undertaken outside of these normal working hours such as working on Sundays. To support the application for extended work hours and works on Sunday, the immediate local community must be consulted and provide written acceptance of the detailed work programme (including specific work dates and times and respite periods).

3.0 Policy, Legal and Administration Framework

3.1 National Requirements

Table 4 presents a summary of national legislation that is relevant to the SAIP and all components. The primary piece of 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). This defined further in Section 3.2.

A series of Codes of Environmental Practice (COEPs) have been developed which provide the standards for avoiding or mitigating adverse environmental impacts associated with development project planning, design, construction and maintenance.

3.2 Development Consents

All developments in Samoa require Development Consent and shall be submitted to PUMA for assessment before a determination is made. No works are to be undertaken until a Development Consent is secured. The Development Consent application form is included in Appendix B. Information to be included with a Development Consent application is:

- 1) Design drawings of the proposed development activity.
- 2) Site plan that will indicate the proposed activity on site, including setback(s) from the nearest boundary lines and the main road as well as any existing building structures on site.
- 3) If the development is on freehold land a computer folio certificate and certified survey plan are to be submitted. Development on customary land must have written consent from the family Sa'o. Development on government land requires a copy of the lease agreement and a certified survey plan be submitted.
- 4) EIA report. The type of EIA report is determined by the nature of the proposed activity as well as its potential and actual impacts likely to be generated. There are two types of EIA report under the EIA regulations and these include the Preliminary Environmental Assessment Report (PEAR) and a Comprehensive Environmental Assessment Report (CEAR).
- 5) Consent fee that is determined by the estimated cost of works.

All construction components of the SAIP will require assessment for a Development Consent. As airport operator and land owner/ lessee, SAA is responsible for applying for all Development Consents (with applications supported by information supplied by design consultants and contractors as required). The approval of the Development Consent will include a series of conditions that the project must comply with. The development applicant (land owner or occupier) are responsible for ensuring their activity complies with the conditions the Development Consent. PUMA is responsible for monitoring compliance with the conditions of the Development Consents. If significant changes are made to the design or scope of works, these may require amendments to the original Development Consent.

Two Development Consents have been issued by PUMA for the terminal component of work (included in Appendix B). The report titled "*Environmental Impact Assessment (EIA) Project of upgrading Faleolo International Airport*", prepared by ARMJAS Designs Environmental Management Consultancy Services (dated September 2014) was submitted on 15 September 2014 in support of the Development Consent application. The two Development Consents issued to date are:

- Development Consent (DCA No. 428/14) to renovate and extend the existing Faleolo Airport Terminal. Issued on 5 November 2014.
- Development Consent (DCA No. 257/15) to construct a campsite consisting of: three single-storey units with six self-contained units each; one toilet/shower facilities building with a boiler room; one single-storey building containing two kitchens, two dining rooms, four storage rooms, one conference room, four rooms and one toilet; two storage buildings; 11 washing sinks; two septic tanks measuring at 10 m x 8 m x 2.5 m and 8 m x 4 m x 2 m; basketball court/field and a car park; and rubbish bins. Issued on 15 July 2015.

Table 4 National Legislation Relevant to the Proposed Project

Classification	Policy, Legal and Administrative Framework	Details
General environmental legislation	Planning and Urban Management Act (2004)	<p>An Act to establish the PUMA within the MNRE. PUMA is the lead agency in environmental management, which includes social impact issues (IP and IR) and is responsible for setting the criteria for the requirements of an EIA format, structure, as well as a review and consideration of findings in decisions relating to development consents.</p> <p>Establishes a planning agency with responsibility for implementation of a framework for planning the use, development, management and protection of land in Samoa.</p> <p>Part 5 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.</p> <p>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.</p>
EIA regulations	Planning and Urban Management (Environmental Impact Assessment) Regulations (2007)	<p>Under the EIA Regulations, environmental assessments are required for any public or private development proposal that triggers qualifying criteria. Key criteria relate to potential negative impacts on people, places, habitats and conservation. Depending on the nature and scope of the development either a PEAR or a CEAR is required. A PEAR is required when PUMA does not consider that significant adverse impacts are likely, whilst a CEAR is required where likely and significant adverse impacts.</p>
Environmental standards	Codes of Environmental Practice(2007) (COEP)	<p>While not all COEPs listed are applicable to the SAIP they cover:</p> <ol style="list-style-type: none"> 1) Administration Procedures 2) Road Planning, Design and Construction 3) Consultation 4) Land Acquisition and Compensation 5) Construction Camps 6) Road Construction Erosion Control 7) Slope Stability 8) Quarry Development and Operations 9) Gravel Extraction 10) Coastal Protection 11) Drainage

Classification	Policy, Legal and Administrative Framework	Details
		12) Traffic Control During Construction 13) Earthworks 14) Cellular Telecommunications Facilities While not a COEP, PUMA's <i>Planning Policy for Noise Standards (Revised) 2011</i> provides the details of permitted noise levels during construction and operation phases of the project.
Aviation	Civil Aviation Act (1998)	To establish rules of operation and divisions of responsibility within the Samoa civil aviation system in order to promote aviation safety; and to ensure that Samoa's obligations under international aviation agreements are implemented; and to consolidate and amend the law relating to civil aviation in Samoa.
	Civil Aviation Rules (CARs) & Regulations (2000)	International flights into, from or over Samoa territory shall be subject to the current Samoa regulations relating to civil aviation. These regulations correspond in all essentials to the Standards and Recommended Practices contained in Annex 9 to the Convention on International Civil Aviation.
Health and safety	Occupational Safety and Health (OH&S) Act (2002) Labour and Employment Relations Act (2013)	Application of international standards in relation to workplace safety and fair treatment of workers.
Mining	Land Transport Authority Act (2007)	Addresses operation and management of quarries, gravel pits, access roads, roadworks or any works within a public road reserve.
Natural resources and conservation	Lands, Surveys and Environment Act (1989)	The Act manages land allocation and management, specifically manages forest protection and regulates land use activities and diversity conservation. 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.
Waste management	Waste Management Act (2010)	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 and
Water resources	Water Resources Management Act (2008)	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.

3.3 International Obligations

This section provides a list of all applicable 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.
- Nagoya Protocol.
- Vienna Convention for the Protection of the Ozone Layer 1985.
- Montreal Protocol on Substances that Deplete the Ozone Layer 1987.
- United Nations Convention to Combat Desertification 1994.
- Convention on the Protection of World Heritage and Natural Heritage 1972.
- Convention on the Prior Informed Consent Procedure for Hazardous Chemicals and Pesticides in International Trade.
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.
- Convention on Persistent Organic Pollutants.
- Convention of Wetlands of International Importance.
- Convention on Migratory Species of Wild Animals.
- Conventional on International Trade in Endangered Species of Wild Fauna.
- United Nations Convention on the Law of the Sea.
- Cartagena Protocol on Biosafety to the Convention of Biological Diversity.
- International Treaty on Plant and Genetic Resources for Food and Agriculture.
- Minamata Convention (recently).
- Plant Protection Agreement for the South East Asia & Pacific Region.
- Strategic Approach to International Chemicals Management.

3.4 World Bank Policy

The SAIP APW is assessed as a category B project under WB environmental and social screening guidelines and requires development of the project specific EMP. Due to the nature of the project it is expected that environmental impacts will be site specific, few if any are irreversible, and mitigation measures can be readily designed and implemented. In accordance with the WB OP 4.01 Environmental Assessment this IESMP includes information on mitigation, monitoring, capacity development and training, and implementation costs. The IESMP 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 IESMP is a dynamic document which must be updated as consultation and detailed designs of the project components are finalised to ensure currently unanticipated impacts and revised mitigation measures are addressed. Effective implementation of the EMP is a requirement of the funding agencies and local legislation so monitoring is an integral component of implementation. A Monitoring Plan is included in Section 9 (and Appendix D) of this IESMP. This IESMP is to form part of the bidding documents for contract(s) awarded under the SAIP and will form the basis of the contractor's environmental management implementation plan.

4.0 Environmental and Social Baseline Conditions

4.1 Physical Environment

4.1.1 Location and Geography

Samoa, formerly known as Western Samoa, is a small island developing nation located in the South Pacific between latitudes 13° and 14° south and longitude 171° and 173° west. It is an archipelago consisting of two large islands, Savai'i (1,802 km²) and Upolu (1,113 km²), and six small islets (total land area of 2,944 km²). The island group formed as a chain of shield volcanoes extend over a mild northwest to southeast axis.

Upolu the most populated of the island in the archipelago and features the county's capital Apia. Upolu has four topographic regions: lowland regions characterised by undulating terrain which extends from sea level to 225 m; strongly sloping foothills, the uplands occurring at 600 m elevation and the highlands (up to 1,200 m).

APW (refer Figure 6) is located on the north-west coast of Upolu, 32 km west of Apia and covers an area of approximately 3.44 km² of relatively low-lying topography, with average elevations of 3.8 m above mean sea level. Southern and western sections of the site are higher in elevation. The site is characterised by silty to sandy clay soils of mainly basalt olivine origin, weathered to depths of 20 m.

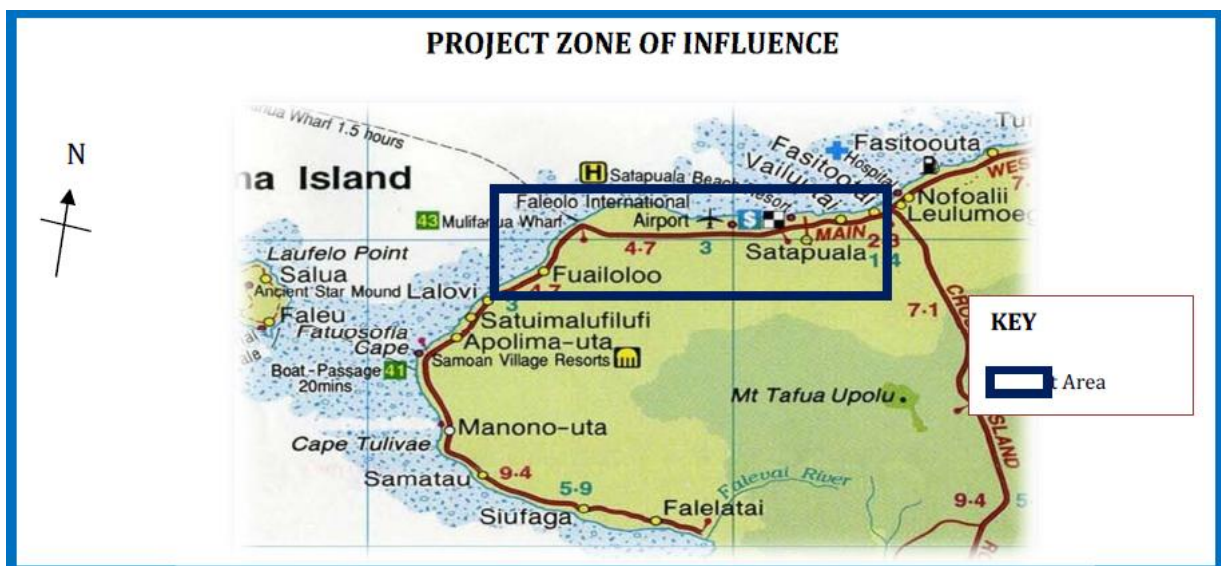


Figure 6: Map of the project zone at Faleolo International Airport (APW) (Source: CB Group, 2015.)

4.1.2 Climate

Upolu has a very wet tropical climate, with weak seasonality in temperature and precipitation. Hot, wet summer seasons last from October to March, a slightly cooler, drier winter season occurs between April and September. Winds are predominantly north easterlies throughout the year. Average temperatures recorded at the Faleolo climate station in 2014 ranged between 18.4°C and 36.9°C. Precipitation levels ranged between maximum of 672.7 mm and a minimum of 22.2 mm in the same year. The cyclone season is from November to April however tropical storms and cyclones may occur at other times of the year.

4.1.3 Soil and Geology

The geology of Upolu is comprised of two main groups of volcanic rock, the Salani and Falagalao volcanics. These are moderately to highly weathered olivine basalts and basaltic andesite rocks. Coastal plains and river floodplains in northern Upolu are comprised of recent alluvium. Soils range from silt loams to sandy clays of high natural fertility.

The topography at the APW and the immediate vicinity is composed of generally low-lying land, with average elevations of 3.8 m above mean sea level. Higher elevations occur along the southern perimeter of the site and the western end of the runway. Soils of the area are clay to silty clay textures of mainly olivine basaltic origin, weathered up to depths of 20 m.

Samoa is located in a seismically active region and therefore vulnerable to seismic events (and tsunamis).

4.1.4 Water Resources

Upolu water resources are obtained from both surface water intakes and groundwater. Aquifers are readily available within the area and water supply for the airport relies solely on a borehole located near the west of the terminal. Samoa Water Authority (SWA) also operates a reticulated water supply system. Given the volumes of water that are likely to be required for construction activities and camps that water will need to be sourced from SWA. SCG has already made arrangements with SWA for supply of water for their camp and construction activities.

4.1.5 Land Use around APW

The area surrounding APW is predominantly used for agriculture; some residential, educational and administration properties are also in the vicinity. The northern side is composed of coastal and marine environments adjoining the Pacific Ocean further offshore. A fisheries aquaculture and nursery facility managed by the Ministry of Agriculture and Fisheries (MAF) has recently been established on the north-western coast. The village of Satapuala is located to immediately east of APW and consists of a mixture of residential, hospitality and retail properties. Immediately to the west is a popular tourist destination, Aggie Grey's Lagoon Resort and Golf Course; the village of Mulifanua is located further to the west. West Coast Road to the south runs parallel between the facilities and Satapuala forest/bush land.

A number of land use types exist close to southern parts of the APW (refer to Figure 7), including Satapuala Police Station, a district school 400 m away and a district-level hospital 500 m away. Industrial and municipal supply properties are also in the vicinity, namely SWA boreholes and water pump properties about 4.6 km away; an oil processing plant and the Olo quarry both located about 4 km and 7 km respectively. Approximately 2,800 hectares (ha) of government owned land (Samoa Trust Estates Corporation) directly to the south is leased to local villagers and is mainly used for coconut plantations and agriculture.

Figure 7 Land use types in the area surrounding Faleolo International Airport (APW)



Source: CB Group, 2015.

4.1.6 Vulnerability to flood

A significant amount of APW is close to sea level with elevations between 2 and 4 m. The area of the runway near Threshold 26 and apron are within the coastal flood hazard zones i.e. are likely to be subject to flooding either by sea or from freshwater runoff during heavy rains (CB Group, 2015). The runway and apron area is located in the lowest part of the site and there are six open stormwater channels which form part of the drainage catchment of the area and drain water from the road, paved surfaces, inland slopes and surrounding land, to the coast (Ineco/SMEC, 2015).

Potential for flooding due to storm surges and king tides exists along the low-lying northern margins and extends over the apron area towards the northern section of the terminal building (refer Figure 8). Figure 8 has been reproduced by CB Group (2015) based on the Coastal Infrastructure Management Plans produced by MNRE and BECA International Consultants in April 2007 for Aana Alofi III District where Faleolo International Airport is located. The runway is also at risk from stormwater runoff channelled towards the coast from the parking areas, terminal, hangar, main road and inland slopes due to the difference between heights

With the exception of some sections to the west, most of the runway is within close proximity of the coast, although an engineered seawall was constructed to mitigate flood and erosion risk, it is unlikely to withstand the effects of cyclones and storm surges which can result in flooding. These events often arise rapidly with low onset predictability and can be exacerbated by the small catchment and steep slopes on Upolu which respond rapidly to heavy precipitation.

Drainage systems diverting overland flow from the surrounding upper catchment to the ocean currently flow over and under the runway. Flooding occurs on both sides of the runway, from coastal inundation and runoff from the inland catchments. The extent and risks of flooding are currently being assessed in a hydrology study being undertaken as part of the pavement detailed design development. The hydrology study will inform the drainage design for the apron and runway pavement.

Associated with floods is the risk of elevated levels of sediment, which can exacerbate flooding and land degradation. Water quality and the marine ecology within the receiving marine environment is also adversely affected by sediment laden flood waters.



Figure 8 The potential coastal flood hazard at the Faleolo International Airport (APW) (Source: CB Group, 2015.)

4.2 Biological Environment

4.2.1 Marine Biodiversity

The coastline is approximately 100 m to the north of the runway. The fringing coral reef, sea grass beds, sea water surface and beach are the main ecosystems and habitats of Satapuala/Faleolo marine area. This area is known for its diversity of coral and fish communities, and other marine life which contribute to supporting tourism in the area. Fish and invertebrate resources form the basis for subsistence and artisanal lifestyles for the local people. A part of this area has been marked a conservation area for community based fishing.

Healthy coral assemblages provide natural protection from cyclonic waves reaching the shore and are composed of mainly the *Acroporas* and dense stands of plate corals. Shallow lagoons (average depth of 1.5 m) support abundant marine biodiversity. Common fish species include surgeonfish (*Acanthurids*), parrotfish (*scarids*), emperors and snappers (*Lethrinids* and *lutjanids*). Gastropod snails (*Nerita* and *Littorina*), zanthid crabs, bryozoans and ascidians are common in the intertidal zone. Past surveys recorded an increase of fish species richness with depth and with deeper habitats having more species than shallower sites.

4.2.2 Terrestrial Biodiversity

The APW is heavily modified to meet airport spatial requirements, with the majority of vegetation cleared to make way for infrastructure and grassed areas. Certain areas consist of ornamental plants and trees and dense secondary vegetation is present towards the western and northern boundaries. This vegetation consists largely of coconuts and common coastal trees, shrubs and weeds characterise disturbed lands. The ornamental plants growing in and around the project area still provide shelter for many bird species, including common species (*Acridotheres spp.*) and migratory waders (including *Pluvialis fulva* and *Heteroscelus incanus*), as well as other underground terrestrial life.

The following species are known to congregate on the runway and surrounds: the Pacific Golden Plover or Tule (*Pluvialis fulva*) and the Wandering Tattler or Tuli Alomamala (*Heteroscelus incanus*) both of which are migrant waders; and one land bird, the Pacific Black Duck or Toloa (*Anas superciliosa*). Their use of the airport area could potentially pose a bird strike risk to arriving or departing aircraft.

4.2.3 Conservation Areas on Upolu

A number of natural conservation areas are located in Upolu, including O le Pupu-Pue National Park and Sa'anapu Conservation area located south-east of the APW and Uafato Conservation Area in the east. O le Pupu-Pue National Park is the largest protected land area on the island and protects a wide area and a range of environments, including Palolo Deep National Marine Reserve which encompasses an area of 1.4 km² and is comprised of the deep, a small land area, a fringing reef and shallow inshore flats. However none of these areas are in close proximity to APW and will not be affected by APW upgrade works.

4.2.4 Rare or Endangered Species

The 2008 International Union for Conservation of Nature (IUCN) Redlist of endangered species monitors 15 Samoan endemic and native species. Of the eight land bird species listed, one is critically endangered and possibly extinct (*Gallinula pacifica*). Two others are endangered and the remaining five are vulnerable. One mammal (sheath-tailed bat) is considered critically endangered; with only five individuals sighted following an extensive search after recent cyclones, their status is unconfirmed. Three turtle species, which frequent the local marine environment, are considered vulnerable.

All three of the bird species (Pacific Golden Plover, Wandering Tattler and Pacific Black Duck) known to congregate on the runway and surrounds are listed as 'least concern' on the IUCN Redlist of endangered species. Least concern is defined by the IUCN as evaluated but not qualified for any other category; as such they do not qualify as threatened, near threatened, or (prior to 2001) conservation dependent.

4.3 Socio-Economic Conditions

4.3.1 Population and Demographics

At the last census in 2011, the population was 187,826. It was estimated that by 2014 the population would have grown to 195,000. The 2011 census found 96% of the population held full Samoan citizenship with 2% holding dual citizenship and the remaining 2% not holding Samoan citizenship. Approximately 75% of the total Samoan population live on Upolu. The population is relatively young with a median age of 21 years.

4.3.2 Education and Health

Formal education is provided by the Department of Education and religious missions by way of a uniform syllabus and common examinations. In 2003 primary school enrolments were estimated to be about 98% of age-eligible and secondary school enrolments were about 62% of age-eligible students. It is estimated that nearly all students complete their primary education. In the same year, public expenditures on education were estimated at 4.8% of gross domestic product (GDP), or 14.6% of total government expenditures.

The Department of Health oversees health care on the islands is divided into 14 health districts. Diabetes and heart disease are common amongst Samoans and is largely contributed to the westernisation of the Samoan diet. Despite having a holistic view on health, immunisation rates are between 91% and 98%. Life expectancy at birth is 73.2 years.

4.3.3 Livelihoods and Economic Activities

Approximately two-thirds of the labour force is engaged in agriculture, which provides 90% of the exports (coconut cream, coconut oil and copra). Limited manufacturing concentrates on refining some of the agricultural products. Traditional revenue sources were fish stocks, however, declining fish stocks challenge its reliability. Tourism is

growing and now represents 25% of the GDP. The economy of Samoa has traditionally been dependent on development aid and family remittances from overseas but Samoa has recently achieved significant development progress, and now ranks highest in the region in United Nations Development Programme's Human Development Index. GDP growth averaged 4% per annum between 1997 and 2007 and GDP per capita has increased by 50% since 1990.

4.3.4 Land Tenure and Rights

Like most South Pacific island nations traditional land tenure systems are predominantly customary. The Land Titles Registration Act of Samoa was passed in 2008 and created a registration system described as a hybrid system which is an amalgam of old deeds registration principles with more modern title registration practices. The Act adopts the Torrens registration of title system and requires the registration of public land, freehold land and customary land leases and licences, and allows the registration of customary land based on Land and Titles Court judgment.

4.4 Projected Climate Changes and Impacts

There are no clear trends in temperature records in Apia since records began in 19573 due to missing data. However it is probable that over the past 50 years there has been a warming air temperature trend at Apia in line with regional and global trends, partly due to the warming ocean temperatures around Samoa. Temperature increased at a rate of 2.2°C per decade; although there has been no trend in changes to annual rainfall, year to year rainfall has become more variable. Satellite data indicates that sea level near Samoa has risen by about 4 mm per year since 1993; a figure slightly larger than the global average of 2.8 to 3.6 mm per year.

Scientists from the Pacific Climate Change Science Program (PCCSP) have assessed 26 global models; 24 of these were found to best represent the climate of the Samoa region and western tropical Pacific and have been used to develop climate projections for Samoa. The climate projections for Samoa are based on four Intergovernmental Panel on Climate Change (IPCC) emissions scenarios called Representative Concentration Pathways (RCP): very low (RCP2.6), low (RCP4.5), medium (RCP6.0) and very high (RCP8.5), for time periods around 2030, 2050, 2070 and 2090 (refer Figure 9).

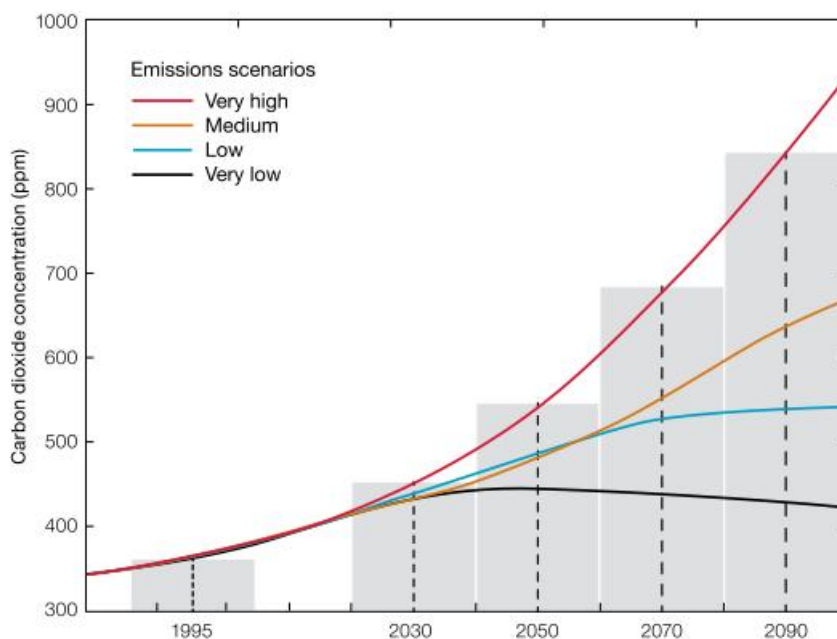


Figure 9 Carbon dioxide (CO₂) concentrations (parts per million, ppm) associated with the very low (RCP2.6), low (RCP4.5), medium (RCP6.0) and very high (RCP8.5) emissions scenarios for 20-year time periods (shaded) centred on 1995 (the reference period), 2030, 2050, 2070 and 2090.

Projections across all emission scenarios indicate Samoa will experience increases in average annual air temperature and sea surface temperature (refer Table 5). Under a very high emission scenario temperature

³ Pacific-Australia Climate Change Science and Adaptation Planning Program, 2015. *Current and future climate of Samoa*. Available from http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/3_PACCSAP-Samoa-10pp_WEB.pdf

increases are projected to be between 0.5 and 1.1°C higher by 2030. 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.

Table 5 Projected annual average air temperature changes (left) and sea level rise (right) for Samoa for three emissions scenarios and three time periods. Values represent 90% of the range of the models and changes are relative to the average of the period 1986-2005.

	Annual Average Air Temperature Projection				Annual Average Sea Level Rise Projection			
	2030 (°C)	2050 (°C)	2070 (°C)	2090 (°C)	2030 (cm)	2050 (cm)	2070 (cm)	2090 (cm)
Very low emissions scenario	0.4-0.9	0.5-1.1	0.4-1.1	0.3-1.2	8-17	13-30	18-44	23-59
Low emissions scenario	0.4-1.0	0.7-1.4	0.9-1.8	0.9-2.1	7-17	13-30	21-47	28-66
Medium emissions scenario	0.4-0.9	0.6-1.4	0.9-1.9	1.1-2.5	7-17	13-29	21-46	29-67
Very high emissions scenario	0.5-1.1	1.0-1.9	1.5-2.9	2.0-4.0	7-17	16-33	27-56	40-87

Source: Pacific-Australia Climate Change Science and Adaptation Planning Program, 2015. *Current and future climate of Samoa*. Available from http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/3_PACCSAP-Samoa-10pp_WEB.pdf

5.0 Consultation and Stakeholder Engagement

5.1 Background and Approach

In preparing the PISA Report, CB Group conducted consultation with personnel from SAA, Ministry of Finance, SWA, LTA, village authorities from around the project area, quarry companies, SCG, Samoa Hotel Association and Chamber of Commerce. Minutes and attendance records are presented in the Stakeholder Consultations Record, 9th to 30th September 2015 by CB Group and included in Appendix E.

Open community consultation and consultation with non-government organisations (NGOs) was last held in 2013. Consultation is an integral part of the project development and ensures that potential impacts are identified together with potentially affected people and stakeholders. During project implementation consultation should take place with affected people to ensure they are properly compensated for impacts experienced.

WB policies require that consultation is conducted during preparation of all safeguard instruments. Consultation should be well documented (include who attended, information presented, concerns raised, answers to concerns, etc.) and attached to project documentation.

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.

5.1.1 Scope of Consultation

The scope for undertaking future consultation for the SAIP and terminal upgrade project should include the following tasks:

- Develop the stakeholder matrix and engagement plan to identify all parties and appropriate consultation mode (e.g. interviews, focus group meetings, public meetings) for the respective stakeholders. The stakeholder matrix and representation must consider the WB Indigenous Peoples policy and gender diversity.
- Consult with institutional stakeholders to ensure a whole of Government approach to the project development. 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) 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 with government stakeholders, the local community, neighbouring land owners, airport businesses, and the general public was first carried out in September 2013 and summarised in the 2013 SAIP EMP. More recent consultation was undertaken in September 2015 and has been summarised in the "Government of Samoa-Samoa Airport Authority Samoa Airport Investments Project (SAIP) Upgrade of Faleolo International Airport Terminal and Runway, Samoa; Stakeholder Consultations Record, 9th – 30th September 2015".

5.2.1 Outcomes of Stakeholder Consultation

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

- A clear call for employment opportunities to be provided for the local population especially those in the nearby villages or close to APW to be given first priority.
- Queries on the viability regarding some of the new facilities and equipment being introduced through the terminal project for example aerobridges.
- Some concerns with increased noise pollution (increased aircraft capacity) given the expansion and improvements to certain areas of the runway and apron.
- Concerns expressed by local communities and groups regarding construction work on Sundays, which is the Sabbath and Holy day for most Samoans.
- SWA has no immediate concerns with the project at this stage in relation to supply given that SAA have their own bore hole supplying their own needs.
- The LTA has confirmed their schedule of road works to SAA particularly works on the West Coast Road which is also supported by the WB, noting the issues of quality, quantity and suitability of rock material from the quarries that will be used. LTA has also expressed concern regarding cartage issues and pressure the heavy truckloads of material may place on reconstructed areas of the West Coast Road.
- SAA to properly monitor the disposal of waste from aircraft during the construction period to ensure that quarantine and waste disposal procedures are adhered to for the protection of the community and the environment.
- SAA clearly sets out a hand over strategy with the contractors for the project. Specifically the new terminal building and accompanying equipment and to fully endorse the type of maintenance and period that is to be undertaken by contractors prior to full take over by SAA of the new facility.

The concerns or opportunities raised through the consultation have been incorporated where possible into the IESMP and detailed designs. Specific responses are documented in the Stakeholder Consultations Record (CB Group, 2015).

5.3 Disclosure

Disclosure does not equate to consultation (and vice versa) as disclosure is about transparency and accountability through release of information about the project. A copy of this draft IESMP should be made available on the WB Infoshop and GoS websites and hard copies available at GoS offices (most applicable and accessible), SAA office at APW, and community centres on Upolu.

5.4 Sensitive Receptors

Homes, schools (including pre-schools), churches, and hospitals are categorised as sensitive receptors where people can be more susceptible to the adverse effects of exposure, like to traffic (safety) or noise. Sensitive receptors do not usually include places of business or public open space. Specific consultation should be undertaken with these communities before and during construction activities to ensure impacts are minimised and community safety is ensured. This is particularly important for the transport of materials and equipment to and from APW. 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 CB Group PISA provided an assessment of the six villages located within the airport's zone of influence (reference Section 3.1 of the PISA). The zone of influence encompasses Satapuala to the east and south of the Airport), Samea, Paepaeala, Fuailoloo, and settlements of Olo and Sagafili (all to the south and west of the Airport). While the construction will occur within the boundaries of APW some effects, particularly related to transport of materials and effects that can extend beyond property boundaries (e.g. noise and dust) could affect the neighbouring communities. Consultation and assessment of effects on the communities adjacent to the haul and transport routes for the project (e.g. from port or quarry) will need to be undertaken once the routes have been identified.

There are three primary schools, one large secondary school and many community churches in the zone of influence. Sheraton Aggie Grey's Lagoon Resort, Le Vasa Resort, Airport Lounge and the Transit Motel are tourist accommodation venues near the airport.

6.0 Environmental and Social Impacts

6.1 Overview of Impacts

The SAIP APW scope is to rehabilitate the existing runway, upgrade the existing terminal and also upgrade navigational aids and lighting. The project is unlikely to cause any major negative environmental or social impacts as the work is providing maintenance to and improving existing infrastructure. The social outcomes of the SAIP APW are expected to be predominately positive by improving safety, accessibility and mobility of island communities. No land acquisition is required thus no physical resettlement will be necessary.

6.2 Environmental Impacts

6.2.1 Water Resources

Freshwater will be required for workers and some construction activities (e.g. dust suppression and concrete and asphalt production). The impact on current water supply could be major if not properly mitigated through good resource planning. SCG has secured water from the SWA through the reticulated water supply. Water supply for the SAIP components will most likely be sourced from SWA. Rainwater harvesting should also be considered particularly for small scale needs (e.g. office facilities) as an alternative water supply. The contractors are responsible for securing water access that is adequate and continuously supplied throughout the construction phase.

Water efficiency, conservation and reclamation practices will be adopted; another option is use of an osmosis plant for non-potable water purification or a mobile desalination plant.

6.2.2 Biological Resources

The APW SAIP and terminal upgrade will rehabilitate and upgrade the existing infrastructure. The airport land is defined by a secure perimeter fence designed to exclude animals and prevent access by people. Most of the airport land is mown grass however there are areas of scrub (coconuts, coastal trees and shrubs) in areas outside of the runway strip, where the construction camp and lay down areas will be located (west of the hangar). Habitat loss or disturbance will be related to the construction phase. There is the possibility that in the process of construction works fauna (e.g. nesting birds) could be impacted or the removal of vegetation (e.g. for construction lay down area) could impact on potential habitats.

The impacts on vegetative cover will be short-term and reversible through natural regeneration. Where topsoil is required to be cleared this will be set aside for use in restoration of disturbed areas.

The habitats surrounding the runway (outside the perimeter fence) are primarily forest/bush land to the south, coastal and marine environments to the north, Satapuala village to the east, and Aggie Grey's Lagoon Resort and Golf Course and Mulifanua village to the west. Wading birds (Pacific grey duck and wandering tattler) have habitats adjacent to the airport and they are often observed in abundance in the vicinity of the airport between September and April. Mitigation measures will include liaison with MNRE should any fauna (e.g. reptile, avian, amphibian or mammal) be encountered that affect construction activities (e.g. nesting bird).

6.2.3 Solid Waste

Upolu has one approved, licensed landfill, Tafaigata Landfill, located to the west of Apia. MNRE manages the landfill which is licensed to receive general waste only.

There is no waste disposal facility in the immediate vicinity of the project area. The Tafaigata landfill is approximately 15-20km by road from the site. Therefore waste will need to be temporarily stored on site, and any material not able to be reused will need to be transported to and disposed of at the landfill. A solid waste management plan will need to be put in place to minimise adverse impacts from the storage and transportation of waste.

Scarification, replacement of unsuitable pavement material, demolition of the terminal, replacement of lighting and navigation aids will lead to the generation of excess soil and demolition waste. This waste will negatively impact the site and surrounding environment if not properly managed and disposed of to an appropriate facility. Vegetation and solid waste, if allowed to accumulate in low-lying areas or drainage channels, may cause localised pooling and flooding. Pooling of water, in turn, may create conditions conducive to the breeding of nuisance and health-threatening pests such as mosquitoes. Poor construction waste management constitutes a short-term, and potentially long-term, negative impact.

Material will also be generated from the excavations associated with the runway pavement rehabilitation, concrete pads for air navigational aids and cable trenches. Most of the raw material can either be used to backfill areas where old equipment or infrastructure has been removed or as a resource (e.g. crushed asphalt and basecourse material) for general use by SAA or LTA and the community. The asphalt plant will also generate bitumen drums for disposal. The Contractor's ESMP should confirm whether used (empty) bitumen drums may be returned to the supplier or crushed and disposed of to landfill.

6.2.4 Hazardous Substances and Materials

Potential soil and water pollution from construction run-off with fuel, chemicals and lubricants are expected to be temporary and minor. Work practices and mitigation measures for spills will be implemented, including a spill response plan and bunded areas for storage (for all project locations during construction and operation phase).

Should any hazardous waste be produced during the works, it would be required to be exported to a landfill in a country which is approved to accept such waste.

The existing terminal building structure does not contain asbestos containing material (ACM) (V. Punivalu, personal communication, 20 January 2016). However if during the construction phase ACM is discovered works should stop in the that area until an ACM management plan is prepared and approved to manage the exposure risks, management and disposal of this hazardous material⁴.

Should an emergency event occur there is also potential for a discharge of hazardous substances to the environment or the use of fire retardants during fire-fighting. The spill response plan should include provisions for mitigating any adverse effects.

6.2.5 Noise and Vibration

Noise and vibration disturbances are particularly likely during construction related to the transportation of construction materials from quarries and operation of equipment (e.g. blasting and processing of aggregate in quarries, asphalt plant operation and milling of pavement surface). These impacts will be short-term and affect different people at different times. Impacts include noise during pavement resurfacing and possible effect of vibration caused by operation of heavy machinery, increased traffic in some sections of roads, etc. Noise and vibration is likely to be an ongoing issue throughout the construction stage and to a lesser degree the operational phase (e.g. aircraft landing and take-off). As the airport represents existing infrastructure any noise or vibration impacts are likely already being experienced by the local community. The timing of construction works and noise levels generated will be controlled according to approved operation hours and permitted noise levels set out in the Noise Policy 2006 (PUMA, 2006) and conditions of the Development Consent.

6.2.6 Erosion and Sediment control

The majority of the airport site is either sealed by the pavement and buildings or grassed to ensure visual clearance and security. The grassed areas are regularly mown to meet necessary airport standards. Scrub vegetation does exist around some areas of the airport perimeter. The location of the SAIP will require removal of some small shrubs and vegetation to establish lay down areas. During resurfacing, and restoration of pavement areas and drainage, areas of bare soil may be exposed.

Sediment has the potential to be generated during any vegetation clearance and excavations. Approximately 1 km of badly cracked runway pavement areas has been identified as being critical areas requiring rehabilitation. The proposed pavement rehabilitation areas are presented in Table 1 Section 2.1.1; the main areas of disturbance will be the main runway (runway west and east sides), taxiway A and inner, taxiway B, and apron. Excavation will be required for the navigational aids and lighting upgrades (concrete pads and cable trenches) and details of these excavations have yet to be defined as these components are at the concept design stage. Land disturbance will also be required for the terminal upgrade work, including the construction of a new 12,573 m² extension (stage 1 east wing terminal extension phase) and a new reconstruction of the car parking area (stage 3 central terminal renovation and car parking phase).

APW is within coastal flood hazard zones (as described in Section 4.1.6). Potential for flooding exists along the low-lying northern margins and extends over the apron area towards the northern section of the terminal building. Flooding during construction works increases the risk of sediment laden run-off being generated and transported to the receiving marine environment. The depth and extent of flooding (whether inundation from the sea or

⁴ Refer to the IFC Environmental, Health and Safety (EHS) Guidelines and the World Bank *Good Practice Note: Asbestos: Occupational and Community Health Issues* (May 2009)

overland flow) has not yet been quantified. A hydrological study has been commissioned to be able to inform drainage design and construction for the SAIP and terminal upgrades. Consideration should be given to restricting works during the wet season (October to March). While the potential impacts of uncontrolled sediment laden run-off can adversely affect the receiving environment, they can be easily mitigated through planning and implementation of mitigation measures.

6.2.7 Air Emissions and Odours

Air pollution can arise due to improper maintenance of equipment, dust generation and the bitumen smoke / fumes arising from application of the new pavement seal, quarry activities, asphalt plant discharges and maintenance work. Potential for dust generation will be greatest during the dry season (April to September) and during the afternoons when the trade winds are most prevalent. Given the relative distance to neighbouring settlements (more than 500 m from APW), airborne particulates should not pose a hazard to residents in the vicinity or downwind of the construction of the construction activities.

Impacts are expected to be localised and short term with only minor negative impact on the ambient air quality in the vicinity of the construction areas. Consideration should be made as to where noisy and odorous equipment (e.g. asphalt plant) should be placed in relation to sensitive receptors, if located away from communities, the social impacts should be minimal.

No ongoing impact to air quality is expected as this is rehabilitation of existing infrastructure and terminal upgrade works.

6.2.8 Traffic and Airport Operations

Traffic impacts will occur in transporting equipment and materials from quarries and the port. The recommended quarry for aggregate supply is Saleimoa Quarry located east of APW. It is likely that West Coast Road and Plantation Road will be used as the haul routes to this location. As an alternative to using West Coast Road, Alafa'alava Road can be used as an inland haul route for both ACP and the port, which are both located in Apia. Community consultation must be undertaken once haul routes are identified for the projects. The road condition will need to be assessed for suitability of heavy vehicles and increased traffic. Any upgrades or repairs will be the responsibility of the contractor using the haul route or as agreed with LTA and SAA.

These impacts will mostly be short-term and through good mitigation and traffic management the impacts should be low. The Contractor is responsible for developing and implementing a Traffic Management Plan (TMP). The TMP will need to consider pedestrian traffic as well as vehicle traffic management, and particular attention will need to be given to management near sensitive receptors (schools, residential dwellings, markets, churches etc.). Upon completion of the construction phase of works, traffic and road safety impacts caused by the SAIP APW should cease.

The MOWP will specify safety measures required for the operation of the airport when construction work is underway. The MOWP includes instruction on airfield operational distances, foreign object debris protection, airfield security, and responsibility hierarchy and communication methods.

6.2.9 Wastewater Discharges

Uncontrolled wastewater (e.g. sewage, grey water, wash water) discharges have the potential to contaminate soil, water and spread disease. Sanitary facilities for workers will be provided to prevent water bodies or other areas being used. Specification of sanitary facilities will be at the advice of SAA.

Impacts may include sedimentation and an increase in nutrients impacting water quality and aquatic life in the adjacent lagoon and coral reef habitats, and contamination due to an accidental release of hazardous substances, refuse or other waste materials into the marine ecosystem. Wash water from equipment can be contaminated with hydrocarbons (e.g. oil and fuel) which have a detrimental effect on aquatic life, water quality and soil quality. There are also human health impacts regarding hydrocarbon exposure which vary in severity depending on type and length of exposure. Wash water from concrete processing and cutting is highly alkaline and can burn vegetation, result in fish kills and also cause burns to the skin.

The significance of the impacts depends on the scale of the release, duration of earthworks, local worksite topography, soil type, rainfall levels, adequacy of sewage treatment facilities, and the sensitivity of the receiving water environment. The runway is located approximately 100 m south of the receiving marine environment, therefore any release could be significant. It is vital to plan and carefully manage works adjacent to the marine environment. Furthermore, consideration should be given to works completed during the wet season (October to March). While the potential impacts of uncontrolled discharges of wastewater can adversely affect the receiving

environment, they can be easily mitigated through planning and implementation of mitigation measures (as outlined in Section 7.8).

6.2.10 Quarry and Aggregate Supply

Potential adverse impacts from uncontrolled quarrying or mining are high and include all of the above listed impacts, namely:

- Air emissions – machinery and dust.
- Noise and vibration – machinery and blasting (if used).
- Water – consumption, hydrology (changes to site drainage patterns and groundwater), wastewater, and contamination.
- Waste – overburden, by-products and contaminated waste material.
- Land conversion – loss of habitat and agricultural land.

Dust is a major issue at quarry sites and can travel some distance and affect a large number of people if not properly managed. In the past PUMA have received dust complaints about Saleimoa Quarry which have resulted in intervention by PUMA Inspectors.

Only consented quarry operations will be used to source suitable aggregate (Saleimoa and Alafua quarries have been identified as potentially suitable). The potential quarry sources identified in Section 2.3.3 are either currently operating as a quarry or have been utilised as a quarry in the recent past so land conversion has already taken place. A summary of constraints and opportunities relating to the quarry options are described in Table 3 in Section 2.3.3.

Impacts of quarrying are not limited to the location of the quarry but can extend along the delivery route. Noise, dust, and traffic (vehicle and pedestrian) safety are primary concerns for the transport of materials from the quarry site. Depending on the quarry sites selected to supply the required aggregate, a more detailed assessment of impacts should be completed by the Contractor in their ESMP along with mitigation measures suitable for the location and activities within the quarry.

Saleimoa Quarry is located more than 2 km from the coast and it is unlikely that it will impact the coastal and marine environment, but it should be managed in accordance with international standard practice. Consideration and planning should also be implemented on quarry rehabilitation following the completion of the works.

6.2.11 Biosecurity

Some equipment and materials (e.g. bitumen) is most likely going to be imported which can harbour plant and animal species which may pose a threat to Samoa's biodiversity and ecosystems.

6.2.12 Impacts on Cultural Property

Should any areas of potential cultural importance or artefacts be identified during the SAIP, works should stop and the Ministry of Education, Sports and Culture should be contacted. No work should continue until approval has been sought from the above-mentioned agency. Furthermore COEP 9 (Archaeological Sites) and COEP 13 (Cultural Preservation measures) should be implemented.

6.2.13 Coastal and Marine Environment Impacts

A number of activities have the potential to have a negative impact on the receiving marine environment, including uncontrolled discharges (e.g. stormwater, wastewater, spills). Potential sediment and contaminant laden run-off issues could result from the improper siting of stockpiles and aggregate storage (sand, gravel, cement and bitumen) in laydown areas and construction camps. During heavy rainfall events this could wash into the adjacent marine environment and could result in water and habitat contamination, increased water turbidity, and the sedimentation of sensitive ecosystems (e.g. coral reefs).

6.2.14 Secondary and Cumulative Impacts

Secondary and cumulative impacts tend to be triggered by impacts to environmental resources that function as integral parts of a larger system over time and space, and can initially be 'invisible' to the normal present time impact assessment. Secondary impacts can include land use changes due to improved accessibility which in turn can impact habitats and pressure on existing resources and utilities (e.g. water supply). Secondary and cumulative impacts also often cannot be managed solely by the project executors (SAA). Town planning (e.g.

restricting development and clearing of land) and conservation are two examples of external influences which can assist in reducing secondary and cumulative impacts.

Secondary and cumulative impacts are not always negative, positive impacts include increased business and supply chain opportunities due to improved infrastructure and accessibility, improved access to health and education facilities and employment (beyond the scope of the project).

The airport is existing infrastructure which has existing impacts (e.g. noise and dust generation). In most cases the SAIP will not be able to remedy these impacts however the designs can lessen and in some cases mitigate some of the impacts.

Both positive and negative secondary and cumulative impacts may be triggered by other infrastructure and construction projects in the vicinity of APW. The upgrade of West Coast Road, a project which is likely to run in parallel with SAIP and the terminal upgrade is the main access road to APW. An improved road may result in an increase of traffic (including trucks) using this road and travelling through settlements increasing noise and vibration nuisance and road safety for pedestrians. However, the road upgrade will increase the accessibility of the north-west section of the island between Apia and APW for road users.

6.3 Social Impacts

Safeguarding sensitive receptors such as the communities to the east and west of APW, and communities on the haul routes will be addressed through the public consultation process throughout the life of the project.

6.3.1 Health and Safety

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

The primary hazards identified are construction works involving hot bituminous products (up to 165°C), and working in extreme ambient temperatures.

Trenches for the air navigational aids are not expected to exceed 1.2 m however batter slopes or shoring may be required to stabilise the sides of the trenches. Trenching may also be required for installation of drainage infrastructure. Exposed trenches pose a risk to the community and airport operations therefore trenches will be progressively filled as the cable ducts or drainage are laid. For any extensive trenching works, at any one time the maximum length of exposed trench shall be 30 m. Exposed trenches shall be secured at night to prevent access by non-authorised personnel.

The establishment of foreign contractors at APW for the construction phase 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.

6.3.2 Business Impacts

During the construction phase there is the potential for impacts on airport concessionaires and other small businesses in the airport vicinity. These impacts would be generally limited to noise, dust and traffic from construction activities and will be of limited duration. Standard good practice construction management will mitigate these potential impacts to an acceptable level. All potentially affected businesses will be included in the consultation process.

During the terminal building upgrade works, there is potential for substantial disruption to terminal based concessionaires. Mitigation measures should include consultation throughout the project life, business continuity planning and grievance redress. Other mitigation measures may include compensation, relocation arrangements, and concession negotiations. The SAA Terminal Project Manager/Engineer will be responsible for developing and implementing these mitigation measures in conjunction with SCG.

7.0 Mitigation Measures

Due to the nature of the upgrade and rehabilitation activities proposed there are some mitigation measures which are applicable to all aspects of the project, while others that are specific to particular components. Sensitive receptors and environmental values have been identified around the airport site which will require specific mitigation measures for safety and environmental protection. The mitigation measures are outlined in Appendix C. The mitigation tables 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 IESMP 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 IESMP. 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, Materials and Equipment Importation

Aggregate will ideally be sourced from existing quarry sites on Upolu (Saleimoa and Alafua quarries have been identified as potentially suitable). Once testing has been completed and the most suitable quarry is confirmed, the Contractor, SAA and LTA is responsible for reviewing site operations to ensure that the operation is legal and approved for supply of aggregate (under Samoan law). The Contractor will have a choice as to which quarry source to use and how the quarry operation is to be set up (e.g. operated by the SAIP Contractor or a local quarry operator). If the contractor uses a local operator, they are responsible for reviewing operating license/permits and any conditions of operation which may have been imposed to ensure the operation is legal and that the contractor's work complies with any transport or purchase requirements. If the SAIP Contractor is to operate the quarry (or part of) themselves they are responsible for securing the necessary operating permits and completing environmental assessments. An EIA and quarry management plan may be required to support any permit application. The contractor should adopt the COEP for Quarry Development and Operations (COEP 8). Key mitigation measures from this document are outlined below. Consenting requirements will need Contractors to include provision for quarry specific plans including environmental management, health and safety and rehabilitation. If a Development Consent is required an EIA will need to be developed for the selected quarry site.

. Dust must be actively managed using the same measures as identified in Appendix C along with the use of linear layout for materials handling to reduce the need for loading and unloading and vehicle movements around the site. 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 minimize noise and dust emissions. Use closed/covered trucks for transportation of construction materials. When locating operations consideration should be given to prevailing wind conditions.

Water is significant resource in quarry activities and where possible closed circuit systems should be implemented for treatment and re-use in site activities and processes (e.g. washing plants). A closed circuit water management cycle should allow for treatment of wastewater contaminated with sediment (through settlement ponds) and collection of wastewater contaminated with hydrocarbons for treatment through an oil water separator.

In order to minimise site waste, careful planning and understanding of product quality is required. Overburden by-product should be stockpiled for use in rehabilitation of the quarry site at a later date.

Other mitigation measures that have been identified for the project as a whole (refer to Appendix C) are also applicable to the quarry site if managed by the SAIP pavement Contractor. For example chance find of archaeological artefacts or loss of biodiversity, damage to assets and infrastructure, erosion and sediment control measures (e.g. clean water diversion), wastewater treatment, noise and vibration mitigation etc.

The transport of material from the quarry will need to be managed through a TMP which identifies the route, maximum load limits, required transport permits and required measures to reduce dust and spillages. Mitigation measures provided in Appendix C include covering of loads, refused delivery of overloaded trucks, transport during off peak times and route identification which uses existing less trafficked roads. The Contractor should also include provision for noise and speed control in their ESMP; this can include prohibiting the use of engine breaking for noise reduction, speed control measures in and near settlements (e.g. introduction of speed bumps), and regulating working hours for the haul trucks.

7.2 Hazardous Substance Use, Storage and Disposal

Hazardous liquids (e.g. fuel and lubricants) must be managed within hardstand and bunded areas to prevent runoff to surrounding permeable ground. Bunded areas (secondary containment) must contain the larger of 110% of the largest tank or 25% of the combined volumes in areas with a total storage volume equal or greater than 1,000 L. Bunded areas are to be impervious (water tight), constructed from chemically resistant material, and be sheltered from the rain as rain water allowed to collect within the bund could be contaminated if there is any hazardous substance residue on storage containers or spilt product within the bund. A spill response plan must be in place and all workers trained in correct implementation of the spill response plan. Spill kits should be available in close proximity to where hazardous substances are used and stored e.g. on the work truck or beside the fuel store.

The asphalt plant (including dust scrubber) will be located to the west of the hanger adjacent Taxiway D. The location of the asphalt plant and construction lay down area should be such that residential settlements and sensitive receptors are not impacted by noise, dust or runoff.

There is potential that hydrocarbon product or contamination may be encountered during construction work (particularly for the apron works). Various visual and olfactory signs can indicate potential contamination in soil. Possible evidence of contamination may include the following:

- Staining / discolouration of soil i.e., typically black or green staining or a hydrocarbon sheen.
- Odour i.e., hydrocarbon, solvent, sewage, rotten egg odour.
- Refuse and debris i.e., metal fragments or plastic.

If any potential soil contamination is observed (e.g. soil staining or odour experienced), depending on the volume of material, it may be appropriate to excavate the affected soils and prepare for transport to a facility licensed to accept hazardous waste. Material should be secured in airtight containers for transport (as per Waigani Convention requirements for the trans-boundary movement of hazardous waste material). Alternatively, the soil contamination may be left in situ if sealed with an impermeable layer (e.g. apron pavement); this is to reduce the risk of exposure to humans. Caution should be taken to ensure that the contamination does not migrate to the sensitive receptors (e.g. ocean, surface water bodies or settlements). Any course of action (whether to remove or leave in situ) must be approved by the respective project's SAA Project Manager and PUMA.

7.3 Safety and Traffic Management

The airport is protected by a perimeter security fence. It is likely that all works, including the construction lay down area will occur within this fence. Security clearance will be required for all airside construction workers. Airside construction works will be managed through the MOWP and SAA will be responsible for ensuring the safe operation of the airport at all times. The MOWP will detail the specific safety and security requirements for the airport operations, including safe operating distances and responsibility of key project roles.

The transport of materials has the potential to impact communities through noise, dust and road safety. The Contractors are responsible for developing a 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. COEP 12 should be applied to traffic control (as applicable) for construction traffic. While the COEP is specifically for the "upgrading, reconstruction or maintenance activities on any road", aspects of the COEP are applicable to any traffic management (e.g. clothing, signs, and one-way traffic).

The Samoan Occupational Safety and Health (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 legislation should be used as the basis for developing the Contractor's site specific safety plan.

7.4 Stormwater and Water Management

7.4.1 Stormwater Management

The runway is located within the coastal flood inundation zone; THR 26 is the lowest point of the runway and is most vulnerable to flooding. Ineco are proposing to undertake a hydrology study to assess local flooding including peak flow. The results of this study along with geotechnical, lidar and topological survey data will be used for the design of the proposed stormwater infrastructure..

During construction clean water diversion bunds will be used to direct any runoff from undisturbed areas away from work areas, stockpiles and storage areas. The diversion bunds will direct this clean water to land for soakage. The nearest water body is the Pacific Ocean to the north of the runway. Runoff whether clean or treated should not be allowed to discharge directly to the coast as this can cause erosion.

7.4.2 Water Management

Water required for construction activities such as dust suppression and concrete production will need to be managed carefully so as not to impact on the island's freshwater supply or the airport's needs for ARFF. Where possible rain water should be collected or non-potable water should be used, provided there will be no risk of contamination of groundwater.

The airport has a number of bores used to extract water for the terminal and ARFF operations. Due to the proximity of these bores, monitoring should be completed prior to construction works commence, during construction works and at completion of all construction works to confirm no contamination of groundwater as a result of the works. Depending on what works are being undertaken (e.g. terminal versus runway pavement) different bores may be selected to provide information on groundwater quality at any given time in that area. As a minimum the bores that should be included in the monitoring programme are the terminal bore, to capture activities related to the terminal upgrade. Bores may also be identified by SWA as requiring monitoring to determine effects from construction and or operational activities.

Parameters that should be monitored include pH, electrical conductivity, total nitrogen and total petroleum hydrocarbons (TPH) or as agreed with PUMA and SWA.

7.5 Asphalt and Concrete Production

The asphalt plant will be located to the west of the hanger adjacent to Taxiway D. Bitumen will be imported for asphalt production. Asphalt production requires very high temperatures which pose a significant risk to workers and the general public. While a full scale asphalt plant is not required all bitumen product should be located within a secure compound to ensure security and reduce risk of unauthorised access. Although the use of this machinery will be short-term (2-3 months), it can create nuisances such as noise and a mercaptan odour. The asphalt plant should be located at least 300 to 500 m downwind of any settlements or inhabited areas and 150 m away from any water including the coast. The asphalt plant should be equipped with either bag house or wet scrubber particulate removing system to reduce dust and odour emissions. The Contractor should include an asphalt plant rehabilitation plan in their ESMP documentation. Other hazardous materials may be used in preparing the seal coats for the pavement which must be stored on hard stand areas within bunded areas (both should be available at the asphalt plant).

The project will require concrete production, although the scale is not yet clear. Local concrete suppliers are the preferred source for concrete. However, as a precautionary note, if cement is to mixed in-situ, care needs to be taken with slurry and runoff from the setting concrete. Concrete production should only take place when there is no rain forecast. Concrete slurry is highly alkali and cannot be diluted. Sand bags or diversion drains must be used to divert runoff from concrete cutting or setting areas. Any concrete debris must be collected and disposed of to landfill. Wastewater from largescale concrete cutting or production must be collected and treated (settling and neutralisation through pH adjustment). All equipment used in concrete production must be cleaned in designated wash down areas in the construction camp, away from surface water and not be allowed to permeate to ground.

7.6 Construction Camp

As part of the APW upgrade works, three construction camps will be established: the SCG residential construction camp which is already established, the SCG storage compound (south west of terminal), and the SAIP compound. The construction lay down area will be used to store equipment and materials for all components of the project, and as such there are a number of potential hazards associated with the equipment and materials. A construction lay down area for the other SAIP components is located within the airport perimeter fence however additional fencing may be required around specific stores (e.g. hazardous substances) to prevent access by unauthorised personal. Areas within the compounds must be clearly marked for solid waste collection, machinery maintenance, hazardous substance storage, plant operations (concrete, bitumen, asphalt) and toilet facilities for workers. Each of these areas must be constructed in such a way to prevent any potential adverse impacts on the surrounding environment. The camps should be located on the southern side of the runway, away from the coast. The construction camp must include hard stand areas, protection from wind and rain, bunding (hazardous substances), clean water diversion drains, and collection and treatment of waste water from site operations (e.g.

concrete production, machinery maintenance). Non-SCG staff, and foreign contract and project staff will utilise existing local accommodation. The ground of the construction lay down area will likely be compacted by the end of its use and so restoration will require scarification of the soil, application of topsoil and re-vegetation.

7.7 Erosion and Sediment Control

The land within the vicinity of APW is relatively flat, low lying with permeable soils. Wet weather is usually experienced as short, heavy rainfall events, often in the morning or at night. Clean water diversion bunds should be constructed around any excavation to prevent ingress of runoff from surrounding areas. Any ponding which may occur within an excavated area shall either be allowed to percolate into the subsoil or pumped out to a settling area or used for dust suppression at a later date. Excavations should be kept to a manageable size to reduce the time of exposure. It is most likely that the largest stockpiles will be within the construction camp for the aggregate. These stockpiles will need to be on an impermeable geotextile or hardstand and runoff directed to permeable land. The aggregate material will be inert larger size pieces. Stockpiles of any fine grain materials (e.g. sand and topsoil) must be covered to prevent dust and sediment laden runoff during rain events.

These erosion and sediment control measures must also be applied to the quarry site. Discharges from any activity at these locations are prohibited from discharging directly to the marine and coastal environment. Clean runoff should be diverted inland for percolation to underlying groundwater, and potentially contaminated runoff should be collected and treated. Treatment will be dependent on type of potential contamination (e.g. oil water separator for runoff contaminated with hydrocarbons, or settling pond or tank for sediment laden runoff).

All earthworks and mitigation measures must be in accordance with COEP 13 Earthworks.

7.8 Wastewater Management

There are a number of activities during construction and operation phases of the project which will generate wastewater. During construction wastewater will be generated by the sanitation facilities provided for workers and as there is no reticulated wastewater treatment system at APW, the contractor is responsible for the collection and treatment of the generated wastewater from sanitation facilities. There are a number of options regarding sewage treatment that the contractor can implement to mitigate the potential impacts on the land and or water (ocean or groundwater). These include installation of septic tanks (to be approved by PUMA and SAA), use of composting systems or a mobile proprietary treatment system (to be imported for the project). The Contractor is responsible for ensuring the treatment and disposal of wastewater is in accordance with SAA and PUMA advice. The established SCG residential construction camp has installed septic tanks which have been pre-approved by PUMA and SAA.

Wastewater from wash down areas is to be collected either in a settlement pond or tank to allow sediment and particulate matter to drop out (or processed through a filtration system) before the water can be reused as wash water, dust suppression or in other processes. A separate wash down area is required for machinery or material with oil or fuel residue as this wash water is required to be treated through a mobile oil water separator. Wash water from concrete production, cutting, washing of equipment used and areas where concrete is produced must be collected and treated to lower the pH (closer to neutral) and to allow settlement of suspended solids (see Section 7.5). All wash down areas and wastewater treatment areas, where practical should be located within the construction camp or lay down areas.

7.9 Solid Waste Management

Tafaigata Landfill is the only authorised landfill on Upolu and is operated by MNRE. This landfill only accepts general waste and septic tank waste. The Contractor is responsible for coordinating with GoS regarding the removal of hazardous waste abroad. Waste streams able to be re-used or recycled are to be done by licensed operators able to provide this service. Some waste can be re-used within the project however excess re-usable or recyclable waste will be provided to the SAA or nominated receiver. In summary, the type of waste expected to be generated is:

- Excess rubble (asphalt or base course) generated from milling of the runway surface and excavations – LTA or SAA can re-use this material (e.g. for airfield roads) or the PWD can recycle this on road patch works.
- Used bitumen drums from the asphalt production works – Contractor's ESMP should confirm whether these can be returned to the supplier or exported to countries that have facilities approved to accept such waste.

- Green waste from clearing the area for the construction camp – can potentially be composted.
- Packaging materials from imported supplies – can go to Tafaigata Landfill.
- Waste oil, lubricants etc. – have to be exported to countries that have facilities approved to accept such waste.
- Wastewater sludge from sanitary facilities (dependent on system used) – can go to Tafaigata Landfill.

Any waste that cannot be disposed of at the Tafaigata Landfill, reused or recycled must be removed from the island at the completion of the project. International waste conventions (e.g. Waigani, Basel and Stockholm conventions) may apply depending on the type of waste that is to be transported across country boundaries.

7.10 Socio-Economic Measures

Any impacts or concerns from communities close to APW, the quarries or haul routes will be addressed throughout the SAIP life through the disclosure and public consultation process (refer Section 5). Where possible local labour and businesses will be used to provide services and building supplies for the SAIP and terminal building upgrade projects. This includes supply of fuel and hire of machinery.

With the establishment of the SCG residential construction camp and the influx of foreign contractors expected with the SAIP, there is a significant increase in potential risk associated with the transmission of sexually transmitted diseases (STD) and HIV/ AIDS. During mobilisation all contractors awarded contracts under the SAIP must provide evidence of awareness training for all staff. The Ministry of Health (MoH) has a comprehensive national policy on HIV and AIDS. If the MoH does not have an established education programme the World Bank Road to Good Health can be applied to provide SAA and the SAIP contractors with the materials and strategies needed to design, implement and monitor a comprehensive HIV education campaign. Due to similar transmission methods of STDs and HIV/ AIDS both types of diseases must be addressed in the awareness training.

8.0 Roles and Responsibilities

8.1 Management Structure

SAIP and the terminal upgrade project are implemented by the SAA through a Project Support Team (PST), and supported by the PAIP regional program implementation unit, the TFSU. The PST has been established to undertake the day to day management of the project. Aspects of the monitoring required by the IESMP will be undertaken by the PST on behalf of SAA as the implementing agency and by PUMA in respect to compliance with Development Consents and in response to pollution incidences and public complaints. The implementation of this IESMP is the responsibility of the contractors awarded contracts under the SAIP and terminal upgrades (including SCG) and will form a part of the contract documents for their respective work packages. Figure 10 shows the management structure for the SAIP and its project components, and the terminal upgrade project. The funding for the terminal upgrade is managed through the existing agreement with the China Eximbank and the successful contractor Shanghai Construction Group and the Ministry of Finance.

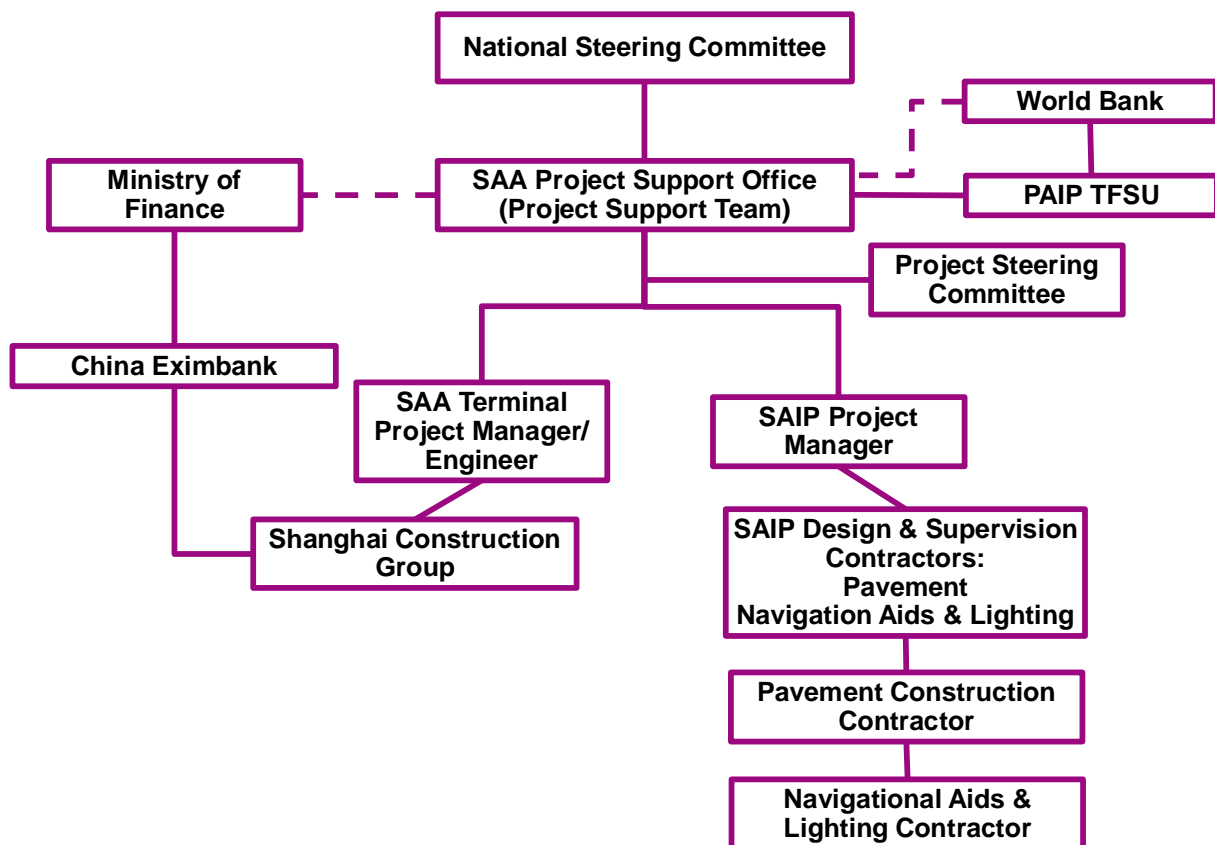


Figure 10 APW upgrade works management structure

8.1.1 Project Steering Committee

The Project Steering Committee (PSC) is tasked with monitoring progress of the overall APW upgrade works (SAIP and terminal upgrade) and resolving issues as they arise. The PSC meets monthly or as required. The core members include:

- Chair: SAA General Manager (or delegate) - Mr. Magele Hoe Viali
- SAIP Project Manager
- SAA Terminal Upgrade Project Manager/Engineer
- SAIP Design and Supervision Contractor – Ineco/ SMEC
- SAIP Construction Contractor

- Shanghai Construction Group Project Manager

Technical representatives will attend meetings as required as occasional members and include, but are not limited to:

- Ministry of Works, Transport and Infrastructure (MWTI).
- PUMA.
- WB Task Team Leader/Liaison Officer.
- PAIP Program Director.

Details of specific roles within the PST and project management structure are outlined in Table 6.

Table 6 Specific roles and responsibilities

Role	Responsibilities
Contractor's Environment, Health & Safety Supervisor/ Manager	<ul style="list-style-type: none"> - Implement required environmental measures. - Monthly reporting to SAA PSC and PUMA regarding status of such implementation. - Establish a grievance redress committee in coordination with the PSC.
SAA Project Support Team/ TFSU – Environmental and Social Specialist in coordination with Project Managers	<ul style="list-style-type: none"> - Supervision of the contractor's implementation of environmental measures on a daily basis. - Enforcement of contractual requirements. - Assist the contractor in the formulation of a grievance redress committee. - Provide awareness/training to workers and technology transfer to the contractor.
PUMA Compliance Inspector or Nominated Contract Supervisor (e.g. Pavement Supervision Consultant)	<ul style="list-style-type: none"> - Audit the construction activities through environmental inspections. - Collection of monitoring data. - Monthly reporting to SAA and MNRE. - Ensure compliance with Government legal requirements during construction. - Review complicated issues arising from the Project.

8.1.2 National Steering Committee

The National Steering Committee (NSC) provides guidance to the SAIP and terminal upgrade projects on matters of government policy, legislative compliance, and local custom and culture. The NSC shall meet monthly during the first two years of the projects. From year three the NSC shall meet as necessary but at least quarterly to review the official quarterly progress reports. The committee will consist of the following members:

- Chairperson – Chief Executive Officer (CEO) for the Ministry of Finance
- Secretariat – SAIP Project Manager
- Co-Deputy Chairperson – CEO Ministry of Works, Transport and Infrastructure
- Co-Deputy Chairperson – CEO Ministry of Natural Resources and Environment
- Senior Representatives (e.g. CEO or General Manager) from:
 - Samoa Airport Authority
 - Ministry of Works, Transport and Infrastructure
 - Ministry of Natural Resources and Environment
 - Ministry of Women, Community and Social Development
 - Land Transport Authority
 - Office of the Attorney General
 - Samoa Umbrella for Non-Governmental Organisations (SUNGO)

- Chamber of Commerce

Responsibilities of the NSC will include:

- Projects are implemented in accordance with the requirements of the Financing Agreements between the Government the funding agencies (Government of China and WB).
- Overview of project implementation, providing overall guidance, and assistance to the Project Managers and Implementing Agencies to resolve any problems or constraints affecting implementation.
- Input to and approval of the work programmes submitted by the Project Managers. The NSC shall review and make recommendations on any proposed changes to the components/sub-components and set the priorities for implementation.

8.2 Institutional Capacity

The estimated cost for implementing the mitigation measures and monitoring plan necessary for the SAIP is provided in Table 7. The costs during construction shall be part of the respective contractor's construction works package. While the costs associated in assisting the PUMA Inspection Officer in the implementation of the IESMP and conducting relevant environmental training shall be included in the construction supervision cost.

Table 7 Summary of Institutional Capacity

Item	Estimated Total Cost (US\$)	Costs Covered By
National Environment Health and Safety personnel (one person for 8 months at \$1,500/month)	18,000	Contractor
Environmental management capacity building program/training to be undertaken by the SAIP Supervision Consultant	5,000	SAA (as part of SAIP) – Independent Safeguards Consultant
Environmental impact monitoring (allow \$500/month for 8 months)	4,000	SAA (as part of SAIP) – Independent Safeguards Consultant
Specific mitigation measures	To be determined during detailed design as part of project design costs	Contractor(s)
Development Consent and Environmental Permits	500	SAA

8.3 Grievance Redress Mechanism

The SAA SAIP PST and Terminal PM's office will receive and document issues and concerns that arise with the local community and stakeholders in relation to the project execution and construction activity. Resolution of these issues and concerns will be undertaken expeditiously so as to minimize any impacts that may affect the project implementation.

The following process will be followed to address the issues and concerns that stakeholders and the community may report.

1) Lodgement of formal complaint within SAIP project team

The first step towards resolution of issues and concerns relevant to the project is the filing of a formal notice/complaint by the Affected Person/People (AP) with SAA SAIP Project Manager or Terminal Project Manager. A significant grievance would be related to land compensation, property damage or personal injury. For minor complaints such as excessive dust, noise, or safety violation, the PST Environmental Specialist must respond within 24 hours of receiving the complaint and a resolution or action plan will be conveyed to the AP within 48 hours. For more substantial complaints about land occupation, damage by contractor's equipment, drainage issues, etc. the Supervision Consultant will respond within 24 hours and set up further discussion/meetings with the complainant to reach a satisfactory resolution acceptable to all parties within seven days. For land issues, the timeframe may be longer. Meetings and conversations with complainants must be documented and recorded.

2) Complaints register

The SAA SAIP PM and Terminal PM will maintain a register where all complaints are logged by: data, name and contact address and details of the complaint. A duplicate copy of the register entry will be given to the AP for their record. The AP may, if so desired, discuss the complaint directly with SAA or its representative at a mutually convenient time and location. If the complaint of the AP is dismissed the AP will be informed of his/her rights in taking the complaint to the next step. However, every effort will be made to resolve the issue to the mutual satisfaction of both parties.

3) Escalation of complaint to SAA General Manager

If the AP is not satisfied with the SAA decision and action, the AP may file a written complaint directly to the SAA General Manager. Complex or long standing complaints should also be escalated to the SAA General Manager to ensure the actions can be fully resourced and prioritised. If the SAA General Manager has not been contacted directly by the AP, the AP must be notified to advise their complaint is being escalated and outline the timeframes for regular updates on progress and resolution.

4) Escalation of complaint to MNRE, PUMA division

Should the AP be not satisfied with the decision of the SAA, the AP may file a written complaint with the MNRE, PUMA division, at ground floor of the Tui Atua Tupua Tamasese building at Sogi, telephone – 23800, or directly contact the Assistant Chief Executive Officer, Principal Sustainable Development Officer, or the Inspector Officer. PUMA are required to respond to email complaints within two working days and via correspondence within five working days. However, the timeframe for responding with a resolution will vary and is dependent on the level of difficulty of the complaint.

5) Escalation of complaint to the judicial system

Should the AP still not be satisfied with the decision of the PUMA-MNRE, the AP may then take the grievance to the judicial system. This will be at the AP's cost but if the court shows that SAA have been negligent in making their determination the AP may seek costs and the court may award compensation from SAA to the AP.

Key Contact Details of Identified Staff are:

SAA SAIP Project Manager Mr. Viliamu Punivalu DDI: 23201 Email: viliamu.punivalu@gmail.com		SAA Terminal Upgrade Project Manager Mr Chris Soti Contact details to be confirmed (appointment commences 1 February 2016)	
PUMA Assistant Chief Executive Officer Mr. Su'a Pou Onesemo Email: pou.onesemo@mnre.gov.ws	PUMA Principal Sustainable Development Officer Ms. Ferila Brown Email: ferila.brown@mnre.gov.ws	PUMA Inspector Officer Mr. Ioane Papalii Email: ioane.papalii@mnre.gov.ws	

9.0 Compliance and Monitoring Plan

9.1 Monitoring Plan

The Environmental Monitoring Plan identifies the environmental monitoring requirements to ensure that all the mitigation measures identified in this IESMP are implemented effectively. Environmental monitoring methodology (refer Appendix D for details) for this project includes:

- Audit of detailed designs.
- Audit and approval of site environmental planning documents.
- 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.

Non-compliance to environmental mitigation measures identified in the ESMP will be advised to the Contractor(s) in writing by SAA's nominated Environmental Officer or Project Manager as required. The non-compliance notification 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 in a monthly report for submission to the SAA who is responsible for submitting these monthly progress reports to PUMA and the PAIP TFSU. 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 airport operations the SAA Managers will include an environmental management section as part of their normal reporting to SAA 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.

SAA 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 IESMP, 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.

10.0 Contingency Planning

The SAA Assistant General Manager for Operations (AGMO) is the contact person for emergency situations that may arise during the implementation of the SAIP and terminal upgrade projects. The SAA AGMO 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 SAA to consider for implementation.

It is recommended that the Contractors prepare a Contingency Plan encompassing cyclone and storm events. The purpose of the Plan is to ensure all staff are fully aware of their responsibilities in respect to human safety and environmental risk reduction. Procedures should clearly delineate 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 in Samoa is October to March which coincides with the cyclone season. 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.

The Contractors are responsible for monitoring weather forecasts, inspecting all erosion and sediment control measures and undertaking any remedial works required prior to the forecast rain or storm event.

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 SAA if there are any concerns associated with the measures in place.

Figure 11 identifies the recommended process in responding to and reporting of an environmental or social emergency response.

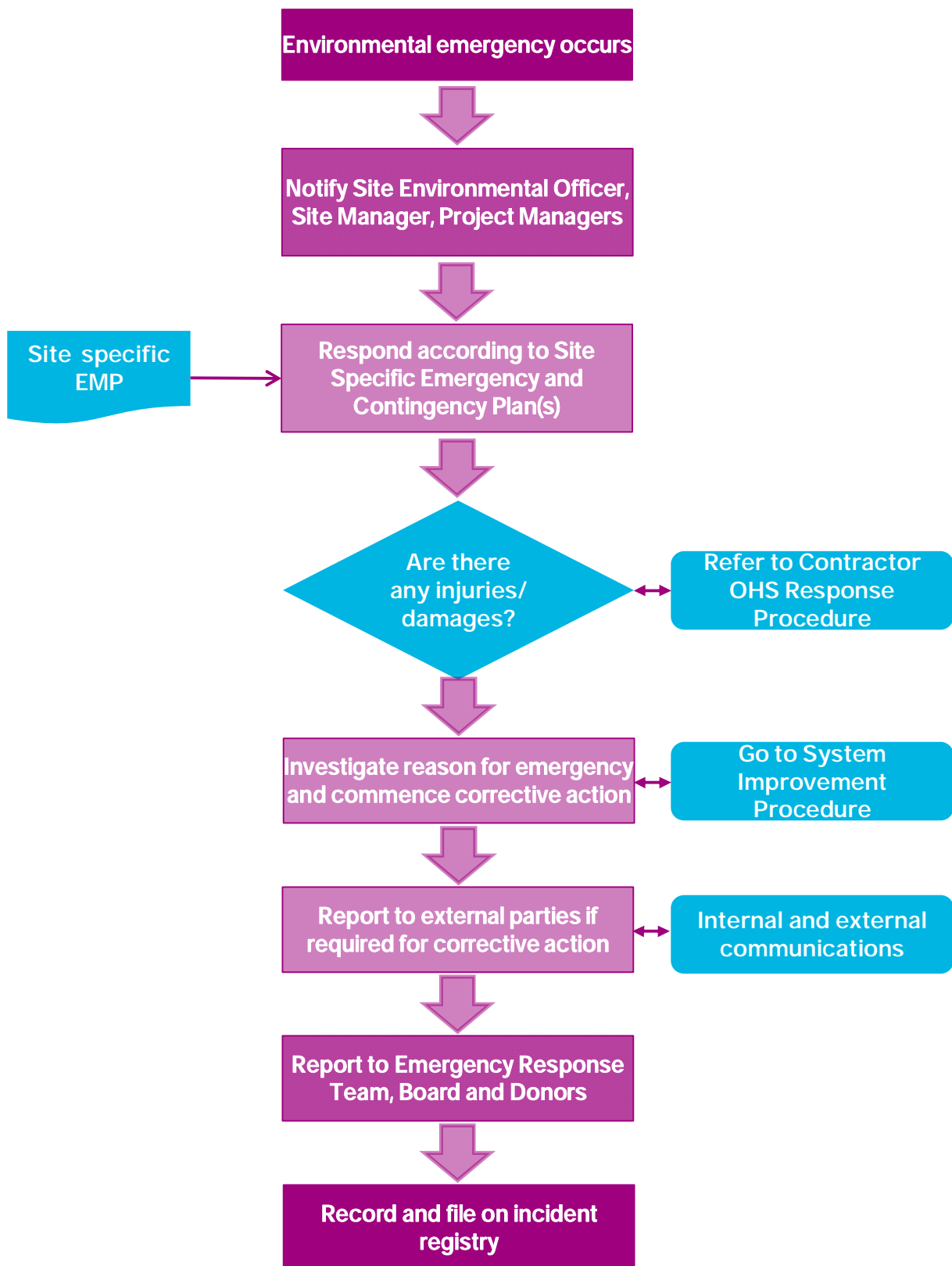


Figure 11 Environmental and social emergency response recommended process

Appendix A

Plans and Design Details

A

B

C

D

E

F

G

H

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1

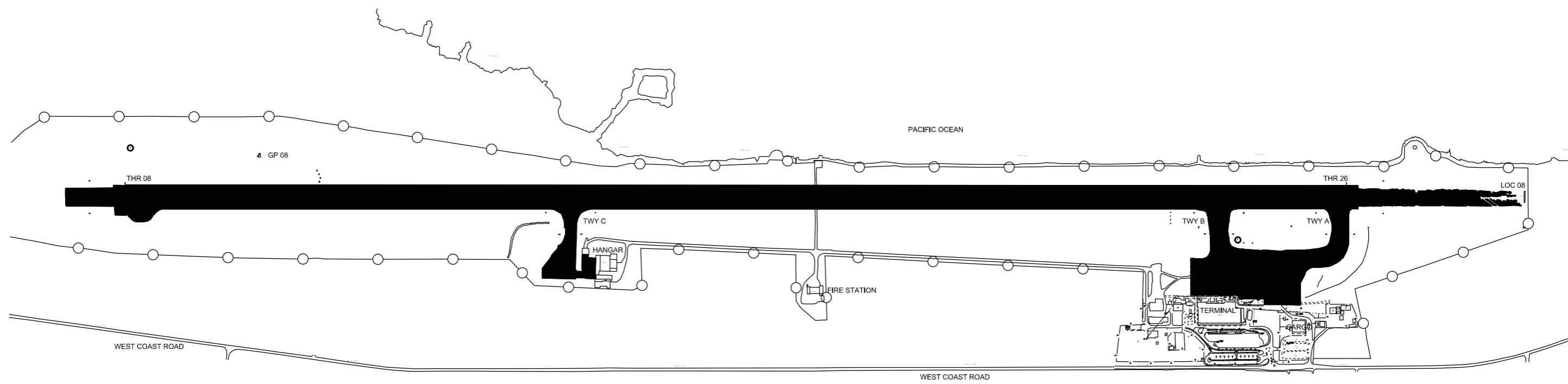
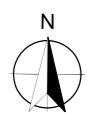
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3

4

5

6



		ISSUED FOR CONSTRUCTION		
N°	DATE	REVISION		
FALEOLO INTERNATIONAL AIRPORT, SAMOA				
DESIGNED BY		DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS CURRENT SITUATION		
PLAN No	SHEET	DATE	SCALE	DWG FILE
1	1 OF 1	JULY 2015	1/5000	010000501V01

DRAFT

A

B

C

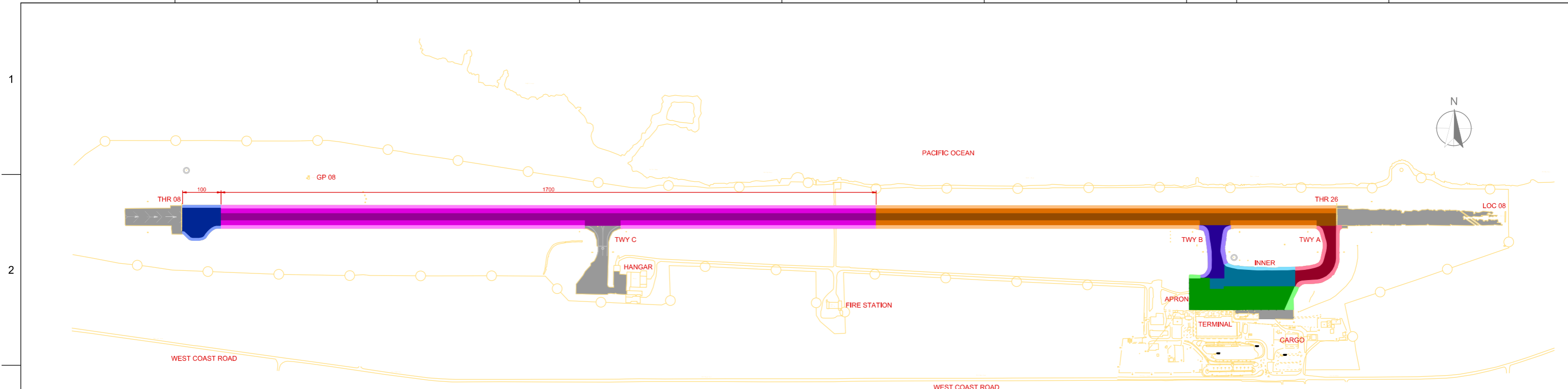
D

E

F

G

H



LEGEND

THRESHOLD 08

- Demolition and removal of hot mix asphalt (HMA) pavement - 10 cm
- HMA AC 2 - 10 cm (paver placing lanes - 5 m in width)
- HMA AC 1 - 5 cm (paver placing lanes - 5 m in width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3.5 m in width)

RUNWAY - WEST SIDE

- Demolition and removal of HMA - 10 cm
- HMA AC 2 - 10 cm (paver placing lanes - 4x5 m in width)
- HMA AC 1 - 5 cm (paver placing lanes - 4x5 m in width)
- Milling of HMA - 1 cm
- HMA AC 1 - 6 cm (paver placing lanes - 4+4+4.5 m in width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3.5 m in width)

RUNWAY - EAST SIDE

- Demolition and removal of HMA - 10 cm
- Excavation of aggregate - 5 cm
- HMA AC 2 - 8+7 cm (paver placing lanes - 4x5 m in width in central area; 4+4+4.5 m in connections with taxiways)
- HMA AC 1 - 5 cm (paver placing lanes - 4x5 m in width in central area; 4+4+4.5 m in connections with taxiways)
- Milling of HMA - 1 cm
- HMA AC 1 - 6 cm (paver placing lanes - 4+4+4.5 m in width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3.5 m in width)

TAXIWAY A

- Demolition and removal of overall pavement - 70 cm
- Crushed aggregate - 40 cm
- HMA AC 3 - 12+13 cm (paver placing lanes - 5 m in width)
- HMA AC 2 - 5 cm (paver placing lanes - 5 m in width)
- HMA AC 1 - 5 cm (paver placing lanes - 5 m in width)
- Milling of HMA - 1 cm
- HMA AC 2 - 6 cm (paver placing lanes - 4+3.5 m in width)

TAXIWAY B

- Demolition and removal HMA - 10 cm
- HMA AC 2 - 10 cm (paver placing lanes - 5 m in width)
- HMA AC 1 - 5 cm (paver placing lanes - 5 m in width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3.5 m in width)

INNER

- Demolition and removal of overall pavement - 70 cm
- Crushed aggregate - 40 cm
- HMA AC 3 - 12+13 cm (paver placing lanes - 5 m in width)
- HMA AC 2 - 5 cm (paver placing lanes - 5 m in width)
- HMA AC 1 - 5 cm (paver placing lanes - 5 m in width)
- Milling of HMA - 1 cm
- HMA AC 2 - 6 cm (paver placing lanes - 4+3.5 m in width)

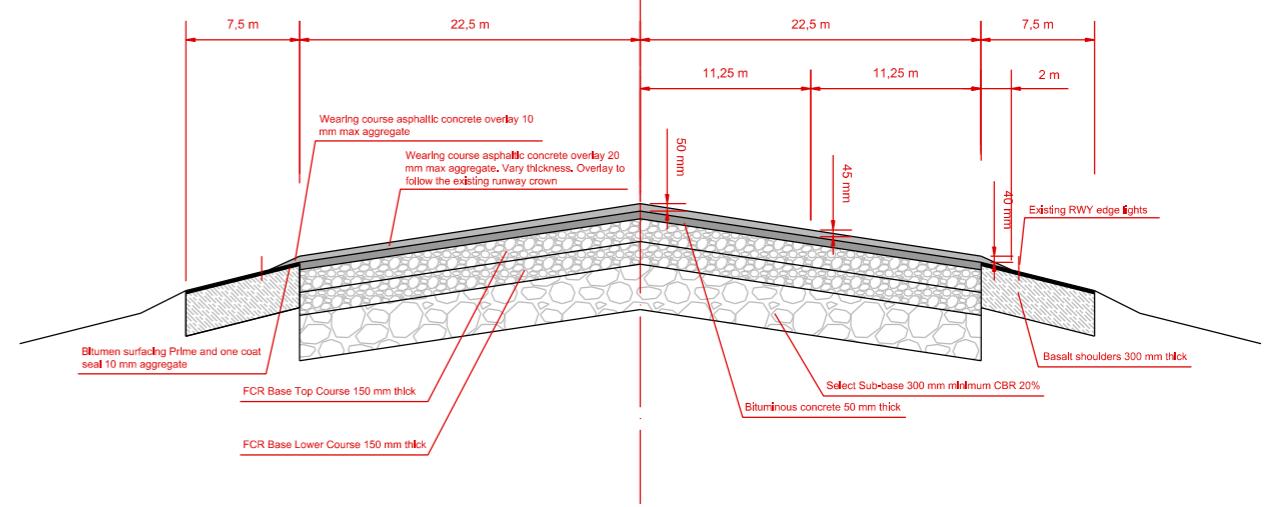
APRON

- Milling of HMA - 1 cm
- HMA AC 1 - 6 cm (paver placing lanes - 5 m in width)
- HMA AC 2 - 5 cm (paver placing lanes - 4+3.5 m in width)

OTHER WORKS:

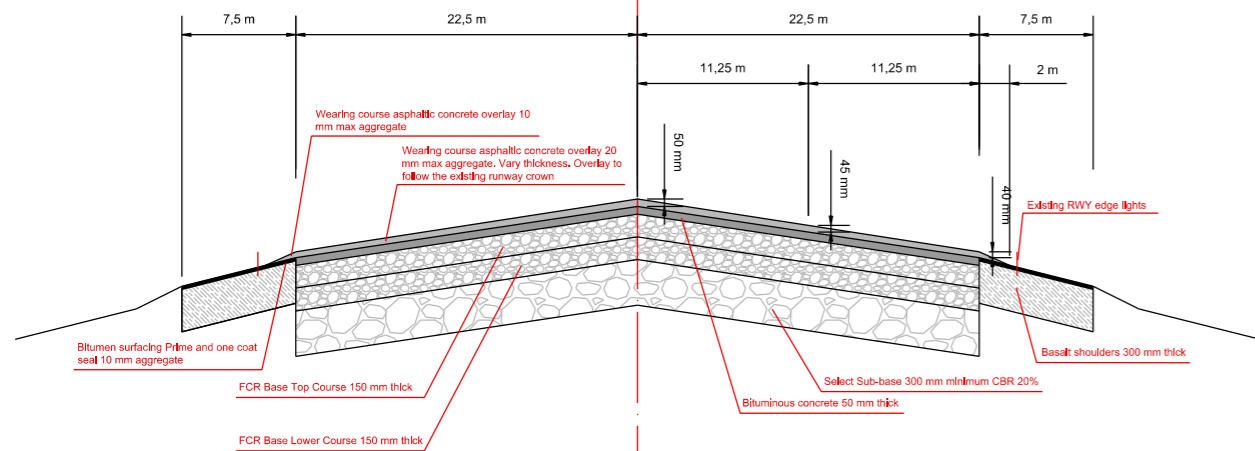
- REPLACEMENT OF AFFECTED SERVICES: LIGHTS, MARKING AND FUEL PITS HYDRANT
- CONSTRUCTION OF A TEMPORARY TURNING PAD IN THRESHOLD 26

EXISTING PAVEMENT

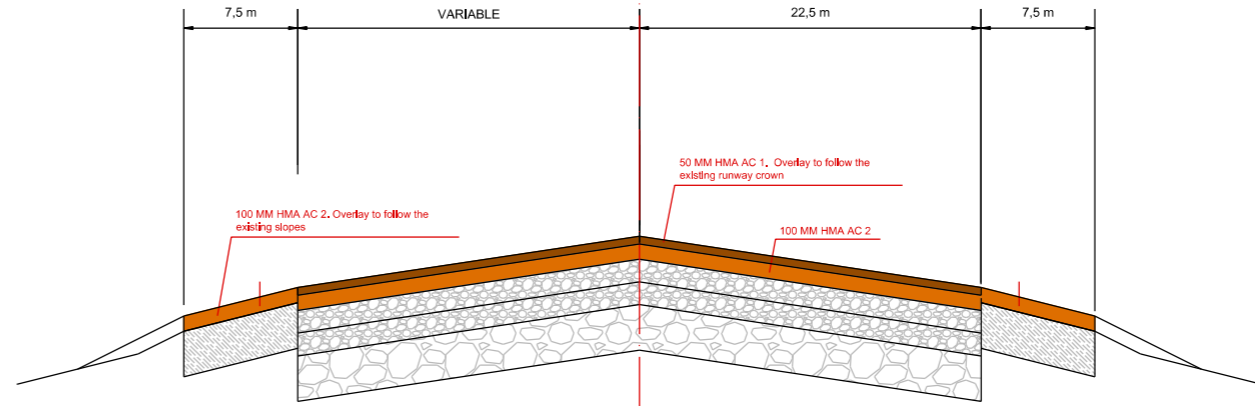


		ISSUED FOR CONSTRUCTION	
N°	DATE	REVISION	
FALEOLO INTERNATIONAL AIRPORT, SAMOA			
DESIGNED BY		DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS	
GENERAL DEFINITION OF WORKS			
PLAN No 2	SHEET 1 OF 1	DATE JULY 2015	SCALE 1/5000
		DWG FILE 020000501V01	

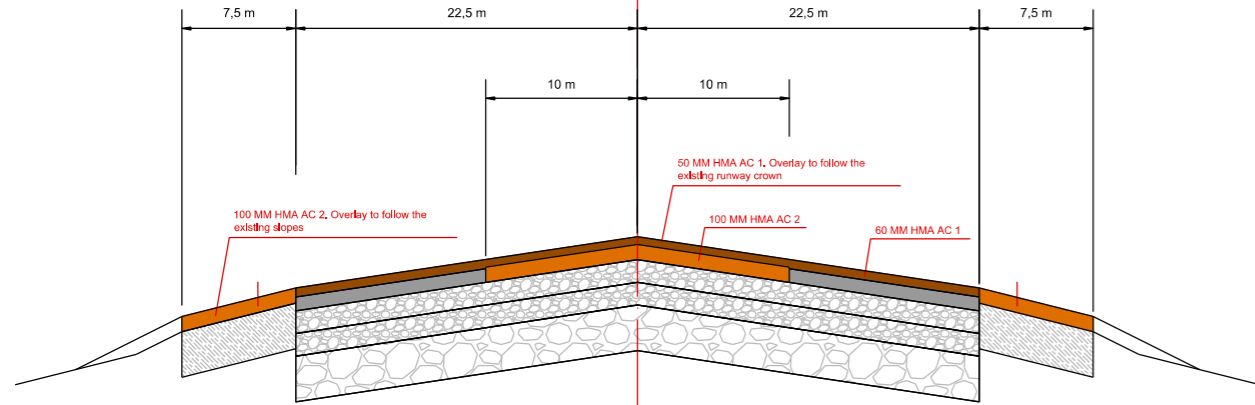
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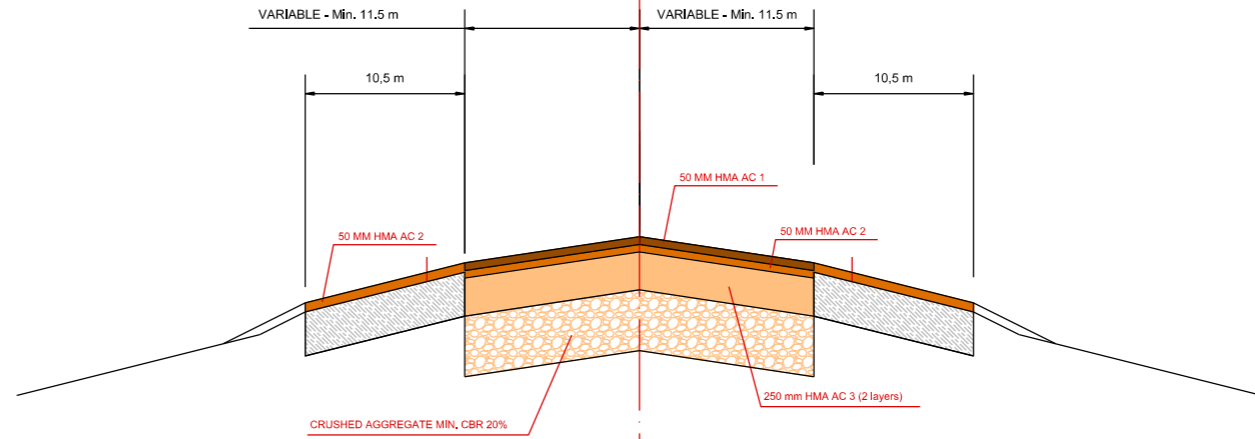
THR 08 PAVEMENT



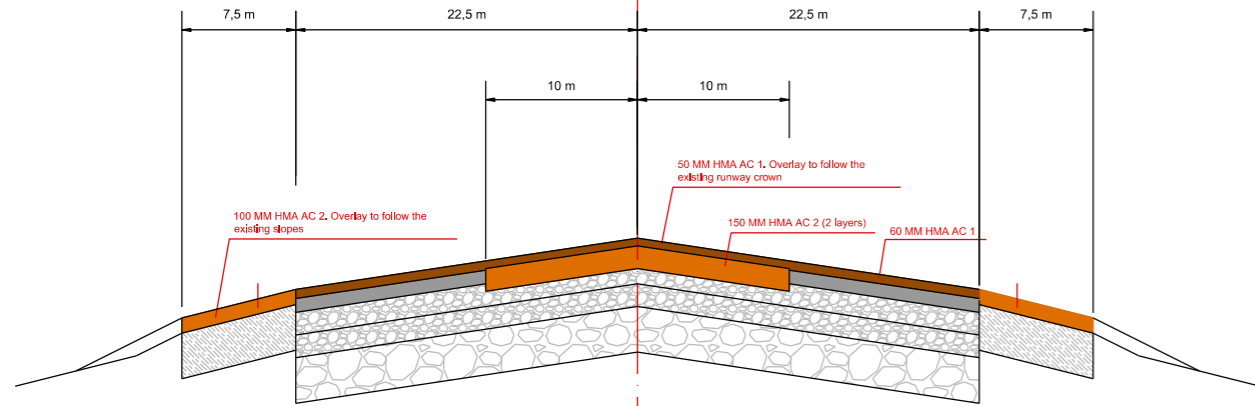
RWY WEST SIDE PAVEMENT



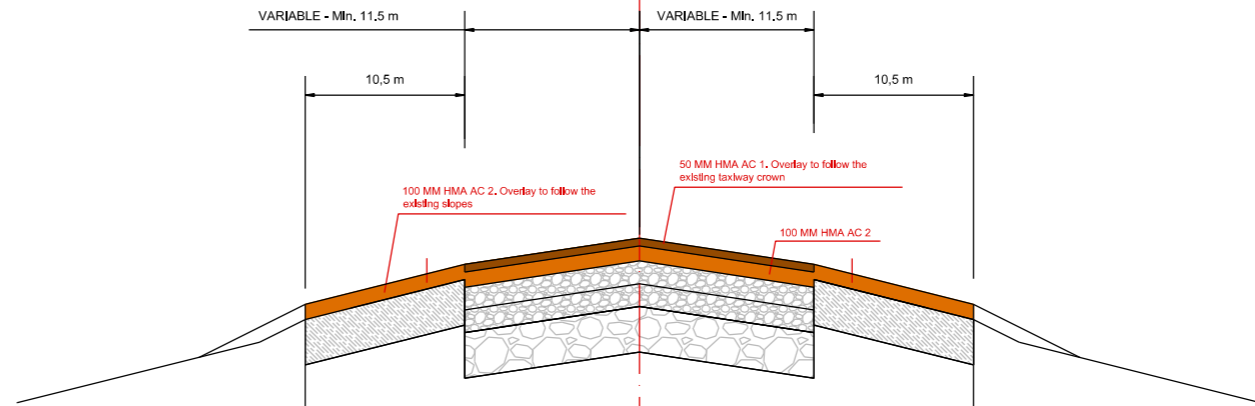
TWY A PAVEMENT



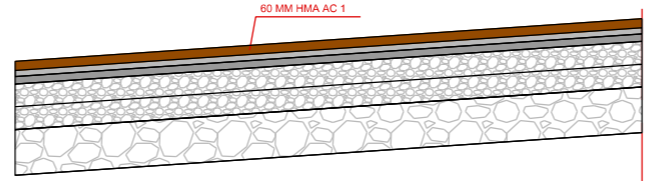
RWY EAST SIDE PAVEMENT



TWY B PAVEMENT






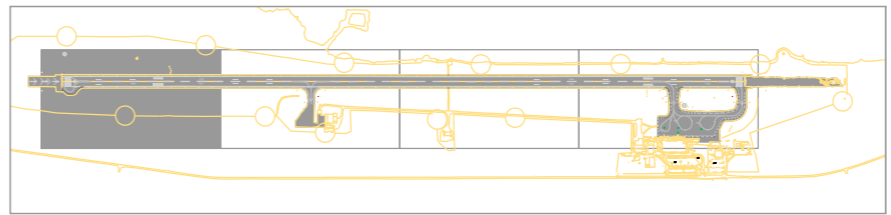
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		ISSUED FOR CONSTRUCTION	
N°	DATE	REVISION	
FALEOLO INTERNATIONAL AIRPORT, SAMOA			
DESIGNED BY		DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS	
DRAFT			
PAVEMENT SECTIONS			
PLAN No	SHEET	DATE	SCALE
3	1 OF 1	JULY 2015	
		DWG FILE	
		030000501V01	



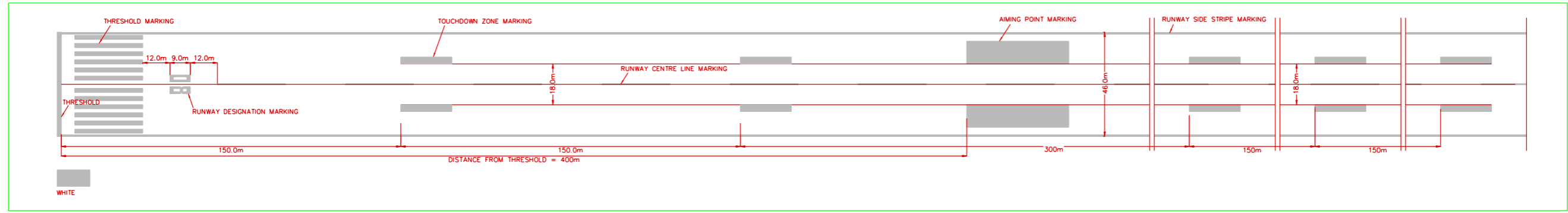
- LEGEND**
-  Removal and replacement of marking
 -  Removal and replacement of runway/taxiway light
 -  Removal and replacement of fuel hydrant pit



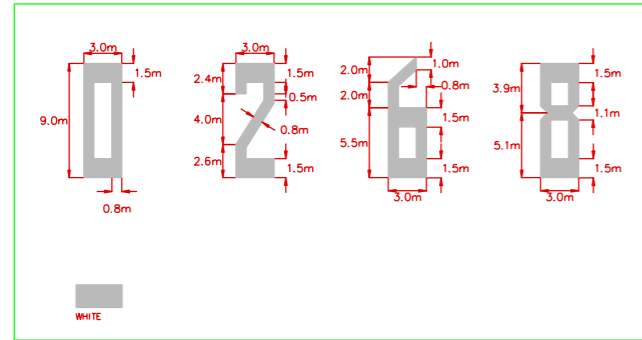
KEY PLAN

		ISSUED FOR CONSTRUCTION	
N°	DATE	REVISION	
FALEOLO INTERNATIONAL AIRPORT, SAMOA DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS AFFECTED SERVICES GENERAL PLAN			
DESIGNED BY	DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS AFFECTED SERVICES GENERAL PLAN		
PLAN No 4.1	SHEET 1 OF 4	DATE JULY 2015	SCALE 1/1000
		DWG FILE 040100S00V01	

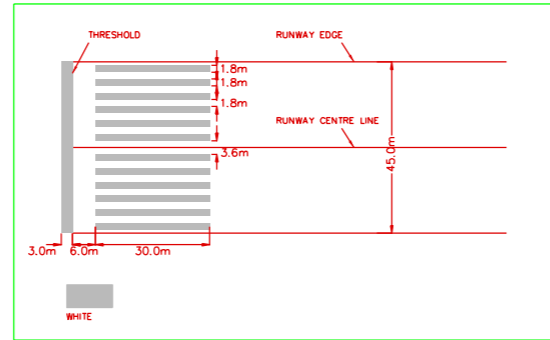
RUNWAY MARKINGS



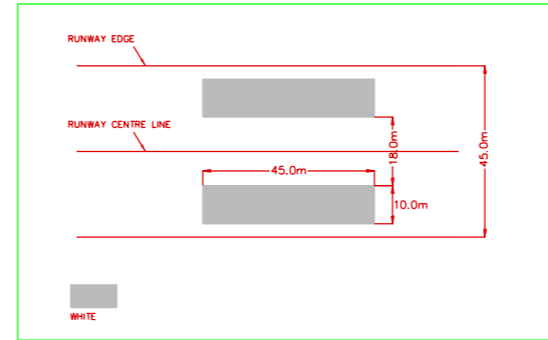
RUNWAY DESIGNATION NUMERALS



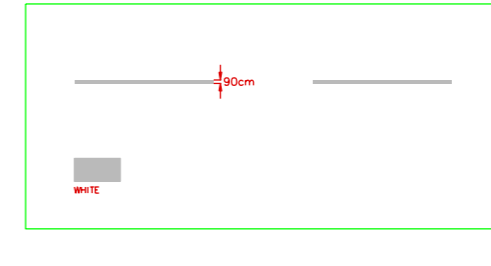
THRESHOLD MARKING



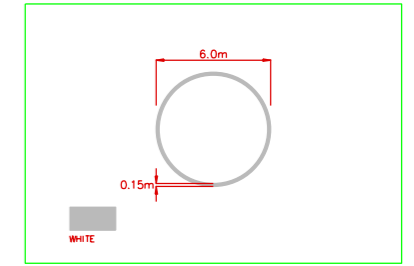
AIMING POINT MARKING



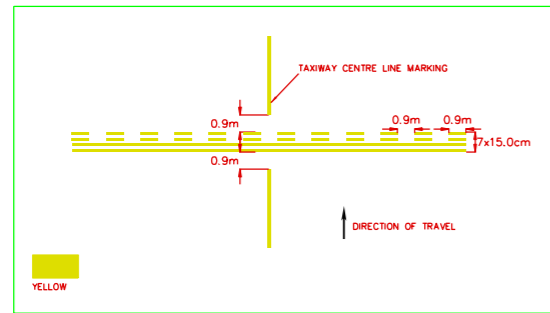
RUNWAY CENTRE LINE MARKING



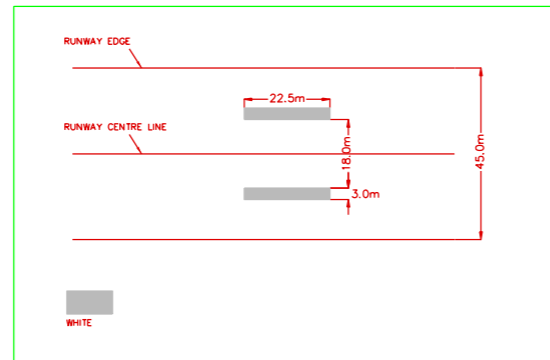
VOR AERODROME CHECKPOINT



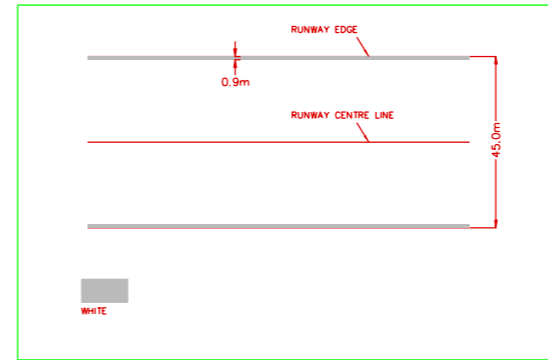
RUNWAY-HOLDING POSITION MARKING, PATTERN A



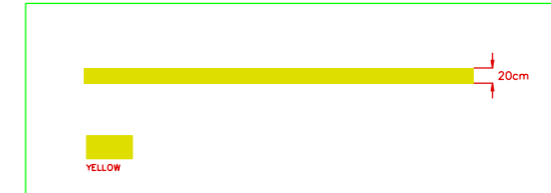
TOUCHDOWN ZONE MARKING



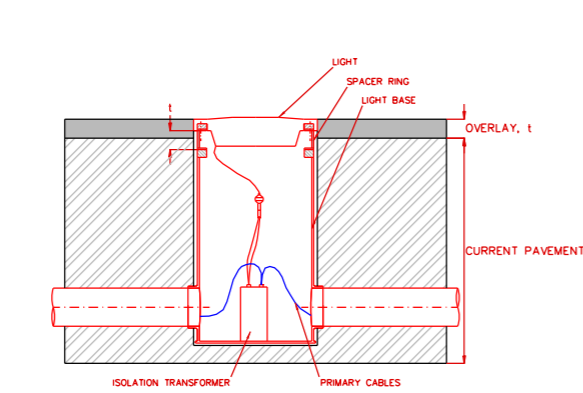
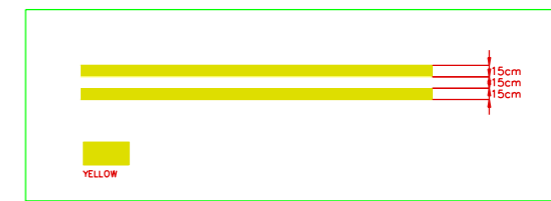
RUNWAY SIDE STRIPE MARKING



TAXIWAY CENTRE LINE / RUNWAY TURN PAD MARKING

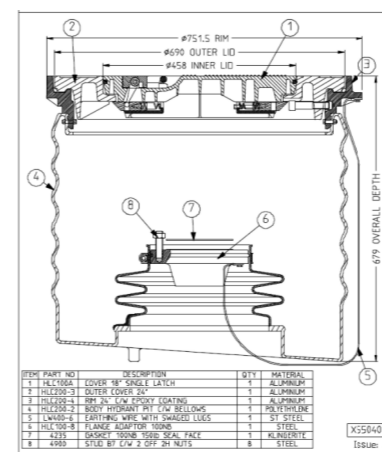


TAXIWAY SIDE STRIPE MARKING

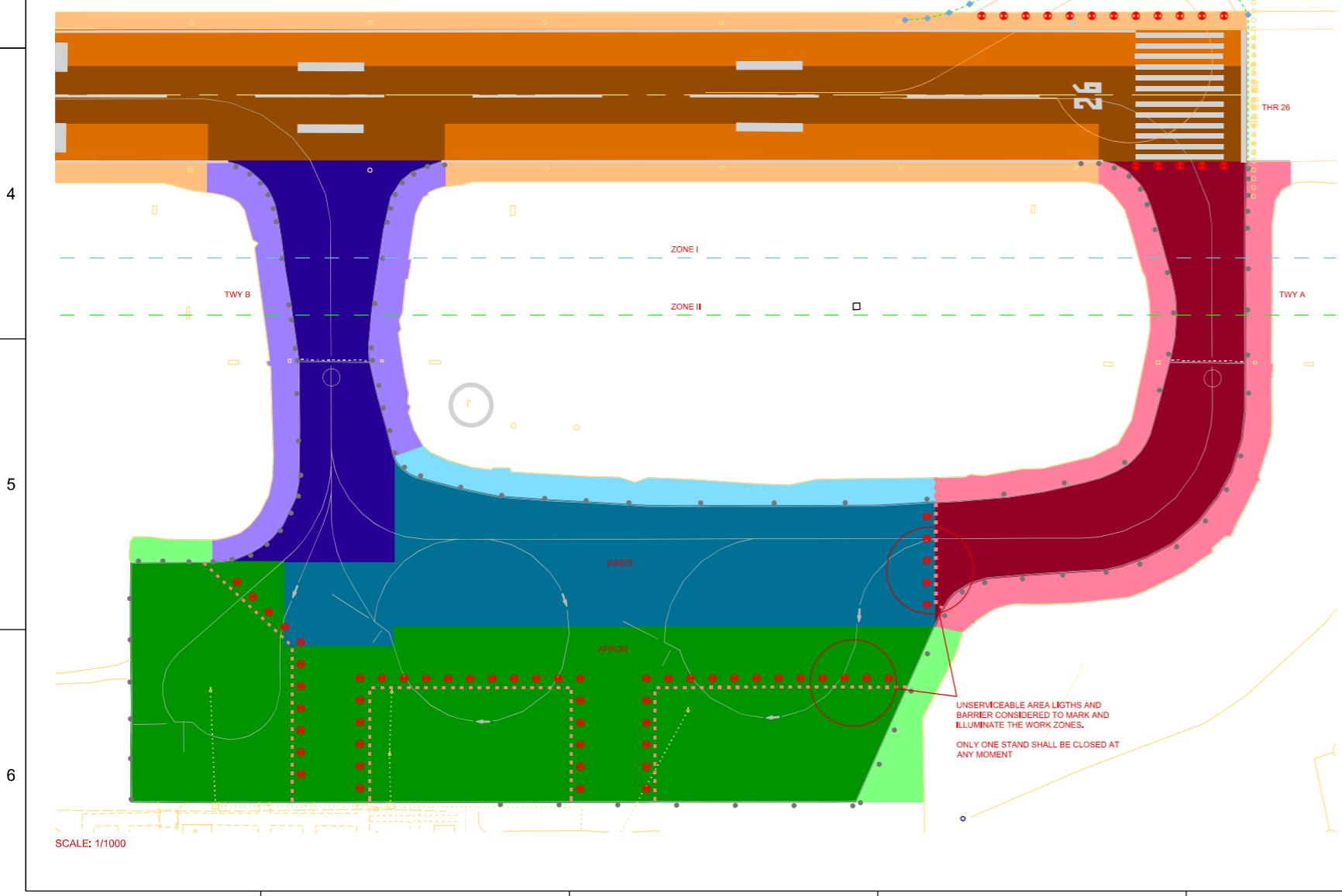
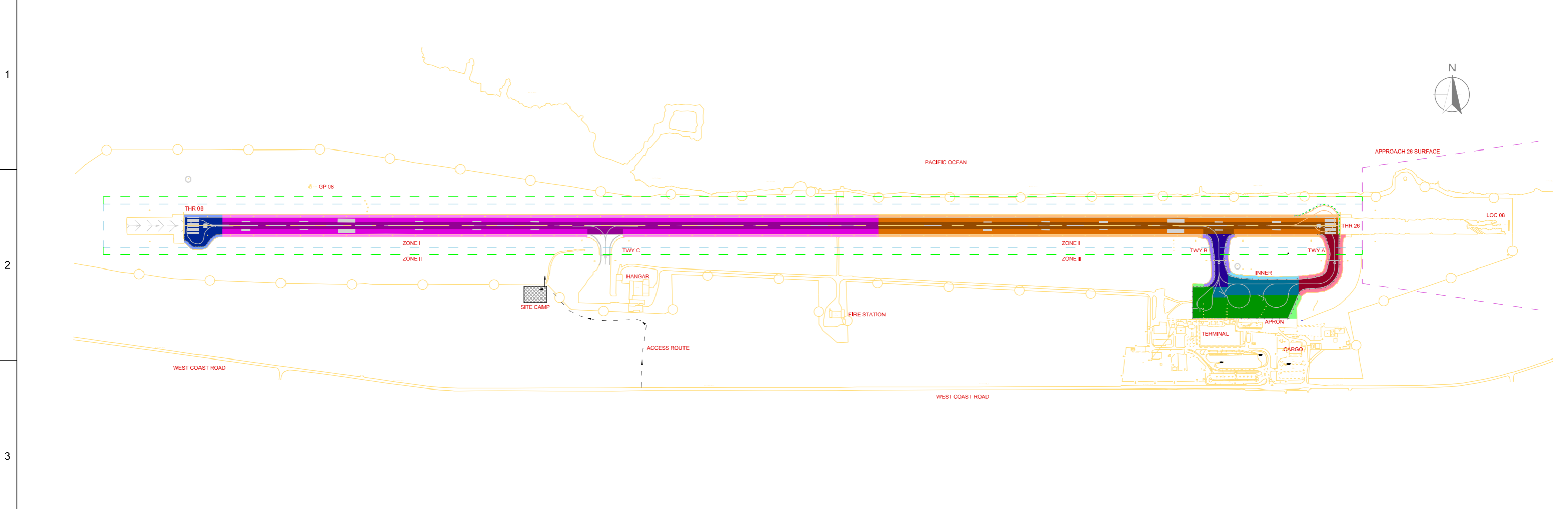


REINSTALLATION OF LIGHT IN ASPHALT PAVEMENT OVERLAY

NEW FUEL HYDRANT PIT



ISSUED FOR CONSTRUCTION	
Nº	DATE
REVISION	
FALEOLO INTERNATIONAL AIRPORT, SAMOA	
DESIGNED BY	DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS
AFFECTED SERVICES DETAILS	
PLAN No 4.2	SHEET 1 OF 1
DATE JULY 2015	SCALE -
DWG FILE 040200501V01	



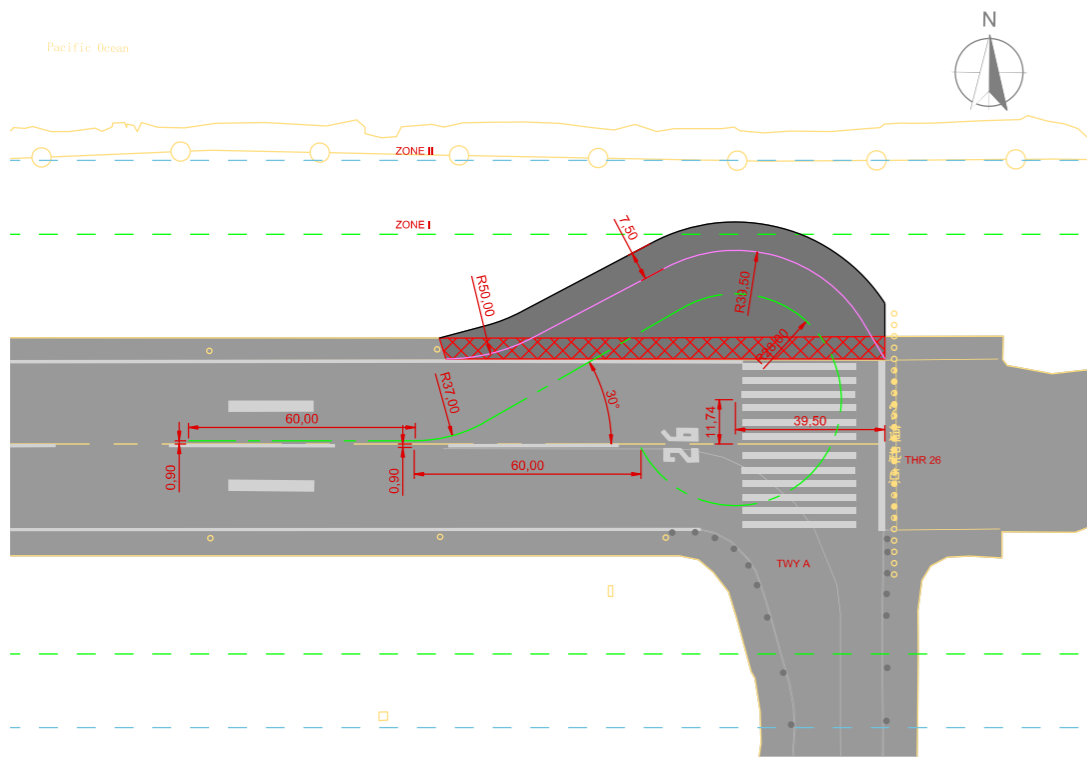
- LEGEND**
- THRESHOLD 08**
- Demolition and removal of hot mix asphalt (HMA) pavement - 10 cm
 - HMA AC 2 - 10 cm (paver placing lanes - 5 m In width)
 - HMA AC 1 - 5 cm (paver placing lanes - 5 m In width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3,5 m In width)**
- RUNWAY - WEST SIDE**
- Demolition and removal of HMA - 10 cm
 - HMA AC 2 - 10 cm (paver placing lanes - 4x5 m In width)
 - HMA AC 1 - 5 cm (paver placing lanes - 4x5 m In width)
- Milling of HMA - 1 cm**
- HMA AC 1 - 6 cm (paver placing lanes - 4+4+4,5 m In width)**
- HMA AC 2 - 10 cm (paver placing lanes - 4+3,5 m In width)**
- RUNWAY - EAST SIDE**
- Demolition and removal of HMA - 10 cm
 - Excavation of aggregate - 5 cm
 - HMA AC 2 - 8+7 cm (paver placing lanes - 4x5 m In width in central area; 4+4+4,5 m In connections with taxiways)
 - HMA AC 1 - 5 cm (paver placing lanes - 4x5 m In width in central area; 4+4+4,5 m In connections with taxiways)
- Milling of HMA - 1 cm**
- HMA AC 1 - 6 cm (paver placing lanes - 4+4+4,5 m In width)**
- HMA AC 2 - 10 cm (paver placing lanes - 4+3,5 m In width)**
- TAXIWAY A**
- Demolition and removal of overall pavement - 70 cm
 - Crushed aggregate - 40 cm
 - HMA AC 3 - 12+13 cm (paver placing lanes - 5 m In width)
 - HMA AC 2 - 5 cm (paver placing lanes - 5 m In width)
 - HMA AC 1 - 5 cm (paver placing lanes - 5 m In width)
- Milling of HMA - 1 cm**
- HMA AC 2 - 6 cm (paver placing lanes - 4+3,5 m In width)**
- TAXIWAY B**
- Demolition and removal HMA - 10 cm
 - HMA AC 2 - 10 cm (paver placing lanes - 5 m In width)
 - HMA AC 1 - 5 cm (paver placing lanes - 5 m In width)
- HMA AC 2 - 10 cm (paver placing lanes - 4+3,5 m In width)**

- INNER**
- Demolition and removal of overall pavement - 70 cm
 - Crushed aggregate - 40 cm
 - HMA AC 3 - 12+13 cm (paver placing lanes - 5 m In width)
 - HMA AC 2 - 5 cm (paver placing lanes - 5 m In width)
 - HMA AC 1 - 5 cm (paver placing lanes - 5 m In width)
- Milling of HMA - 1 cm**
- HMA AC 2 - 6 cm (paver placing lanes - 4+3,5 m In width)**
- APRON**
- Milling of HMA - 1 cm
 - HMA AC 1 - 6 cm (paver placing lanes - 5 m In width)
- HMA AC 2 - 5 cm (paver placing lanes - 4+3,5 m In width)**
- • • Unserviceable area light**
- - - - - Barrier**

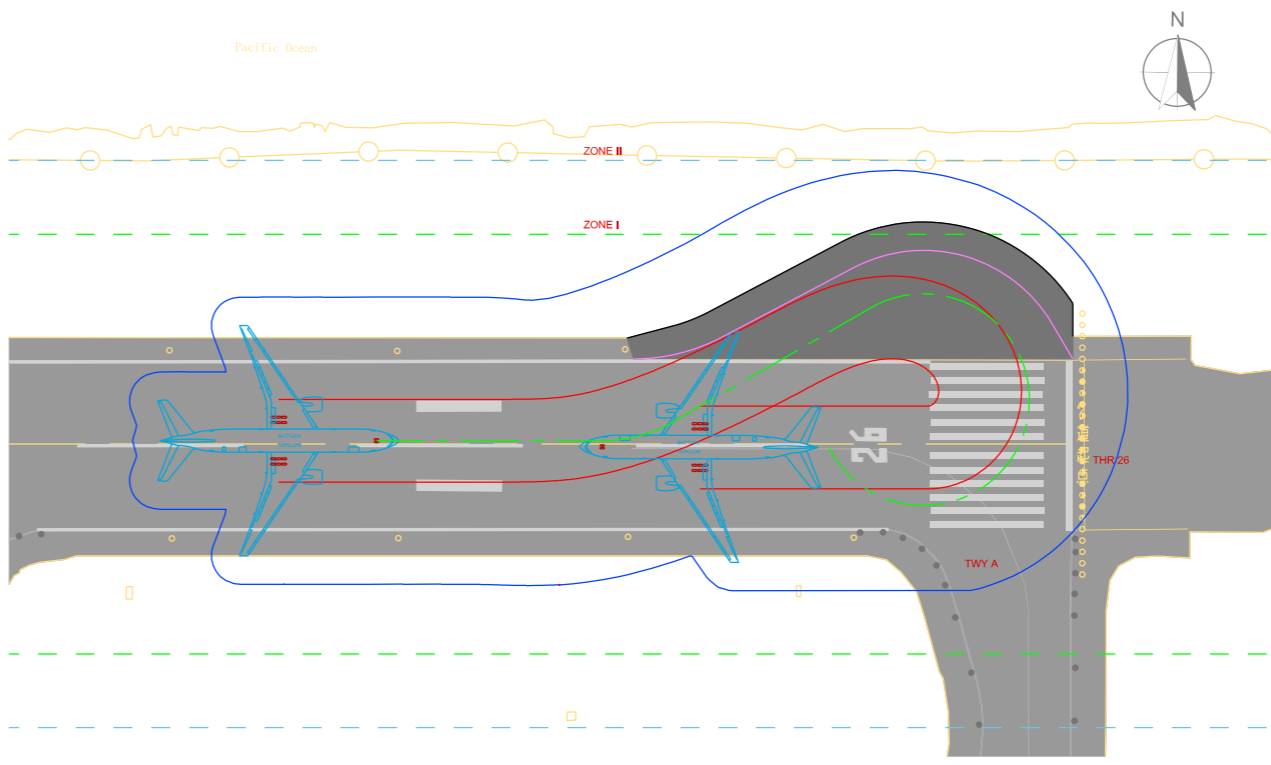
UNSERVICEABLE AREA LIGHTS AND BARRIER CONSIDERED TO MARK AND ILLUMINATE THE WORK ZONES.
ONLY ONE STAND SHALL BE CLOSED AT ANY MOMENT

SCALE: 1/1000

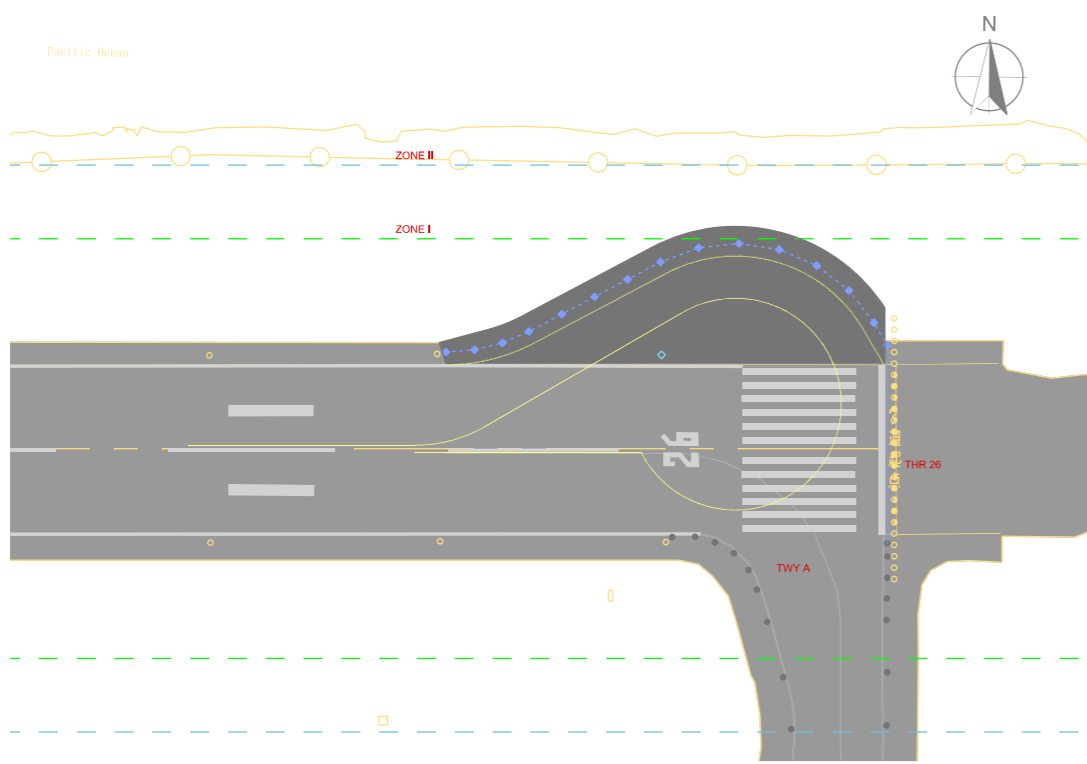
ISSUED FOR CONSTRUCTION	
Nº	DATE
FALEOLO INTERNATIONAL AIRPORT, SAMOA	
DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS	
SAFETY AND TEMPORARY WORKS RESTRICTED AREAS AND WORKS EXECUTION DEVELOPMENT	
DESIGNED BY	
PLAN No	5.1
SHEET	1 OF 1
DATE	JULY 2015
SCALE	1/5000
DWG FILE	050100501V01



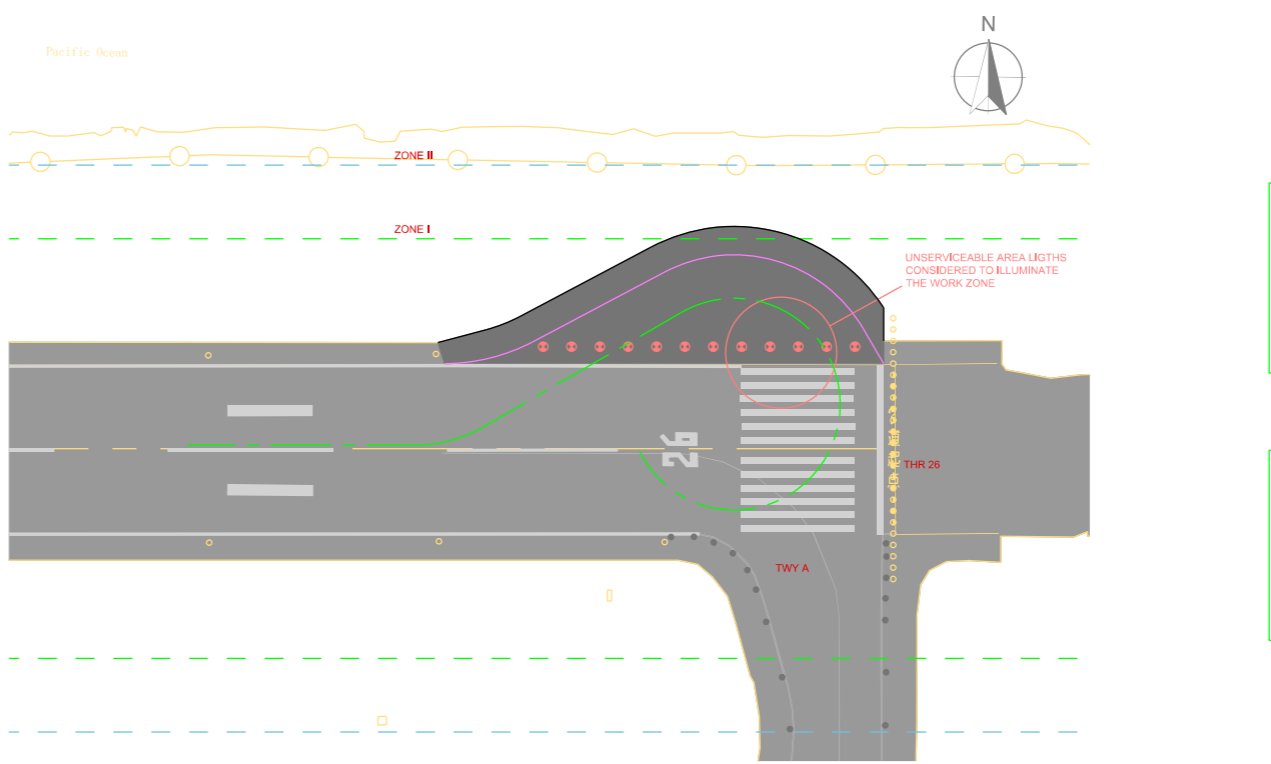
PHYSICAL CHARACTERISTICS



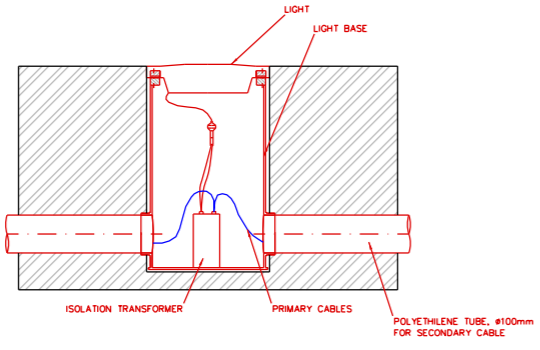
SIMULATION OF B-777-200 AIRCRAFT TYPE



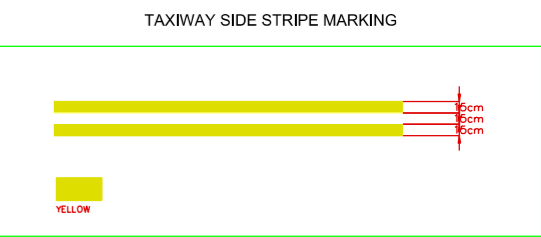
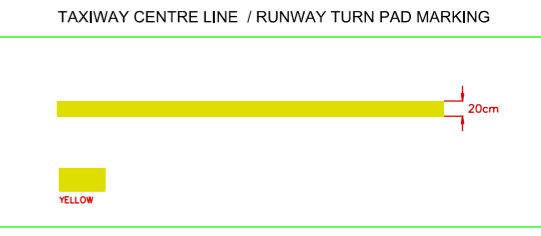
VISUAL AIDS



DEMARICATION OF THE WORK ZONE

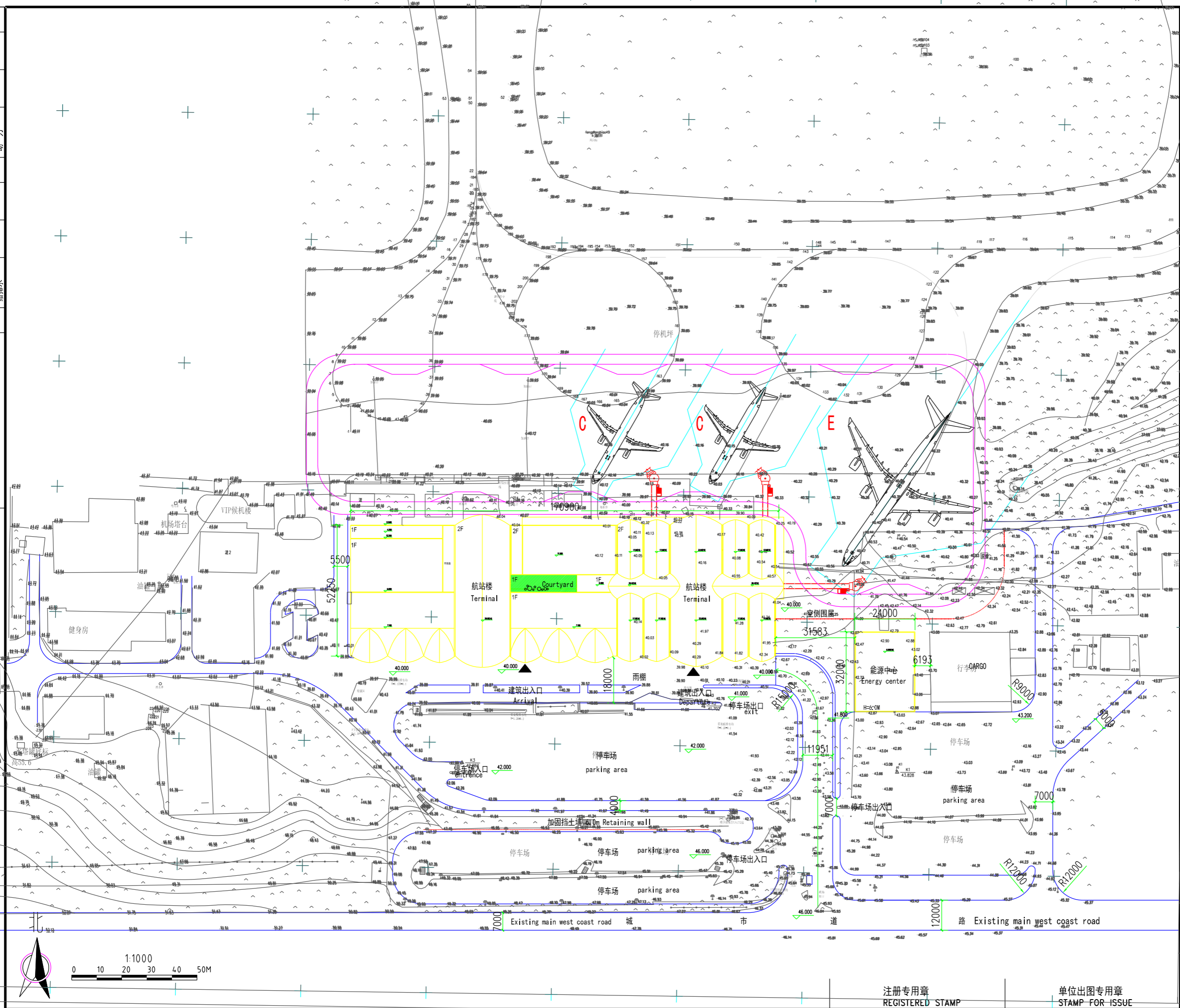


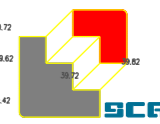
- LEGEND**
- Demolition and removal of hot mix asphalt (HMA) pavement - 5 cm
 - Excavation of aggregate - 50 cm
 - Excavation of soil - 55 cm
 - HMA AC 2 - 5 cm (paver placing lanes - 5 m in width)
 - HMA AC 1 - 5 cm (paver placing lanes - 5 m in width)
 - Uninstallation of runway edge elevated light
 - Taxiway edge inset light (base included)
 - Ø100mm duct for secondary cable
 - Unserviceable area light



		ISSUED FOR CONSTRUCTION	
N°	DATE	REVISION	
FALEOLO INTERNATIONAL AIRPORT, SAMOA			
DESIGNED BY		DESIGN & SUPERVISION SERVICES - FALEOLO INTERNATIONAL AIRPORT PAVEMENTS	
SAFETY AND TEMPORARY WORKS TEMPORARY RUNWAY 26 TURN PAD			
PLAN No 5.2	SHEET 1 OF 1	DATE JULY 2015	SCALE 1/1000
		DWG FILE 050200S01V01	

日期	姓名	专业	日期	姓名	专业
		电气			暖通
		动力			
		建筑			结构
		给排水			
会	登				






SHANGHAI CONSTRUCTION GROUP GENERAL CO.

上海现代建筑设计(集团)有限公司

Shanghai Xian Dai Architectural Design(Group) Co., Ltd.



华东建筑设计研究院有限公司

East China Architectural Design & Research Institute Co., Ltd.

设计证书甲级编号
A131004031

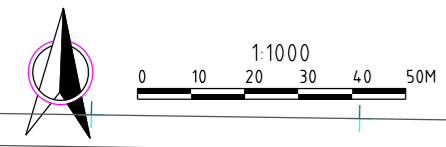
合作设计单位 CO-OPERATED WITH		
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序号 NO.	记要 DESCRIPTION	日期 DATE
43.08	修订 REVISE	
43.28		
43.39		
43.48		

审定人	邢同和
审核人	张延文
项目经理	郑达宇
设计总负责人	金鹏
专业负责人	金鹏
校对	吴晓清
设计人	杨成钢
绘图人	杨成钢

建设单位 CLIENT	萨摩亚独立国 上海建工集团 The Independent State of Samoa Shanghai Construction Group
项目名称 PROJECT	萨摩亚法莱奥洛国际机场升级改造项目 FALEOLO INTERNATIONAL AIRPORT UPGRADE PROJECT
子项 SUB-PRO.	航站楼设计 TERMINAL DESIGN

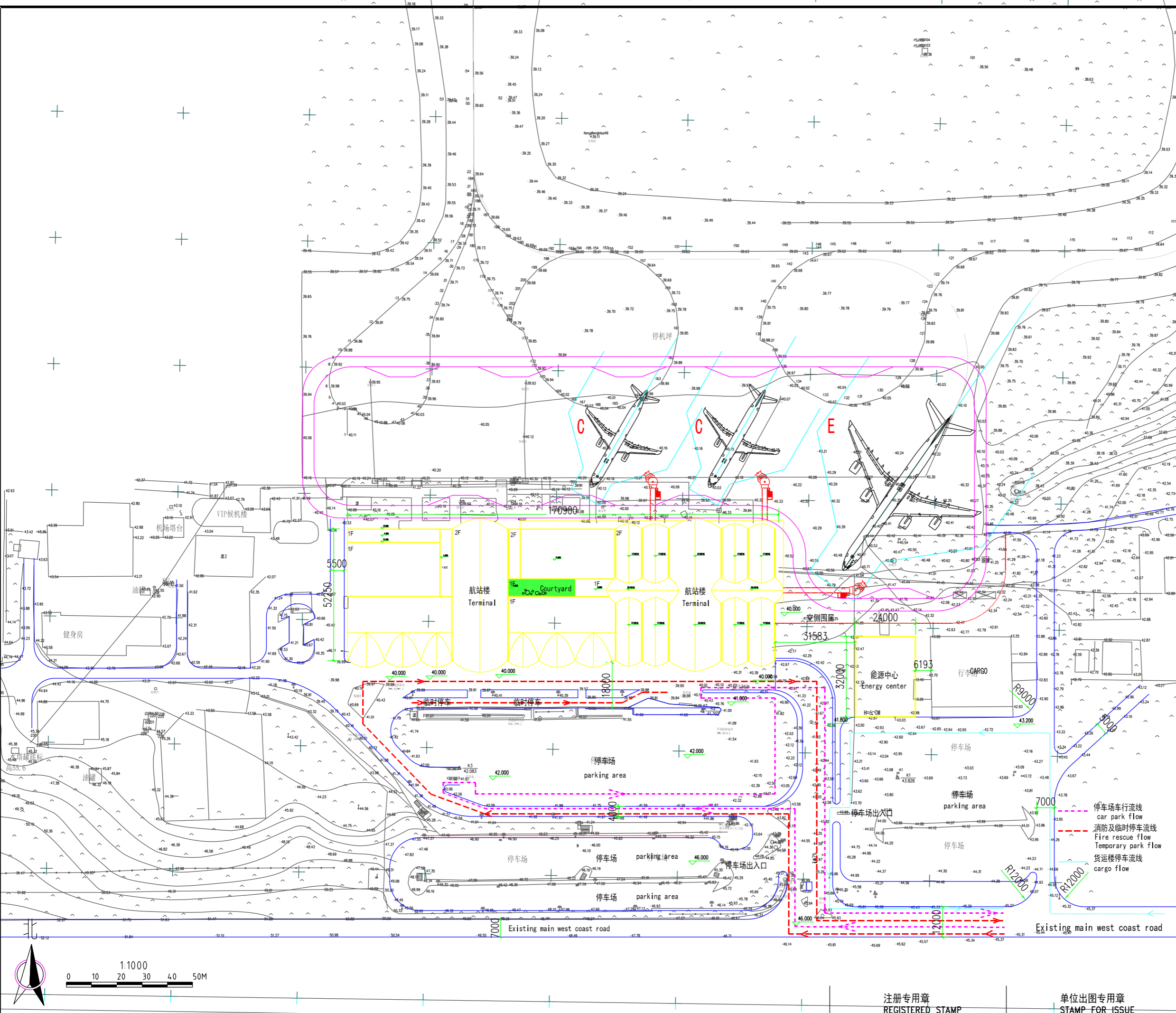
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工程编号 JOB NO.	H1412Ac24-360
阶段 STATUS	建筑 architecture
专业 DISCIPLINE	建筑 architecture
比例 SCALE	1:1000
日期 DATE	2015.08.20
图别、图号	建筑-05
DRAWING NO.	A-05



注册专用章
REGISTERED STAMP

单位出图专用章
STAMP FOR ISSUE

姓名	日期	专业	姓名	日期	专业
		电气			暖通
		动力			给排水
会签		建筑			结构



SHANGHAI CONSTRUCTION GROUP GENERAL CO.

华东建筑设计研究院有限公司
East China Architectural Design & Research Institute Co., Ltd.



上海现代建筑设计(集团)有限公司
Shanghai Xian Dai Architectural Design(Group)Co.,Ltd.

设计证书甲级编号
A131004031

合作设计单位 CO-OPERATED WITH	
----------------------------	--

REVISION		
NO.	DESCRIPTION	DATE

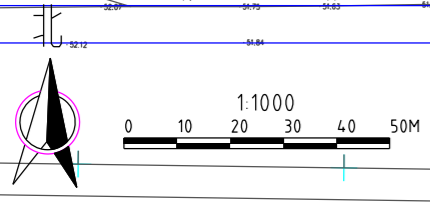
审定人	邢同和
审核人	张延文
项目经理	郑沁宇
设计总负责人	金鹏
专业负责人	金鹏
校对	吴晓清
设计人	杨成钢
绘图人	杨成钢

建设单位 CLIENT	萨摩亚独立国 上海建工集团 The Independent State of Samoa Shanghai Construction Group
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项目名称 PROJECT	萨摩亚法莱奥洛国际机场升级改造项目 FALEOLO INTERNATIONAL AIRPORT UPGRADE PROJECT
子项 SUB-PRO.	航站楼设计 TERMINAL DESIGN

图名 DRAWING TITLE	交通分析图 traffic flow
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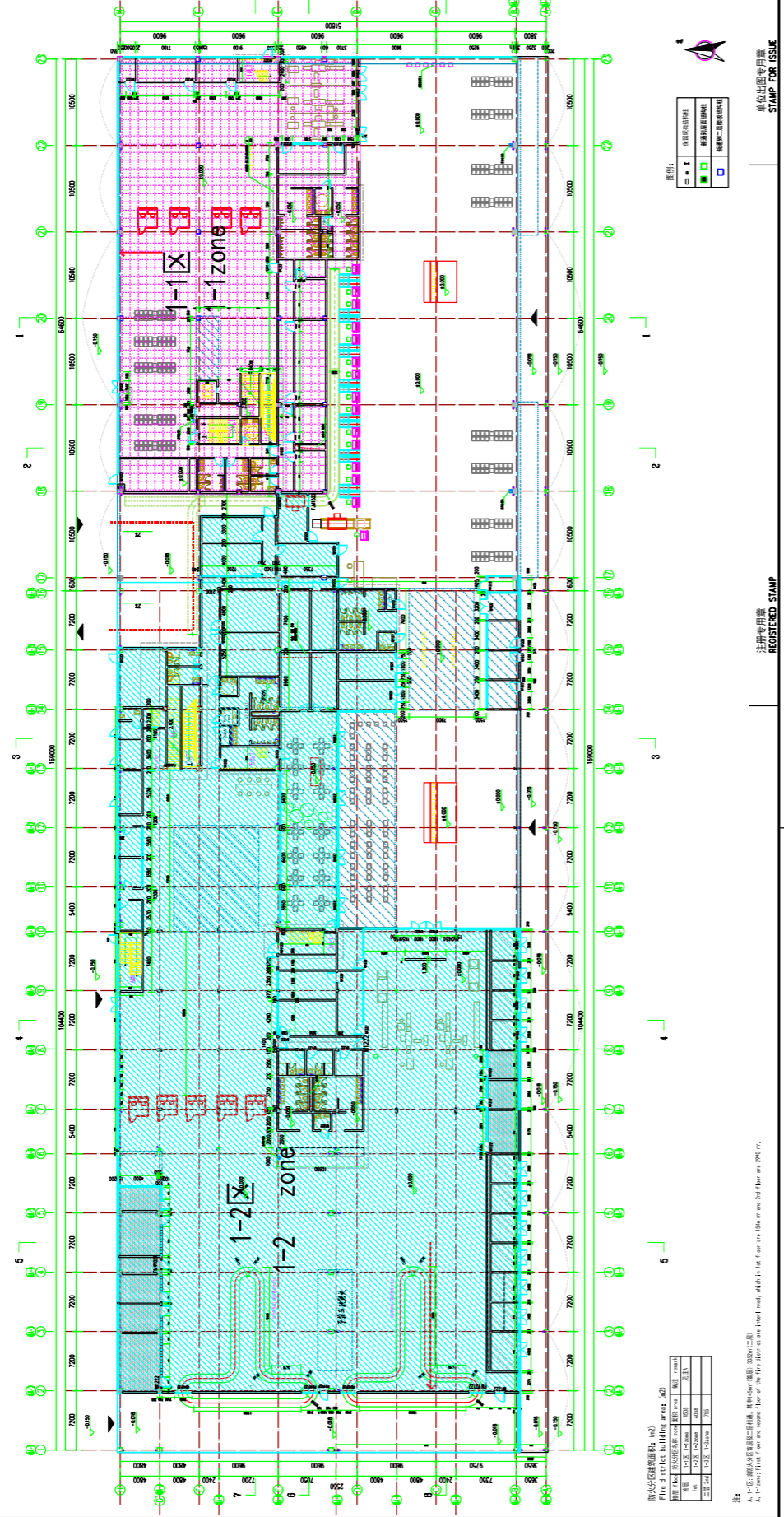
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阶段 STATUS	建筑 architecture
比例 SCALE	1:1000
日期 DATE	2015.08.20
专业 DISCIPLINE	建筑 architecture
图别、图号	建筑-06
日期 DATE	2015.08.20
图号 DRAWING NO.	A-06



注册专用章
REGISTERED STAMP

单位出图专用章
STAMP FOR ISSUE

工程编号 JOB NO.	HI412624-500
比例 SCALE	1:150
日期 DATE	2015.08.20
图名 DRAWING TITLE	消防分区图
设计阶段	施工图设计
专业	消防
设计人	陆晓刚
校对	陆晓刚
审核	陆晓刚
批准	陆晓刚
日期	
修改	
描述	
备注	

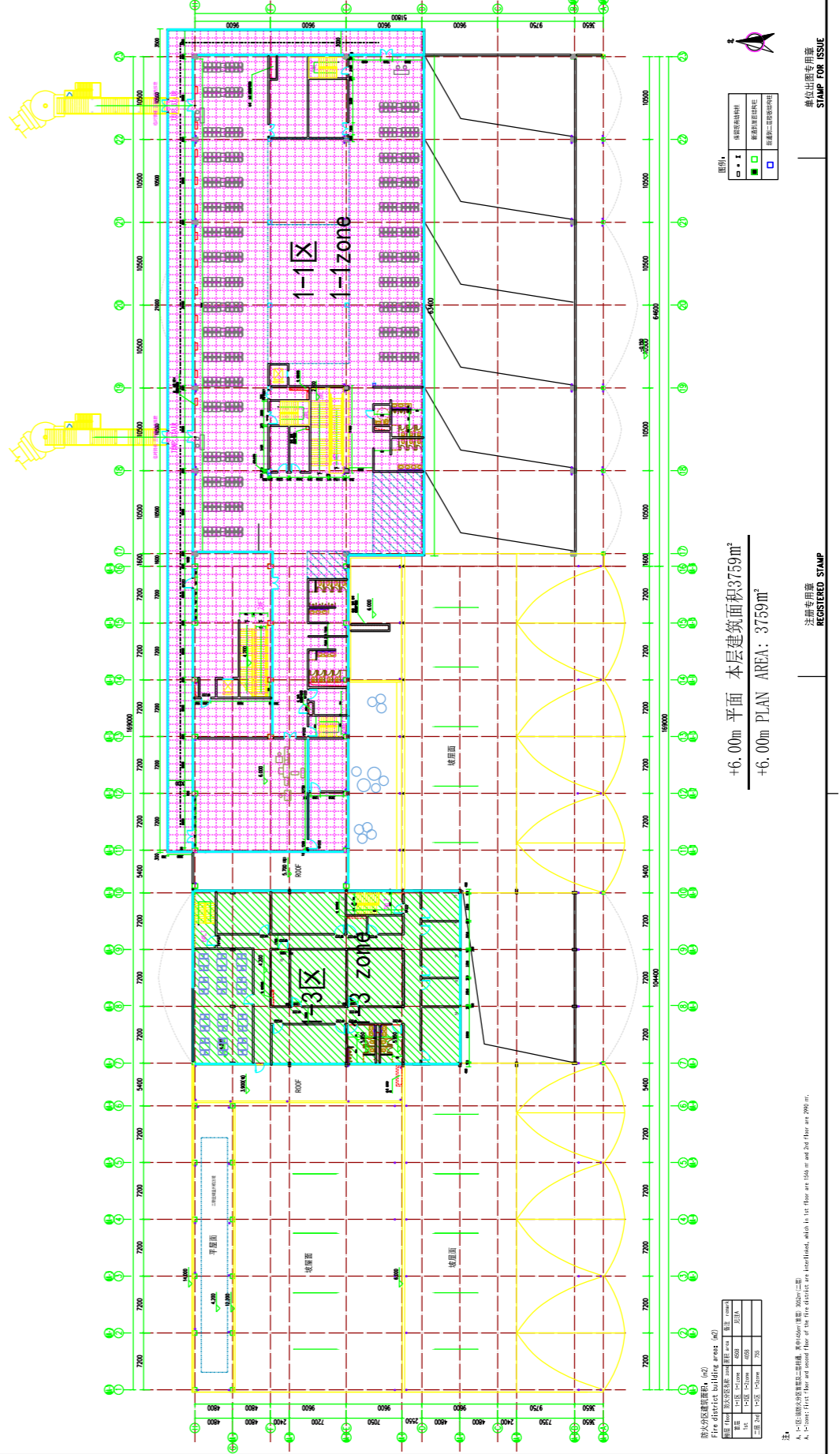


消防分区建筑面积表 (m²)

分区名称	建筑面积	防火分区
1-1	3759	1
1-2	1000	2
1-3	1000	3
合计	5759	

注册公用设备工程师
注册消防工程师
注册造价工程师
注册监理工程师
注册城乡规划师
注册建筑师
注册结构工程师
注册土木工程师
注册岩土工程师
注册电气工程师
注册公用设备工程师
注册安全工程师
注册环境影响评价工程师
注册咨询工程师
注册资产评估师
注册税务师
注册审计师
注册会计
注册税务师
注册资产评估师
注册造价工程师
注册监理工程师
注册城乡规划师
注册建筑师
注册结构工程师
注册土木工程师
注册岩土工程师
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注册安全工程师
注册环境影响评价工程师
注册咨询工程师
注册资产评估师
注册税务师
注册审计师
注册会计

工程编号 JOB NO.	HI412624-500
比例 SCALE	1:150
日期 DATE	2015.08.20
图名 DRAWING TITLE	消防分区图
设计阶段	施工图设计
专业	消防
设计人	陆晓刚
校对	陆晓刚
审核	陆晓刚
批准	陆晓刚
日期	
修改	
描述	
备注	



消防分区建筑面积表 (m²)

分区名称	建筑面积	防火分区
1-1	3759	1
1-2	1000	2
1-3	1000	3
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注册岩土工程师
注册电气工程师
注册公用设备工程师
注册安全工程师
注册环境影响评价工程师
注册咨询工程师
注册资产评估师
注册税务师
注册审计师
注册会计

+6.00m 平面 本层建筑面积3759m²
 +6.00m PLAN AREA: 3759m²

Appendix B

Development Consents



PLANNING AND URBAN MANAGEMENT AGENCY
Development Consent Application Form
Planning and Urban Management Act 2004

Office Use Only

DCA ___/___/___

Date Received

___/___/___

Amount Paid

\$

Send or deliver applications to the Planning and Urban Management Agency, Private Bag, Samoa. For enquiries phone: (685) 23 800 or visit our website at www.mnre.gov.ws/puma.

1. Applicant details:

1.1 I, _____, hereby apply for development consent.
(first name) (last name)

1.2 Personal contacts:

Address:

Mobile:

Telephone:

E-mail:

2. Planning details:

2.1 Proposed land use

Please tick the appropriate box:

Residential

Recreational

Commercial

Infrastructure/structure

Industrial

Agricultural

Religious

Educational

Cultural

If other please specify:

2.2 Proposed activity

Please tick the appropriate box:

New building

Road/driveways

Extension/alteration/renovation

Reclamation

Retaining wall/fence

Drilling

Earthworks

Revetment

Mining

If other please specify:

3. Additional details:

3.1 Describe what is to be carried out on site:

3.2 Proposed start date: _____
(dd-mm-yy)

3.3 Estimated completion date: _____
(dd-mm-yy)

3.4 Estimated capital value (SAT\$): _____

3.5 Contractor or responsible builder:

Name: _____

Contact details: _____

4. Land details:

4.1 I am the:

- Property owner
- Occupier
- Agent (authorized by owner/lessee)
- Lessee (provide details)
- Co-property owner (provide details below)

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:

- Freehold (complete section 5)
- Customary (complete section 6)
- Government

4.4 Legal description:

Land registry	Volume:	Folio:	Survey plan:
	Parcel No:	Area (m ²):	

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/Matai has the pulefaamau over the customary land

If the land is customary owned, you must present this application to the (Sa'o) Matai or at least two senior Matai responsible for the land for their consideration and signature.

I / We, _____ and _____ certify that I / We are matai 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.

Sa'o / Matai

_____/_____/_____
Date

Sa'o / Matai

_____/_____/_____
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: <ul style="list-style-type: none"><input type="radio"/> elevation plans<input type="radio"/> floor plans<input type="radio"/> details of any signage<input type="radio"/> photomontage<input type="radio"/> vehicle parking<input type="radio"/> design of earthworks | <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="checkbox"/> Certified survey plan |
| | <input type="checkbox"/> Written consent from property owners |
| | <input type="checkbox"/> Lease agreement |
| | <input type="checkbox"/> Deed of Conveyance |

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



Government of Samoa

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 faatuatusi uma mai fesootaiga
uma i le Ōfisa Sili*

SUSTAINABLE DEVELOPMENT

NOTICE OF DECISION

Application Reference: DCA №: 257/15

DECISION DATE: 15 July 2015

<u>Applicant:</u>	Samoa Airport Authority
<u>Site Location:</u>	Faleolo, Aana Alofi 3 District
<u>Proposal:</u>	To construct a campsite consisting of: three single-storey units with eleven (11) rooms each; two single-storey units with six (6) self-contained units each; one (1) toilet/shower facilities building with a boiler room; one (1) single-storey building containing of two (2) kitchens, two (2) dining rooms, four (4) storage rooms, one (1) conference room, four (4) rooms and one (1) toilet; two (2) storage buildings; eleven (11) washing sinks; two (2) septic tanks measuring at 10m x 8m x 2.5m and 8m x 4m x 2m; basketball court/field and a car park; and rubbish bins
<u>Legal Description:</u>	Government Land
<u>DCA Received:</u>	22 May 2015
<u>Supporting Documentation:</u>	1. Design Plans, submitted 22 May 2015 2. Site Plan, submitted 22 May 2015 3. Clarification Letter, dated 5 June 2015, submitted 5 June 2015
<u>Other Considerations:</u>	1. Non-notified 2. Status of Works: Earthworks and foundation works have completed

THE DECISION

The Planning and Urban Management Agency, under delegated authority from the Board, pursuant to sections 34(2), 47, 48, 50 of the Planning and Urban Management Act 2004, grant development consent, to the above application, subject to the following conditions:

Conditions:

General:

1. That the proposal shall be in accordance with the information provided with the application DCA 257/15 and drawings submitted to the Agency 22 May 2015 and 5 June 2015 and as amended by conditions of this consent.
2. Any other development works not included in this development consent application (including construction of building(s) or other structures on site), requires a separate development consent application.
3. **The proposed development shall be removed upon completion of the construction works for the Faleolo International Airport terminal.**
4. The consent holder shall notify any person(s) that likely to be affected by proposed works.
5. The consent holder shall ensure that the minimum distance measured from any boundary line to the vertical line that passes through the nearest point of any part of the new building shall be 1.5 metres or as required in Section A and the "deemed-to-satisfy provisions Section B, all inclusive, of the *National Building Code- 1992* for Samoa.
6. The minimum distance measured from the boundary line to the nearest part of any services structure, example a septic tank, shall be 1.5 metres as per the *National Building Code 1992*.
7. The minimum distance measured from the near edge of a stream or a water source to the nearest part of any service waste disposal structure, example a septic tank, shall be 15 metres as per the *National Building Code 1992*.
8. The minimum distance measured from a well source to the nearest part of any waste disposal service structure shall be 15 metres from an absorption drainfield or 30 metres for soakpits as per the *National Building Code 1992*.
9. All storm water discharged from the subject land shall be conveyed by means of an open or covered drainage system and absorbed on site by means of absorption trenches and/or storage facilities and must not be discharged onto neighboring properties.
10. All waste water shall be treated and contained within the boundaries of the property and there must be no discharge off site into public drainage network or adjacent properties.
11. The proposed development shall not have an undue detrimental environmental impact on:
 - Land adjoining the site; and
 - Likely future development.

Fire Safety:

12. Fire requirements shall satisfy the *National Building Code of Samoa-1992*.
13. The consent holder shall ensure that Fire and Emergency Services Vehicles have free access on site in events of emergencies.

14. Early warning systems shall be installed to alert appropriate occupants in events of fire or emergencies.
15. The applicant shall ensure that appropriate fire protection equipments are installed to safeguard the proposed building from fire and any other emergencies.

Construction:

16. All erosion and sediment controls shall be installed prior to the commencement of earthworks and maintained in an effective capacity at all times during construction works and must in accordance with the *Codes of Environmental Practice 2007 for Earthworks*.
17. The consent holder shall ensure that loose soil from earthworks shall be dampened to control dust levels during construction.
18. The consent holder shall ensure that access into the construction site is secured and safe for construction vehicle movement in and out of the site.
19. The loading and unloading of all vehicles and stockpiling of materials and equipments associated with the development shall take place within the site boundaries of the application.
20. The consent holder shall ensure that noise is minimized as far as practicable during construction works and be in accordance with the *PUMA Planning Policy: Revised Noise Standards 2011*. Construction noise shall not exceed the following limits:

"Noise Source" (Average dBA, L _{10mins})	"Receiving Property" (LAeq, 10 minutes)											
	Residential Use			Commercial Use			Religious Use			Industrial Use		
	Day	Even ⁿ	Night	Da y	Even ⁿ	Night	Day	Even ⁿ	Night	Day	Even ⁿ	Night
Construction Works	75	60	-	75	60	-	75	60	-	75	65	-

*Note: Day period is defined as 0700 to 1800, evening period is defined as 1800 to 2200 and night period is defined as 2200 to 0700. Construction activities conducted at times not specified in the table above will require special approval from relevant authorities. These may include the Night period, Sundays and all other times within Residential and Tertiary Educational compounds.

21. Pursuant to section 63 of the Planning and Urban Management Act 2004, the consent holder will ensure that the amenity of the area or place is not compromised by excessive noise, excessive dust, visually offensive signage, poor airspace, excessive traffic generation, smell, fumes, waste materials, wastewater and drainage.
22. All earthworks and construction works shall be restricted to the hours of 8.00am to 6.00pm Monday to Saturday. No work shall be undertaken on Sundays and public holidays. This is to ensure that the amenity of the area is maintained for nearby lands, unless otherwise approved by the Agency
23. All waste generated from the development shall be disposed of at the Tafa'igata Landfill or at an appropriate dump site approved by the *Ministry of Natural Resources and Environment*. The consent holder shall not dispose of any solid waste within the subject site.

Car Parking:

24. The consent holder shall provide appropriate car parking spaces for the proposed development as mentioned in the design drawings and shall be in accordance with the *Parking Policy and Standards 2006*.
25. The consent holder shall provide adequate space on site for the loading and off-loading of goods associated with the proposed building.

Operational:

26. Pollution incidents causing or threatening harm to the environment shall be reported to the Agency as soon as practicable on telephone 67200.
27. The consent holder shall ensure that all works during operation shall be carried out in accordance with the *Occupational Health and Safety Act 2002*.
28. There are to be no emissions or discharged from the premises which will give rise to an offence.
29. The consent holder shall ensure that all solid waste materials on site are to be taken to Tafaigata Landfill.
30. The consent holder shall ensure that the forecourt and surroundings of the building including pavements and gutters are to be kept clean and free of litter at all times.
31. The consent holder shall ensure that fire control measures and on site drainage are regularly maintained.

Rehabilitation:

32. Upon completion of construction activities, all areas that were disturbed by the development shall be stabilized so that accelerated erosion or sedimentation or both will be prevented.

Advisory notes:

- 1 *The Agency has considered all submitted information as accurate, if proven otherwise, this consent may be revoked.*
- 2 *A building permit must be obtained from the Ministry of Works Transport and Infrastructure prior to the commencement of construction of works.*
- 3 *The Agency or any employee is not liable for any damage, or loss resulting from any act, omission, or default in the exercise of the development consent function.*
- 4 *A copy of this consent should be held on site at all times during the construction.*
- 5 *The consent holder is responsible for ensuring that all contractors carrying out works under this consent are made aware of the relevant consent conditions, plans and associated documents.*
- 6 *Non-compliance with this development consent may result in enforcement and legal proceedings under the Planning and Urban Management Act 2004.*
- 7 *The consent shall lapse two (2) years after the date on which it was granted unless it has been given effect before the end of that period.*

Approved by:

Kirisimasi Seumanutafa, Acting Assistant Chief Executive Officer: PUMA
ACTING UNDER DELEGATED AUTHORITY



Government of Samoa

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

Matāgaluega o Puna'oa Faalenatura ma Siosiomaga

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Faamolemole faatuausi uma mai fesootaiga
uma i le Ofisa Sili*

SUSTAINABLE DEVELOPMENT

NOTICE OF DECISION

Application Reference: DCA №: 428/14

DECISION DATE: 5 November 2014

<u>Applicant:</u>	Samoa Airport Authority (SAA)
<u>Site Location:</u>	Faleolo, Aana № III District
<u>Proposal:</u>	To renovate and extend the existing Faleolo Airport terminal
<u>Legal Description:</u>	Government Land
<u>Amendment Received:</u>	15 September 2014
<u>Supporting Documentation:</u>	1. Development and Site Plans, submitted 15 September 2014 2. Survey Plan, submitted 19 September 2014 3. Environmental Impact Assessment (EIA) report dated September 2014 and prepared by ARMJAS Designs Environmental Management Consultancy Services, submitted 15 September 2014
<u>Other Considerations:</u>	1. The development application had been notified in the <i>Talamua Media</i> on 2 October 2014

THE DECISION

The Planning and Urban Management Board, pursuant to sections 34(2), 47, 48, 50 of the Planning and Urban Management Act 2004, approve development consent, to the above application, subject to the following conditions:

Conditions:

General:

1. The proposed activity(s) shall be carried out in accordance with the plans and all information submitted as part of the application DCA 428/14, being:

- a) Report titled "*Environmental Impacts Assessment (EIA), Project of upgrading Faleolo International Airport*". Prepared by ARMJAS Designs Environmental Management Consultancy Services dated September 2014 and submitted on 15 September 2014.
2. Any other development works not included in this development consent application (including construction of building(s) or other structures on site), requires a separate development consent application.
3. The consent holder shall notify any person(s) that is likely to be affected prior to the commencement of works.
4. The consent holder shall ensure that the minimum distance measured from any boundary line to the vertical line that passes through the nearest point of any part of the new building shall be 1.5m or as required in Section A and the "deemed-to-satisfy provisions Section B, all inclusive of the *National Building Code- 1992* for Samoa.
5. The consent holder shall ensure that the minimum distance measured from the boundary line to the nearest part of any services structures, example a septic tank, shall be 1.5m as per the *National Building Code 1992*.
6. The consent holder shall ensure that the minimum distance measured from the near edge of a stream or a water source to the nearest part of any service waste disposal structure, example a septic tank, shall be 15m as per the *National Building Code 1992*.
7. The consent holder shall ensure that the minimum distance from a well source to the nearest part of any waste disposal service structure shall be 15m from an absorption drain field or 30m for soak pits as per the *National Building Code 1992*.
8. The consent holder shall ensure that all fire safety features for the proposed development are in accordance with requirements of the *Fire and Emergency Services Authority (FESA)* and the *Fire and Emergency Services Act 2007*.
9. The consent holder shall ensure that firewall(s) shall be constructed between adjoining properties where the minimum distance requirements are neither achievable nor practical.
10. The consent holder shall ensure that fire requirements shall satisfy the *National Building Code 1992*.
11. The consent holder shall ensure that all fire safety features for the proposed development are in accordance with requirements of the *Fire and Emergency Services Authority (FESA)* and the *Fire and Emergency Services Act 2007*.
12. All wastewater shall be treated and contained within the boundaries of the property and there shall be no discharge off site.
13. The consent holder shall implement all practicable measures to prevent and or minimize any harm to the environment that may result from construction and/or operation of the project.
14. The consent holder shall be responsible for environmental impacts resulting from actions of all persons on-site, including contractors, subcontractors and visitors.
15. The use and development shall be managed so that the amenity of the area is not compromised, by excessive noise, excessive dust, visually offensive signage, poor airspace, excessive traffic generation, smell, fumes and waste materials.
16. The proposed activity shall not have an undue detrimental environmental impact on:
 - a) Environmental quality of the site or land adjoining the site;
 - b) Any vegetation on site and trees; and

c) Likely future development.

Storm water Discharge:

- 17. All soak pits must be within the applicant's boundary lines.
- 18. The consent holder shall ensure that connecting drain to any existing LTA drainage assets must be for stormwater runoff only.
- 19. All storm water discharged from the subject land shall be conveyed by means of an open drain and absorbed on site by means of absorption trenches and/or storage tanks.
- 20. On site detention treatment and re-use of storm water is encouraged.
- 21. Onsite drainage systems including connection to the major drainage network shall be designed to minimize potential for accumulation of silt and waste, including provision for its collection and removal at accessible locations.

Amenity:

- 22. Any material that is to be stockpiled on site is to be stabilized and covered.

Construction:

- 23. The consent holder shall ensure that all earthworks associated with construction activities are carried out in accordance with the *Samoa Code of Environmental Practice 2007 for Earthworks* and that all erosion and sediment controls shall be installed prior to the commencement of earthworks and maintained in an effective capacity at all times during construction works.
- 24. The consent holder shall ensure that noise during construction activities shall be minimized to achieve the Agency's *Noise Policy 2011* standards. Noise levels shall not exceed the following limits:

"Noise Source" (Average dBA, L _{10mins})	"Receiving Property" (LAeq, 10 minutes)											
	Residential Use			Commercial Use			Religious Use			Industrial Use		
	Day	Even ⁿ	Night	Day	Even ⁿ	Night	Day	Even ⁿ	Night	Day	Even ⁿ	Night
Construction Works	75	60	-	75	60	-	75	60	-	75	65	-

*Note: Day period is defined as 0700 to 1800, evening period is defined as 1800 to 2200 and night period is defined as 2200 to 0700. Construction activities conducted at times not specified in the table above will require special approval from relevant authorities. These may include the Night period, Sundays and all other times within Residential and Tertiary Educational compounds.

- 25. The consent holder shall enclose the construction site with warning signs to warn the public.
- 26. Precautions shall be taken to restrict the transfer of mud and materials to public roads and places. Should debris be transported onto the road, it must be cleaned forthwith.
- 27. Weather conditions shall be taken into account in programming earthworks.
- 28. The loading and unloading of all vehicles and stockpiling of materials and equipments associated with the development must take place within the site boundaries of the application.
- 29. All stockpiles and waste materials associated with renovation activities shall be stored on site before use or disposal.
- 30. All waste materials shall be disposed of at the Tafaigata landfill.
- 31. The hours of construction shall be limited to between the hours of 7:00am and 6:30pm on Mondays to Saturdays and no activities must be carried out on Sundays or public holidays

unless there is a written agreement with the Planning and Urban Management Board ("the Board").

Traffic Management:

32. The consent holder shall ensure that throughout the construction of the proposed development, proper traffic management must be adhered to and proper diversion of traffic must be in place to guide ongoing traffic.
33. The consent holder shall sweep or remove sediment from paved or sealed areas properly.
34. The consent holder shall submit a proposed traffic management plan to the Land Transport Authority (LTA) for review and approval.

Machinery:

35. The consent holder shall ensure that heavy machinery must be transported to site correctly without damage to the road seal will be a direct cost to the applicant.
36. The consent holder must keep machinery on cleared areas.
37. The consent holder shall ensure that all machinery must not be parked on the road seal or within the road reserve.
38. The consent holder shall ensure that all machinery and equipments are clean before bringing to site to avoid any debris left on road reserve.

Operational:

39. The consent holder shall ensure that all works during operation shall be carried out in accordance with the *Occupational Health and Safety Act 2002*.
40. There are to be no emissions or discharged from the premises which will give rise to an offence.
41. The consent holder shall ensure that the forecourt and surroundings of the building including pavements and gutters are to be kept clean and free of litter at all times.
42. All wastes generated on the premises shall be stored and disposed of in an environmentally acceptable manner. An adequate number of suitable waste containers shall be kept on the premises for storage of garbage.
43. The consent holder shall ensure that fire control measures and on site drainage are regularly maintained.

Reporting:

44. The Board may require update report(s) on compliance with all, or any part, of the Conditions of Approval. The report(s) shall meet requirement of the Board and shall be submitted within such a period as the Board may require.

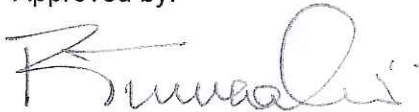
Restoration:

45. Any temporary signs used during construction activities, all areas which were disturbed by the development shall be stabilized as soon as works are completed.

Advisory Notes

- 1 *The Agency has considered all submitted information as accurate, if proven otherwise, this consent may be revoked.*
- 2 *A building permit must be obtained from the Ministry of Works Transport and Infrastructure prior to the commencement of construction of a building structure.*
- 3 *The Agency or any employee is not liable for any damage, or loss resulting from any act, omission, or default in the exercise of the development consent function.*
- 4 *A copy of this consent should be held on site at all times during the construction.*
- 5 *The consent holder is responsible for ensuring that all contractors carrying out works under this consent are made aware of the relevant consent conditions, plans and associated documents.*
- 6 *Non-compliance with this development consent may result in enforcement and legal proceedings under the Planning and Urban Management Act 2004.*
- 7 *The consent shall lapse two (2) years after the date on which it was granted unless it has been given effect before the end of that period.*

Approved by:



Hon. Faamoetaulua Lealaiauloto Taito Dr. Faalē Tumaalii
Chairman

cc: Chief Executive Officer, Ministry of Natural Resources and Environment

Appendix C

Mitigation Measures

Appendix C Mitigation Plan

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
DETAILED DESIGN/ PRE-CONSTRUCTION MOBILISATION STAGE					
Road traffic safety	<p>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.</p> <p>Include transport of materials and equipment to construction lay down area (likely to be located at the airport) 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).</p>	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	Ministry of Works, Transport and Infrastructure (MWTI)
Aviation traffic safety	Each investment within an operational airport is to have a Methods of Works Plan (MOWP) which is to be included in all bids and contract documents. The Contractor is to develop a Safety Management Plan as an addendum to the MOWP. The MOWP will include details of site works scheduling around known flight timetables and procedures for emergency response for all workers.	Operational airports	Minimal (requirement of bidding documents and standard construction practices)	Design Consultant	Samoa Airport Authority (SAA) / Planning and Urban Management Agency (PUMA) & SAA Project Managers
Soil erosion	Minimise erosion and design erosion protection measures according to international good practice standards, including incorporation of effective drainage systems (soakage pits) and consideration of surface flow paths. Works should be in accordance with Codes of Environmental Practice (COEP) 11 and 13.	All locations	Minimal (part of standard design practices)	Design Consultant	PUMA & SAA Project Managers

⁵ Costs are estimates only and will be calculated during the detailed engineering design.

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	Preferred time to schedule earthworks and construction activities is during dry season (April to September).				
Dust / Odours / Air Pollution	<p>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.</p> <p>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.</p> <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 PUMA.</p>	Construction lay down area	Minimal (part of standard design practices)	Design Consultant	PUMA & SAA Project Managers
Water and soil pollution	<p>Stage site clearance activities to minimise the area of exposed ground and the duration of disturbance. 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.</p> <p>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 approximately 100 m north of APW.</p>	All components	Minimal (part of standard design and construction practices)	Design Consultant Contractors	PUMA & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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 all SAIP and terminal building upgrade project locations.</p> <p>Ensure bunded areas and hard stands 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.</p> <p>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.</p> <p>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.</p> <p>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 petroleum hydrocarbons</p>				

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	(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 & SAA Project Managers
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 & SAA Project Managers
Sourcing aggregate material	<p>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 SAIP and terminal building upgrade project, public consultation will be completed with any affected parties relating to each quarry site, whether it is an operating, re-opening or new quarry site.</p> <p>Should it be identified that a new quarry site is required for the SAIP and terminal building upgrade 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.</p> <p>Consenting requirements will require Contractors to include provision for quarry specific plans including environmental management, health and safety and rehabilitation.</p>	All components	Minimal (part of standard design and construction practices)	Design Consultant	PUMA / MNRE & SAA Project Managers
Solid waste generation	Allow for re-use of as much material as possible either within the SAIP and terminal building upgrade project, other	All locations	Minimal (part of standard design	Design Consultant and	PUMA & SAA Project

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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.</p> <p>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.</p> <p>As early as possible in the pre-construction preparation phase suitable receiving waste facility(ies) should be identified (e.g. Tafaigata Landfill, re-use for airport roads or road patching material for LTA) and agreements put in place to transport (trans-boundary) project hazardous waste from Samoa.</p> <p>Storage areas shall be inspected regularly for leakage.</p>		and construction practices)	Contractors	Managers
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 (SAA / PUMA to provide details of providers).</p> <p>In all SAIP and terminal building 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 & SAA Project Managers
Importation of equipment and materials	Obtain required import permits and quarantine certification prior to export from country of origin. Certificate of fumigation required.	All components	Minimal (part of mobilisation and construction planning)	Contractor	PUMA & SAA Project Managers
Community grievances	Ensure that public consultation and disclosure communication is completed at regular intervals to ensure that the public are fully aware of the proposed SAIP and	All components	Minimal (part of mobilisation and construction	PUMA Consultant	PUMA & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	terminal building upgrade project. Consultation should include all aspects of the project including the airport site, quarries and transport routes.		planning)		
Airport concessionaires / local business grievances	Ensure that local businesses and airport commissionaires are included in the public consultation and disclosure communication process. Regular communication should be made with affected parties to ensure that they are fully aware of the proposed program of works.	Airport	Minimal (part of mobilisation and construction planning)	PUMA Consultant	PUMA & SAA Project Managers
CONSTRUCTION STAGE					
Traffic (vehicle and pedestrian) and construction safety	<p>Implement the TMP to ensure smooth traffic flow and safety for workers, passing vehicles and pedestrian traffic.</p> <p>Where appropriate, employ flag operators on the road to prevent traffic accidents. The workers shall have relevant safety equipment.</p> <p>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.</p>	Route from quarries and port to airport	Safety equipment included in construction cost	Construction Contractors	PUMA & SAA Project Managers
Soil erosion	<p>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.</p> <p>Take sediment control measures, such as silt traps/ponds/fences and bunding, to minimise sediment input into waterways.</p> <p>Keep construction vehicles on defined tracks.</p> <p>Re-vegetate disturbed areas that are not being paved as soon as practicable (loosen ground; apply topsoil; seed or plant as necessary).</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	PUMA & SAA Project Managers
Waste disposal	Ensure all construction waste material is re-used, recycled,	All locations	Minimal (part of	Construction	PUMA & SAA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>returned to supplier, transported to Tafaigata 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. 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>		standard construction practice)	Contractors	Project Managers
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 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 all SAIP and terminal building upgrade project works areas (airport, quarries, and transport routes). A spill response plan should be in place for both the construction phase and operational phase.</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	PUMA & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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).</p> <p>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.</p> <p>Contaminated soil (e.g. hydrocarbon impacted) may be identified. For any soil identified as contaminated (visual 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 SAA Project Manager and PUMA.</p> <p>Minimise areas cleared of vegetation and stabilise slopes to prevent erosion. Cleared areas will be promptly revegetated. 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</p>				

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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 APW (to be 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 control.</p> <p>All surfaces shall be constructed to their final design requirements as quickly as practicable.</p> <p>Keep work areas clean with regular sweeping. Due to</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	PUMA & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>freshwater supply constraints large scale water sprinkling should be kept to a minimum and only as required.</p> <p>Only small areas should be cleared of vegetation at any one time and re-vegetation should occur as soon as practicable.</p> <p>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 PUMA.</p> <p>Turn off engines when possible to reduce idling and exhaust emissions.</p> <p>Waste materials are to be removed from the site and not burnt.</p>	All locations	Minimal (part of standard design practices)	Construction Contractors	PUMA & SAA Project Managers
Noise and vibration disturbances	<p>Noise must be in accordance with relevant noise levels detailed in the PUMA 'Planning Policy for Noise Standards' (Revised 2011).</p> <p>Minimise nuisance from noise, especially closer to residential areas and sensitive receptors, through establishment and communication to affected parties of standard working hours (7:30 am to 6:30 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 6:30 pm to 7.30 am and during weekends and public holidays. If possible, use noise barriers / screens or mounds to shield sensitive receptors.</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	SAA / PUMA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>Use noise screens or mounds near residential areas. It is likely that work at APW will be completed at night, this will require approval by the SAA/ 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.</p> <p>For works outside normal hours, approval must be obtained from SAA/MNRE and residents within 100 m of APW must be notified 5 days before works take place.</p> <p>Regularly check and maintain machinery, equipment and vehicle conditions to ensure appropriate use of mufflers, etc.</p> <p>Workers in the vicinity of sources of high noise shall wear necessary protection gear rated for the situation they are being used.</p> <p>Signage to outline complaints procedure and contact details of recipient of complaints (e.g. phone number, physical address and email).</p> <p>Noise must be in accordance with relevant noise levels detailed in the PUMA 'Planning Policy for Noise Standards' (Revised 2011). The WB/IFC EHS Guidelines⁶ Section 1.7 – Noise Management shall also be applied (if no local limits are prescribed). Noise impacts should not exceed the levels for industrial commercial activities for one hour eq of 70 dB at any point of the day or night. Alternatively noise impacts should not result in a maximum increase in background levels of 3 dB at the nearest receptor location</p>				

⁶ International Finance Corporation, Environmental Health and Safety Guidelines, General Guidelines: Noise Management

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	off-site (e.g. residential house).				
Accident risks/Impacts on traffic safety	<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.)</p> <p>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>	All locations	<p>Safety equipment included in construction cost</p> <p>Minimal (part of standard construction practice)</p>	Construction Contractors	PUMA / SAA
Loss of archaeological artefacts or sites	Work to stop in specific location of unearthed artefacts or site. Fence the area to limit access and notify MWTI, SAA and PUMA immediately for instruction to proceed.	All locations	No marginal cost	Construction Contractors	MWTI / SAA / PUMA
Landscape degradation	<p>Contractor to include provision for construction camp and lay down area rehabilitation following the completion of the construction phase.</p> <p>Restoration of quarries to be completed in accordance with quarry consent.</p> <p>Restoration of landscape after completion of rehabilitation works; restore the vegetation cover in accordance with the surrounding landscape and any required design (e.g. grass land or shrubs).</p> <p>Use plant species characteristic for the landscape in the course of restoration of the vegetation cover.</p>	All locations	Minimal (part of standard construction practice)	Construction Contractors	SAA / PUMA
Hazardous substances and safety and pollution	Store and handle hazardous substances in banded, hard stand or designated areas only. Banded 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 SAIP. Bunds to contain 110% of total volume required	All locations	Safety equipment included in construction cost	Construction Contractors	PUMA & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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).</p> <p>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.</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 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 SAIP and terminal building upgrade project works areas (airport, 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>		Minimal (part of standard construction practice)		

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
Loss of biodiversity	If during course of construction work, particularly vegetation clearance and excavations any bird, reptile or 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 MNRE, PUMA and SAA notified immediately for instruction to proceed.	All locations	No marginal cost	Contractors	SAA / PUMA / MNRE
Health and safety	<p>Prepare site specific safety plans specifying responsibilities and authorities. Health and safety documentation to include all areas of the SAIP and terminal building upgrade project work areas (e.g. airport, quarries and haul routes). Ensure all occupational health and safety requirements are in place on construction sites and in work camps.</p> <p>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 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.</p> <p>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</p>	All locations	<p>Security included in construction cost</p> <p>Included in construction costs</p>	Contractor	PUMA / SAA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>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>				
Damage to assets and infrastructure	<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 (PUMA / SAA and service providers).</p> <p>As a result of SAIP and terminal building upgrade project construction activities any damage to assets or infrastructure must be reported to the PUMA / SAA and rectified at the expense of the Contractors.</p> <p>Provide assistance with reinstatement, in the event of any disruption.</p>	All locations	Dependent on asset/ infrastructure and level of damage	Contractors	PUMA / SAA
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 SAIP and terminal building upgrade project program of activities. Consultation should include all aspects of the project including the airport site, quarries and transport routes.</p> <p>Signage should be used in public areas around the SAIP and terminal building 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 & SAA Project Managers

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
Airport concessionaires / local business grievances	<p>Ensure that local businesses and airport concessionaires 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.</p> <p>Signage should be used in public areas around the vicinity of APW advising the complaints procedure and contact details of key project individuals responsible for responding to issues raised.</p>	Airport	Minimal (part of standard construction practice)	PUMA Consultant	SAA / PUMA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
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)	SAA	PUMA
Fuel storage	<p>All refuelling activities to occur on designated areas at APW.</p> <p>Store oils, hydrocarbons and other hazardous materials in designated locations with specific measures to prevent leakage (i.e. set storage areas away from water drains and on impermeable base with an impermeable containment with no outflow that has the capacity to hold 110% of the contents).</p> <p>Precautions should be in place to prevent wastewater and hazardous substances / materials entering the environment (e.g. fuel spillage), however should an incident occur, the</p>	All airport compounds	No marginal cost (standard operating procedure)	SAA	PUMA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	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 SAIP and terminal building upgrade project works areas (airport, quarries, and transport routes). A spill response plan should be in place for both the construction phase and operational phase.				
Airport waste management	Allow for re-use of as much waste as possible within the SAIP and terminal building upgrade project, other projects, or for community use. MNRE should be consulted for approval to receive material (at Tafaigata Landfill) that cannot be recycled, reused or returned to the supplier.	All airport compounds	No marginal cost (standard operating procedure)	SAA	PUMA
Use of fire retardant in aircraft rescue and firefighting (ARFF)	Spill response plan training to be completed for APW workers. Precautions should be in place to prevent potentially hazardous substances entering the environment (e.g. wastewater containing fire retardant during firefighting), however should an incident occur, the Contractor / APW must have a spill response plan must be in place.	All airport compounds	No marginal cost (standard operating procedure)	SAA	PUMA
Water or soil pollution	Workshops or maintenance areas to be fitted with bunded areas for storage of oil and fuel drums (and any other hazardous substances). Used oil drums should be returned to the suppliers or, after being cleaned, sold in secondary local market if there is demand for this. Used oils may be used for emergency drills/preparedness exercises as appropriate by ARFF.	All locations	No marginal cost (standard operating procedure)	SAA	PUMA
Maintenance of drainage and soakage systems	Drainage systems shall be periodically cleared of sediment and organic matter build up to ensure appropriate flows	All locations	No marginal cost (standard	SAA	PUMA

POTENTIAL NEGATIVE IMPACT	ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES	IMPLEMENTING LOCATION	ESTIMATED MITIGATION COSTS ⁵	EXECUTING AGENCY	SUPERVISING AGENCY
	<p>and soakage. Material to be disposed at approved site (e.g. landfill or used as cleanfill) or composted if organic. Drainage systems should also be periodically visually inspected for signs of contamination (e.g. hydrocarbons from airstrip runway) to ensure that the designed system is operating appropriately.</p> <p>Vegetation to be cleared from drainage channels and soakage pits and composted (check with MNRE regarding composting facilities on Upolu).</p> <p>Grass in drainage swales to be maintained at a height slightly higher than the surrounding grass on the shoulders.</p>		operating procedure)		

Appendix D

Monitoring Plan

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	SAA Project Managers
Aviation safety	Design documents	MOWP complete with details of flight schedules and emergency procedures.	Prior to sign off of final designs	SAA 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	SAA Project Managers
Water supply	Design documents	Proposed water source and supply network to be included in designs.	Prior to sign off of final designs	SAA 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	SAA 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	SAA Project Managers
Importation of equipment and materials	Importation permits	Ensure inclusion in design and material specifications that material and equipment to be fumigated and free of contamination. Approval to import material and equipment is given prior to material and equipment leaving country of origin.	Contractor to organize prior to export from country of origin.	Contractors
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

PARAMETER TO MONITOR	LOCATION	MONITORING	FREQUENCY	RESPONSIBILITY
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
Waste disposal	At 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 construction sites	Inspection of sites to ensure waste collection in defined area; spill response plan in place and workers trained at all SAIP and terminal building 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 / SAA. 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

PARAMETER TO MONITOR	LOCATION	MONITORING	FREQUENCY	RESPONSIBILITY
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	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 equipment)	At work sites	Inspections to ensure workers have access to and are wearing (when required) appropriate personnel protective equipment	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA compliance inspector

PARAMETER TO MONITOR	LOCATION	MONITORING	FREQUENCY	RESPONSIBILITY
		(e.g. for handling hazardous materials). WB/IFC Guidelines have been implemented.		
Community / airport concessionaires / local business safety	At work sites	Inspections to ensure signs and fences restricting access are in place and pedestrian diversion routes clearly marked (whether for access to a building or home or particular route). Consultation with airport business representatives to ensure disruption to airport operations 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 / SAA
Airport concessionaires / local business grievances	At and near APW work sites	Monitor public awareness campaigns and airport concessionaires / local business engagement procedures.	Weekly as applicable to schedule of works and on receipt of any complaints.	PUMA / SAA
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	Airport sites	Accident report.	Immediately after accident	PUMA / SAA
Drainage system operational with reduced flooding incidences	Runway	Clean out of soakage pits documented and inspection of grass swales after mowing shows grass height in swale is higher than	Soakage pit – after storm events to clear blockages and annually to remove sediment.	PUMA / SAA

PARAMETER TO MONITOR	LOCATION	MONITORING	FREQUENCY	RESPONSIBILITY
		surrounds.	After grass mowing.	
Waste disposal	Airport and disposal sites	<p>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.</p> <p>Inspections to ensure waste streams are sorted for re-use, recycling or waste to landfill.</p>	Weekly inspection as applicable to schedule of works and on receipt of any complaints.	PUMA / SAA
Water and soil pollution	Airport sites	<p>Inspection of sites to ensure waste collection in defined area; spill response plan in place and workers trained at all SAIP and terminal building upgrade project locations. Complete spill kits available where hazardous substances sorted and handled.</p> <p>Inspection drains on site to ensure no blockages present or maintenance required.</p>	Weekly inspection as applicable to schedule of works and on receipt of any complaints	PUMA / SAA
Storage of fuel, oil, bitumen, etc.	Airport sites APW training log.	Regular site inspections to ensure material is stored within bunded areas and spill response training for SAA workers up to date. 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. Increase frequency should a spill occur.	PUMA / SAA

Appendix E

APW Consultation Report - September 2015



**GOVERNMENT OF SAMOA
SAMOA AIRPORT AUTHORITY
SAMOA AIRPORT INVESTMENTS PROJECT (SAIP)**

**UPGRADE OF FALEOLO INTERNATIONAL AIRPORT
TERMINAL AND RUNWAY, SAMOA**

**Stakeholder Consultations Record
9th – 30th September 2015**



Report Prepared for:

Chief Executive Officer
Samoa Airport
Authority
Government of Samoa

Report Prepared by:

CB Group
ALEISA
APIA, SAMOA

Date Issued:

October 2015

INTEGRATED ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN: UPGRADE OF FALEOLO INTERNATIONAL AIRPORT TERMINAL AND AIRFIELD REHABILITATION, SAMOA

1. LIST OF PARTICIPANTS

Project Team:

Name	Organization/Position/Address	Contact Number	Email Address
1. Faamausili Chris Solomona	CB Group – Team Leader, Aleisa	766-3823/24163	cbgroup.ws@gmail.com
2. Rachel Solomona	CB Group – Social Analyst, Aleisa	24163	cbgroup.ws@gmail.com
3. Ofeira Faasau	CB Group - Environment Specialist, Aleisa	24163	cbgroup.ws@gmail.com

Stakeholders:

NAME	ORGANIZATION/DESIGNATION/CONTACT DETAILS	DATE OF CONSULTATION/ VENUE
1. Jerry Shi	Shanghai Construction Group (SCG), Project Manager	9 September 2015, SCG Camp Site, Faleolo, 10am
2. Amanda Yuan	Shanghai Construction Group, Project Coordinator amanda_yuan@hotmail.com 750-9191	9 September 2015, SCG Camp Site, Faleolo, 10am
3. Tafeamaalii Philip Kerslake	SWA – Manager, Technical Division, philip@swa.gov.ws 20409	16 September 2015, SWA office, TATTE Bldg, Level 2, 10am
4. Nick Valentine	World Bank – Environment Specialist, nvalentine@worldbank.org	21 September 2015, WB/ADB Liaison Office, CBS Building, 10am
5. Silimana'i Ueta Solomona	SAA – Operations Manager, jbsolomona@gmail.com , jsolomona@airportssamoa.ws , 7703611, 23201	21 September 2015, WB/ADB Liaison Office, CBS Building, 10am
6. Honsol Chan Tung	SAA – SAIP Project Accountant, H.ChanTung@saip.ws 23201	21 September 2015, WB/ADB Liaison Office, CBS Building, 10am
7. Namulauulu Lameko Viali	LTA – Road Operations Manager, lviali@lta.gov.ws 26741	30 September 2015, LTA Conference Room, Vaitele, 10am
8. Michael Anderson	LTA – Project Technical Advisor, michael.anderson@lta.gov.ws , 26741	30 September 2015, LTA Conference Room, Vaitele, 10am
9. Malcolm Esera	LTA – Principal Contracts Engineer, Project Manager Division, malcolm.esera@lta.gov.ws 26741	30 September 2015, LTA Conference Room, Vaitele, 10am
10. Viliamu Punivalu	SAA – SAIP Project Manager, viliamu.punivalu@gmail.com 23201	30 September 2015, LTA Conference Room, Vaitele, 10am

2. CONSULTATION RECORDS

Samoa Airport Investment Project
Integrated Environment and Social Management Plan Consultations
Consultation with Stakeholders

4 September 2015

Venue: Samoa Airport Authority Fire Station, Faleolo International Airport

10:00am – 12.00noon

Present: As per attached list of participants

Tumanuvao Evile Falefatu of the Samoa Airport Authority officially welcomes everyone and starts the consultation with a prayer. He then introduces Faamausili Chris Solomona of CBGroup who has been contracted to undertake the IESMP on behalf of the Samoa Airport Authority.

Chris then leads the presentation explaining the two projects which will be assessed for the IESMP which are the SAIP which is being funded by the World Bank and the European Investment Bank and the new Terminal Building which is being constructed by Shanghai Construction Ltd.

Chris then introduces Viliamu Punivalu who took us through the work plans for the SAIP component of the consultation. After Viliamu's presentation Chris then invites Jerry Linjie of Shanghai Construction to quickly take the participants through the work plan for the new Terminal building. Jerry then gave a brief outline of the new terminal work plan after which we opened the floor for any comments or questions from the participants.

Participant	Issues raised
Letelemaaana Sio	Letelemaaana is the village mayor for one of the neighbouring villages, Satuimalufilufi. He also has strong connections to the village of Satapuala which is the village which lies next to the Airport. He just wanted to reaffirm his support for the project(s) and gave us his blessings. He was also a strong supporter in the previous consultations in 2013.
Leatigaga Faasee Tauiliili	Leatigaga is the village mayor from one of the neighbouring villages. He also voiced his strong support for the projects and especially wanted to register his gratitude to the Samoan Government in having the foresight to improve aviation services. He said that he cannot really comment until the project is underway and asked if there would be a chance for all village mayors of the surrounding villages to produce lists of unemployed members for the contractors to consider for employment. He also said that the more people who are hired from the neighbouring villages the higher the security will be offered for the projects.
Vai Palepua	Employment for neighbouring villages is a possibility once the notices

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	for vacancies are put out for Shanghai Construction with the assistance of SAA.
CS	The question was put to Jerry of the Shanghai Construction who said that they will start advertising for labourers soon.
Peni Maiava (pilot)	Peni Maiava is a pilot for Samoa Air, one of the locally owned airlines. Peni asked the SAA to reconsider whether aerobridges at the airport at this point are necessary, and whether they are feasible/viable to have when he sees a bigger need for a parallel taxiway and more apron space. He added that he lives at Nofoalii (a village about 10 minutes' drive from the airport, and also added that when aeroplanes take off eastward, the noise is quite overwhelming – he then asked whether this could be taken into account in the design of the airport. He then asked whether there is a separate check-in area for domestic travellers in the new terminal.
Vai Palepua	Explained that there is no parallel taxiway planned for this project as there is no urgency for such a development at this stage. He added that there is a planned extension of an additional 4000 sq metres to the apron. And, on his final question, Vai related that in the terminal plans there is no separate area for domestic flights check in, just a separate boarding area from international flights.
Toalepaialii T Malo	Toalepaialii is a matai (chief) from Satapuala (one of the airport satellite villages) who expressed his gratitude for the consultation as he is grateful that their voice can be heard. He said that he is happy with everything in the presentation and that effects of such a project can only be positive for the people of Samoa. However, he went on to add, if he could request that all works be ceased on Sundays in respect of the Christian practices.
Sinei Fiti (Ministry of Health)	Sinei related that he was grateful that the environment and social aspects were being taken into account for this project and said that there was a paper which is with Cabinet at the moment which will require Health Impact Assessments (HIA) as well. However, he voiced his concern on the rubbish disposal from aircrafts and wanted to know whether the SAA has a proper incinerator to destroy the waste from aircrafts. His concern was for public health and safety.
Vai Palepua Solaese (SAA)	Vai said that there is no incinerator at the moment or in the planned project specifically for health but there is one for the Quarantine department which is used to destroy all refuse from the aircrafts.
Ifopo T Malaesaili	Thanked everyone for this rare opportunity to be consulted on such important and large scale projects. Voiced his appreciation of the terminal design and suggested that the terminal should have ample air conditioning for patrons comfort.
Miriama Elisaia MoF	Requested information on arrangements for repairs and maintenance of the infrastructure once the projects are in place and the contractors have completed the infrastructure. That is, will Shanghai Construction be responsible for repairs and maintenance once the terminal is

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	complete or will this responsibility to be handed over to the SAA.
Vai Palepua Solaese (SAA)	Vai explained that it has been built into the various contracts that, for the Terminal Project, Shanghai Construction will be responsible for maintenance works two years after completion of construction works and for the runway project, the contractor (when awarded) will be responsible for maintenance works one year after completion. After which maintenance works will then be handed over to the Samoa Airport Authority.
Petone Tofia, MoF	Petone wanted to know whether SAA has a planned exit strategy for when the projects are complete
Viliamu Punivalu, Project Manager, SAIP	Capacity building of the SAA staff is an on-going task for this purpose when the project wraps up
Ifopo Matia Fritz Jahnke, MP	Ifopo is the member of Parliament for the surrounding district (Aiga I le Tai) – he thanked SAA profusely for the opportunity to be heard on such an important project(s). He put in a request whether the surrounding villages could be given top priority or first choice for employment vacancies.
Alexandra Rankin (CEO, SHA)	Alexandra asked what the maximum capacity was for the new Terminal Building and voiced her concern for a separate quarantine area for health reasons for eg the Ebola cases – protecting our borders.
Siliamanai Ueta Solomona	Related that current capacity for the airport is 25,000. This figure is expected to rise to 600,000 from 2025 – 2030.
Tumanuvao Evile	Tumanuvao related that they have an Ebola response plan already in place.

Because there were no other questions or comments, Tumanuvao led us in prayer to conclude the consultation.

ORGANIZATION: Shanghai Construction Group

NAMES: Jerry Shi (Project Manager), Amanda Yuan (Project Coordinator), Faamausili Chris Solomona, Ofeira Faasau

DATE: 9th September 2015

TIME: 10.00am

LOCATION: SCG Camp Site, Faleolo

Question	Response
Chris Solomona (CS) What is the timeframe of the project? What is the total cost of the project?	Jerry Shi (JS)/Amanda Yuan (AY) The timeframe of the project is planned to be completed within 2 years. It is a strict schedule required by the Government of China. The total cost of the project is approximately US\$55 million and this is a GOS loan from EXIM Bank, which

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	is owned by the Chinese Government.
<p><i>CS/Ofeira Vitoria Faasau (OVF)</i></p> <p>What are the work hours and how will SCG aim at imposing as little disruption to airport operations especially when flights/planes are in transit.</p>	<p><i>JS/AY</i></p> <p>SCG will also work on Sundays but will not use any noisy equipment. Will also look to coordinate with SAA and flight times so as to plan work schedule around time where there are no flights. They would like to advise SAA to schedule flights at night time and early morning. But if cannot change flight schedules, then SCG will adjust work hours around flight times.</p> <p>SCG will discuss with surrounding village on what is the best option considering works on Sundays because of the strict timeline.</p>
<p><i>CS/OVF</i></p> <p>How many SCG workers and local workers in the SCG team?</p>	<p><i>JS/AY</i></p> <p>SCG are planning to hire around a maximum of 50 local labourers, but not all at once. It will be spread throughout the length of the project. Currently, foundation works have started and there are only a few local workers. SCG has about 10 long term local staff who has been working with the company for 4 to 5 years.</p> <p>Right now, there is only about 70 SCG staff working. But when the main works begin, around 150 to 200 workers will be on site.</p> <p>All SCG workers for this project are here on work permits only for this project and they will go back to China once construction works have completed. This work arrangement is formalised in MOU between Chinese Embassy and MFAT. For the local workers, they are under the MCIL requirements.</p>
<p><i>CS/OVF</i></p> <p>Where is the site office?</p>	<p><i>JS/AY</i></p> <p>The site office is being built right now and is located within the parking lot of the Cargo Building. The work site has already been fenced off, extending from the east side of the terminal up to the parking lot of the Cargo Building. The multipurpose building has been demolished. To avoid disruption to cargo operations and in case of emergency events or fire, they have been given a key to the gate that opens up to the main car park and West Coast Road and accessing the main terminal building.</p>
<p><i>CS/OVF</i></p> <p>How long is the maintenance period and what will happen should SAA need maintenance help after SCG contract is completed?</p>	<p><i>JS/AY</i></p> <p>There is a 1 year maintenance period after handover. But SCG will still maintain contacts with GOS and SAA through the Chinese Embassy after completion of project and able to provide assistance, maybe not for free but sill able to help.</p>
<p><i>CS/OVF</i></p> <p>Was there any geotechnical study undertaken for the project? If in Chinese, can SCG provide the name and contact details of firm?</p>	<p><i>JS/AY</i></p> <p>Yes, it was done by a Chinese company but all in Chinese. Will provide contact details to consultants once it is made available.</p>
<p><i>CS/OVF</i></p> <p>Who did the EIA study?</p>	<p><i>JS/AY</i></p> <p>Not quite sure as it was arranged by the previous PM. The report says it's done by ARMJAS and also paid by</p>

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	SCG but do not know any other further details. Will find out and provide this info.
<i>CS/OVF</i> Is there a team responsible for environmental and social safeguards of the project? If there is, can SCG provide names and contact details.	<i>JS/AY</i> Yes, there is a safety unit and Amanda will provide the details via email.
<i>CS/OVF</i> What is the breakdown of the SCG workforce? What are the equipments and plants that are being used for this project?	<i>JS/AY</i> There are 20 managers and the rest are about 30 skilled workers at the present time. Amanda will email the details.
<i>CS/OVF</i> Is SCG planning any programs to transfer knowledge to their local staff?	<i>JS/AY</i> Yes, definitely, but also relying on SAA to help with screening local workers. As there have been instances where local workers are not reliable.
<i>CS/OVF</i> Where is SCG getting their supply of aggregates and other building materials?	<i>JS/AY</i> SCG has contracted Apia Concrete Products (ACP) to supply aggregate materials for the project.

ORGANIZATION: Samoa Water Authority

NAMES: Tafeamaalii Philip Kerlake (Manager – Technical Division), Faamausili Chris Solomona, Ofeira Faasau

DATE: 16th September 2015

TIME: 10.00am

LOCATION: SWA office

Question	Response
<i>Chris Solomona (CS)</i> Does SWA have any water boreholes within the Faleolo International Airport property?	<i>Tafeamaalii Philip Kerlake (TPK)</i> There is one near the control tower but it's a SAA borehole. Not sure what this water is used for. For terminal use or fire safety.
<i>CS/Ofeira Vitoria Faasau (OVF)</i> Does SWA have any concerns with regards to water matters and the airport pavements rehabilitation and terminal upgrade projects?	<i>TPK</i> As the projects will result into an increase in capacity of users, the demand will also increase. SWA is planning to lay pipes for the new settlement near the airport and close to resort and wharf. This should also be taken into consideration. The demand from surrounding areas will impact on the supply for the airport. Is SAA planning to build a hotel at the airport? This will also have an impact on water supply. SAA has there own water sources and also use SWA water connection. They can utilise SWA and SAA water sources, one for terminal use and the other for fire safety and maintenance of planes.
<i>TPK</i> Is Olo quarry being used?	<i>CS/OVF</i> No not anymore, it has been closed down by MNRE due to the presence of aquifers in the area that may be affected by the mining operations.

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<i>CS/OVF</i> What is the water supply like for the area where the airport is located? Will there be enough supply to cater for the implementation of works and after when it is in operation phase?	<i>TPK</i> Water supply in the general area is good and SWA has quite a few boreholes in the vicinity. There are 2 boreholes at Faleolo, 2 at Olo/Mauga area, and 1 at Leulumoega. The mainline to Faleolo is fed from Fuluasou River source but also fed by the boreholes in the area as it is all a looped network.
<i>CS/OVF</i> How about the upcoming West Coast Road project? Will it affect the pipelines to the airport?	<i>TPK</i> SWA pipes will be relocated but most likely will not affect this project. Will confirm and provide feedback to SAA and consultants.

ORGANIZATION: World Bank and Samoa Airport Authority

NAMES: Nicholas Valentine (WB – Environment Specialist), Silimana’i Ueta Solomona (SAA – Operations Manager), Honsol Chan Tung (SAA – SAIP Project Accountant), Faamausili Chris Solomona, Ofeira Faasau

DATE: 21st September 2015

TIME: 10.00am

LOCATION: MOF Level 5

Comments	Response
<i>Nicholas Valentine (NV)</i> In theory, the IESMP should be in place before SCG starts works.	<i>Silimana’i Ueta Solomona (SUS)</i> SCG has only started preparation works, built new septic tank for the new development (55m ³) and have cleared the site for the new terminal extension. SCG works have been stalled for now until the IESMP is completed and can be submitted to MWTI for building permit. Right now, SCG is finalising design, architectural, drawings that will be submitted for the building permit. The IESMP is being delayed due to information that has not been submitted to enable its preparation.
<i>NV</i> IESMP to evolve as project progresses. The detailed designs are due in 2015 and EMP needs to be re-done by INECO-SMEC. What is the status for the structure of the SAIP PMU?	<i>SUS</i> Tenders Board approval for office space issued last week and now awaiting Cabinet approval which should be in two weeks time.
<i>NV</i> What is the status of the SAA project manager for terminal works? When is PM expected to start? WB needs someone from MOF to oversee SCG works. SAA need an MOU between SCG, MOF and SAA to be signed and formalised. There is no governance structure in place to monitor SCG contract. May need to insert a contractual clause in current agreement with MOF.	<i>SUS</i> The TOR has been finalised and will now proceed to procurement. SAA has to determine whether competitive or sole source method.
<i>NV</i> Need for SCG to sign Environmental Policy together with SAA as a matter of priority. Then WB will review and NOL before SCG signs.	<i>SUS</i> Need someone from SAA to monitor IESMP for terminal works.

INTEGRATED ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN: UPGRADE OF FALEOLO INTERNATIONAL AIRPORT TERMINAL AND AIRFIELD REHABILITATION, SAMOA

<p><i>NV</i></p> <p>The new role in TSFU for environment and social specialist will assist with this in a few months time. It is important to make clear to SCG that governance is under SAA.</p>	<p><i>SUS</i></p> <p>Independent engineer to monitor designs for the terminal works. PCG has already completed the peer review of draft designs prepared by SCG. Will provide copy to CB group consultants.</p>
<p><i>NV</i></p> <p>Need for an independent verifier to check SCG terminal designs and works, and must have structural engineering qualifications.</p>	<p><i>OVF</i></p> <p>Yes, it must be legally binding for SCG to adhere to the IESMP. The Financing Agreement and Building Permit can incorporate this requirement.</p>
<p><i>NV</i></p> <p>Employment opportunities from the projects. Is this realistic?</p>	<p><i>FCS</i></p> <p>Yes, but SAA must help SCG to screen local labourers. It is estimated that there will 50 to 150 local jobs created from the project.</p> <p><i>NV</i></p> <p>Important environment and health safety is applied to terminal works. For the IESMP, should include IFC EHS guidelines.</p>
<p><i>NV</i></p> <p>What about the terminal design? Have there been any consultations?</p>	<p><i>SUS</i></p> <p>There have already been 5 meetings conducted by the Facilitation Committee which consists of airport business owners requesting more space. They also want no changes to existing setup but add-ons to be refurbished for new concessionaries.</p>
<p><i>NV</i></p> <p>How about the SCG working hours?</p>	<p><i>SUS</i></p> <p>7am to 11am and 1pm to 5pm Monday to Saturday. Sundays they only do light works, steel fixing/mesh.</p> <p><i>OVF</i></p> <p>SCG needs to get PUM Board approval for works to take place on Sundays.</p> <p><i>NV</i></p> <p>Yes, PUM Board need to specify what works is allowed to take place on Sundays.</p>
<p><i>NV</i></p> <p>What about worker's days off? What are the impacts on the local protocols? For Kiribati case, HIV awareness programs are done with local communities.</p>	<p><i>FCS</i></p> <p>It's a case by case basis and no system in place for community programs and awareness promotion.</p>
<p><i>NV</i></p> <p>What about parking capacity for planes? Apron works are now under SAIP.</p>	<p><i>SUS</i></p> <p>737 (3 flights on Saturdays) and 777. The apron is to be extended by 4,400m².</p>

ORGANIZATION: Land Transport Authority

NAMES: Namulauulu Lameko Viali (Road Operations Manager), Michael Anderson (Project Technical Advisor), Malcolm Esera (Principal Contracts Engineer – PMD), Silimana’i Ueta Solomona, Viliamu Punivalu, Faamausili Chris Solomona, Rachel Solomona, Ofeira Faasau

INTEGRATED ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN: UPGRADE OF FALEOLO INTERNATIONAL AIRPORT TERMINAL AND AIRFIELD REHABILITATION, SAMOA

DATE: 30th September 2015

TIME: 10.00am

LOCATION: LTA office, Conference Room, Vaitele

Comments	Response
<p><i>Faamausili Chris Solomona (FCS)</i> Please tell us about the upcoming WCR project as it might potentially affect the airport project.</p>	<p><i>Michael Anderson (MA)</i> The project has been revised in scope due to funding shortage, and will mostly involve works in lowlying areas, installation of culverts, especially cross culverts that cut through private properties to discharge into the sea. It will mean closing one side of the main road, while works are implemented in one side. If the airport project will be hauling materials via WCR during construction works, it will be destructive as it will affect before and after pavement works.</p>
<p><i>Ofeira Vitoria Faasau (OVF)</i> There was a letter prepared by INECO-SMEC and sent by SAA requesting LTA assistance in conducting tests for suitability of aggregates at the Saleimoa area. Is LTA able to provide this assistance?</p>	<p><i>MA</i> The lab is pretty run-down. SAA to forward copy of letter. <i>Namulauulu Lameko Viali (NLV)</i> It is best for SAA to have a mobile lab. LTA cannot do hardness testing as we don't have the equipments to conduct these tests. <i>Viliamu Punivalu (VP)</i> Aware that the local capability is only for grading and moisture testing. This letter has already been sent to LTA CEO.</p>
<p><i>Namulauulu Lameko Viali (NLV)</i> Why is Olo quarry closed down?</p>	<p><i>FCS</i> According to MNRE and SWA there are aquifers where the quarry is located and will be affected if mining continues. <i>OVF</i> Best for SAA to get a copy of the report from MNRE that has led to this decision. <i>MA</i> The haulage of materials for the airport project will be a major problem to the condition of the WCR that LTA and WB is seeking to enhance and strengthen against climate change. <i>VP</i> Yes, it will affect the WCR.</p>
<p><i>NLV</i> Why not let the contractors find the source for aggregate materials like what LTA is doing for all its WB projects? As long as SAA and WB set the required standards for materials, then put the responsibility on the contractors to comply and prove to SAA that they are in compliance.</p>	<p><i>VP</i> Yes, its suitability versus availability. <i>RS</i> During consultations, a point was raised that there is an alternative location behind the existing Olo quarry. <i>MA</i> Yes, there is possibility of alternative locations around the Faleolo area but needs investigation. <i>OVF</i></p>

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Yes, but still leaves the issue of WCR project. Contractors may all come up with source from Saleimoa.
Namulauulu Lameko Viali (NLV)
VP
 Haulage may not be a problem if it's Saleimoa, as trucks can access via Aleisa Road.
OVF
 But what about the supply? Will there be enough materials from Saleimoa to supply for WCR and airport project?
FCS
 Will look into this matter with consultations to be conducted with MNRE.

ORGANIZATION: Chamber of Commerce, CB Group

NAMES: Ms Ane Moananu CEO Chamber of Commerce, Faamausili Chris Solomona,

DATE: 30th September 2015

TIME: 2.00pm

LOCATION: Le Sanalele Bldg, Taufusi

Comments	Response
<p>CS – Introduced the project and asked whether there were any particular issue COC wanted to raise</p>	<p>AM – There has not been much contact with SAA in relation to this project and they would like to see whether there would be an opportunity to have a presentation from SAA to its members at some time in the near future.</p> <p>There are not that many members whom have shown interest – however, they have airlines who are members in the COC and will be interesting to hear their views on the new terminal and the sorts of changes that could be envisaged with the completion of the new terminal</p> <p>At this stage the calendar of events for the COC is quite busy to April of 2016 and only then a possible presentation /consultation could be done with members of the SAA</p> <p>It would be nice to see what the types of services and the facilities available for such services so that the members of chamber who may have interest in setting up business in the new terminal or provide other services other than coffee shops, souvenirs etc., can begin to enquire and perhaps plan towards providing EOIs to the airport with regards to such business opportunities.</p>

3. CONSULTATION and SITE PHOTOS



Figure 1: Consultation with SCG and SAA representatives, 9 Sept 2015



Figure 2: Consultation with SCG reps, 9 Sept 2015



Figure 3: Consultation with stakeholders 4th Sept 2015



Figure 4: Presentations by SCG and SAIP reps, 4th Sept 2015



Figure 5: SCG accommodation and office supply site


















Figure 6: Construction site East section of airport

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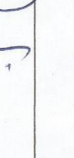



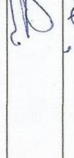
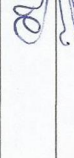

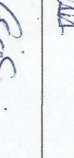
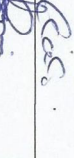
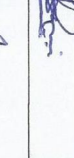
IESMP_SAA_04 September 2015

List of Participants at stakeholder consultation_ Faleolo International Airport_ VENUE_ Fire Depot HQ

1.	Name/Igoa	Occupation/Galuega	Contact Email/Phone	Signature
1.	Tony Lujie SMI / Amanda Cluman	Shanghai Construction Project Manager / Coordinator	7613878 / 7109791 shilijie073@hotmail.com	
2.	Branu Viterasi	Yee Andrew	+64218481080 brinu@pittwaterhotels.com	
3.	Alexandra Rankin	Sunway Hotels Assoc	ceo@sunway-hotels.com	
4.	Pemi Maavae	Airline Pilot Saulehi	7272611	
5.	JENNIFER HUNTER	INTRA AIRWAYS	7579780	
6.	Eloesi Schmidt	Legal Officer - STAA	7289696	
7.	Honsol ChanTung	Accountant - SAIP	honsol_ch@yahoo.com	
8.	Palagisa Solase	SAVA	psolase@air-ports.samoa.us	
9.	Apofo T. Makasaili		7735810	
10.	KASEN Sione	SHOP KEEPER	7871932	
11.	Paula Peraki 1812 RD			
12.	IFOLO MATIA FAIZ JATHUK	MR. AIGA ILE TAI	7702516	
13.	Polio J. Liekelema	P.		
14.	Polosia Pauli Alinalu	Buyer/Supplier	933-8336	
15.	FAITIOGA FAITE TAVULI	Teacher	7659313	

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	NAME/ISOA	OCCUPATION/QUALIFICATION	CONTACT EMAIL/PHONE	SIGNATURE
16.	Sinei Fisi	Health	sinief@health.gov.ws	
17.	Papua Tofo	MEP	papua-tofo@inf.gov.ws	
18.	Elene Tofo	✓	elene-tofo@inf.gov.ws	
19.	Muriana I. Elisoria	MPE	muriana.i.elisoria@inf.gov.ws	
20.	Lepule Moteo	MDF	-	
21.	Vitavava Unival	SAR - Project Manager	vitava.unival@unival.com	
22.	Tumavava EMI EREHATI	SA	-	
23.	Voli Lalagafua	SAA	-	
24.	Paul Fisi	SAA	-	
25.	Masela Luni	SAA	-	
26.	Fogafafu Te	BAA	-	
27.	Ricky Collins	SAA	-	
28.	Makalo Titi	SAA	-	
29.	Ranua Ranua	SAA	ranua@unival.com	
30.	Arona Tofo	SAA	-	
31.	Ma. Ete	SAR-Project Assistant	maete@unival.com	

INTEGRATED ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN: UPGRADE OF FALEOLO INTERNATIONAL AIRPORT TERMINAL AND AIRFIELD REHABILITATION, SAMOA

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32.	Rachel Hunt	CB Group	24163	pfact@ipacific.net
33.	Chris Siamonua	CB Group	✓	cbgroup.wi@gmail.com
34.	Sau Haniiale	STP	23202	STP
35.	Silimauai, John Siamonua	Operations / STP	23207	jsiamonua@gmail.com
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Appendix F

ESMP Monitoring Plan Inspection Checklist

Appendix F ESMP Monitoring Plan Inspection Checklist**ESMP Monitoring Plan 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 transports 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 70dB - Noise assessment to be completed at nearby sensitive receptor locations 	Yes <input type="checkbox"/> No <input type="checkbox"/> If No, details:

Environmental Issue:	Inspection areas:	Requirements met?
1.0 Construction Phase		
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 / Airport Concessionaires / Local Business 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 of contamination. 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 area. - Inspect to check 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?

Signoff

Signature:

Date:

.....

.....