Pacific Aviation Investment Program (PAIP)

Environmental Management Plan - Funafuti International Airport (FUN) Terminal Addendum
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Client: Ministry of Communications and Transport (MCT)
Co No.: N/A

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Mitigation Measures
Executive Summary

The Tuvalu Aviation Investment Project (TvAIP) was established to carry out the upgrade activities as identified in the Pacific Aviation Investment Program (PAIP) funding loan from the World Bank (WB). The TvAIP project objective is to enable air transport infrastructure and operations of Funafuti International Airport (FUN) to meet International Civil Aviation Organisation (ICAO) standards, and to improve sustainability of the airport and civil aviation of Tuvalu. This Terminal Environmental Management Plan (EMP) Addendum has been prepared for the TvAIP terminal upgrade and must be read in conjunction with the FUN EMP dated November 2013 (or subsequent updates).

The Ministry of Communications and Transport (MCT) through the Civil Aviation Directorate (CAD) manage the airport operations and are responsible for compliance with national and international civil aviation requirements. The public road network is managed by the Public Works Department (PWD).

This Terminal EMP Addendum seeks to outline the potential environmental impacts and the measures needed to prevent, minimise, or mitigate adverse impacts and improve environmental performance for the terminal upgrade component of the TvAIP project.

Overall the TvAIP is a Category B project under WB environmental and social screening guidelines and requires development of the project EMP. Category B projects have potentially limited adverse social or environmental impacts that are few in number, site specific, largely reversible, and readily addressed through mitigation measures. This Terminal EMP Addendum is a dynamic document to be updated if there are changes to the project scope, detailed designs, or if further information becomes available as a result of consultation with stakeholders and the community. The objective of the Terminal EMP Addendum is to provide a framework for managing the airport terminal upgrade works in a manner that incorporates the principles of environment sustainability while minimising potential adverse effects on the local community and the environment.

The existing terminal building, completed in 1994, is undersized for the existing one way peak hour of 40 passengers (ATR 42-500). The terminal building is in poor condition and is at the end of its serviceable life.

An outcome of the site inspection findings, condition assessments of existing buildings, identification of breaches of ICAO Standards and Recommended Practices (SARPS) and direct requests by the FUN Civil Aviation Directorate (CAD, the Client) identified two additional buildings that require upgrading or relocation. At present these two additional buildings are not included in the scope of this EMP or this stage of the PAIP.

- A new relocated standalone Air Traffic Control Tower (ATCT).
- A new Airport Rescue and Fire Fighting (ARFF) building to incorporate the new relocated ATCT.

Budget constraints have meant that a staged process has been proposed in developing the terminal and meeting all the design objectives. Through a series of design workshops and an iterative design process (as detailed in the Tuvalu Final Design Report – Airport Terminal & Security (D-5), 8 August 2015) a number of options were developed with ‘Option 6’ being recommended as the final Stage 1 terminal design option.

The recommended Option 6 incorporates environmentally sustainable design elements which may be included in the Option 6 construction or later development, these include rainwater collection, retain existing trees to provide shade, and natural ventilation.

The proposed duration of the terminal upgrade is approximately 9 months.

This Terminal EMP Addendum includes information on mitigation, monitoring, capacity development and training, and implementation costs (in accordance with WB Operational Policy 4.01 Environmental Assessment). The majority of potential adverse impacts will occur during the construction phase of the TvAIP terminal upgrade. However given that this 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.
- Soil erosion through vegetation clearing and excavation.
- Hazardous materials handling and storage.
- Noise and vibration disturbances from machinery and transportation of materials.
- Air pollution from dust and equipment.
- Traffic disruption during construction activities.
- Transport of equipment and materials from the port and around Fongafale.
- Disposal of waste materials.
- Safety hazards for workers and users of the facilities where upgrades are occurring.
- Water demand management for freshwater resources.
- Wastewater discharges.
- Construction camp establishment and dis-establishment.

This Terminal EMP Addendum is designed to address these issues through:
- Implementation of this Terminal EMP Addendum through the Contractor’s EMP.
- Regular supervision and monitoring of the implementation of the EMP (refer EMP 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. Phase I of the Program, for which this Environmental Management Plan (EMP) is prepared, includes Kiribati, Tonga and Tuvalu. This site specific EMP has been developed for project work at Funafuti International Airport (FUN) and the road network on Fongafale islet.

Tuvalu is the fourth smallest country in the world with a land mass of only 26 km². The three reef islands and six atolls are only accessible by boat. FUN is the only airport within Tuvalu and is the primary access point for tourists and expatriate Tuvaluans. Tuvalu faces many challenges and constraints regarding economic development due to the remote location and limited capital resources. Transport connectivity with the Pacific region is an example of one such challenge Tuvalu faces. Improved accessibility to the country will benefit tourism related services, seasonal agriculture, seafarers’ labour markets and commercial businesses.

Recognising the key role of aviation transport in the country’s socio-economic growth, in 2011, the Government of Tuvalu requested support from the WB and other regional donors (New Zealand Aid Program, AusAID and Asia Development Bank) to improve the FUN facilities and services. FUN is operated by the Civil Aviation Directorate (CAD) of the Ministry of Communications and Transport (MCT). The Tuvalu Aviation Investment Project (TvAIP) was established to carry out the upgrade activities as identified in the PAIP funding grant.

In November 2011 an overarching EMP was published for all components of the TvAIP. However the road surface rehabilitation component was not included in the overarching EMP as it was not initially budgeted for in the TvAIP. The overarching EMP is in compliance with WB Policy OP/BP 4.01 Environmental Assessment and Tuvalu national legislation, and provides a framework for mitigation of the projects impacts and development of a specific EMP for the detailed design, construction and operational stages. Consultation and public disclosure was undertaken during the project preparation phase with details of stakeholders and outcomes included in the overarching EMP.

A site specific EMP has been developed for the proposed FUN upgrade works; this EMP is herein referred to as the FUN EMP. The FUN EMP builds on the overarching EMP, providing details on environmental impacts and mitigation measures specifically for FUN and incorporates details of the final detailed designs.

This Terminal EMP Addendum has been specifically developed for the terminal upgrade component of the TvAIP which were at draft detailed design stage when the site specific FUN EMP was completed in 2013. This Terminal EMP Addendum provides additional information on the final detailed design and specific impacts and mitigation measures related specifically to the terminal upgrade works and general impacts and mitigation measures related to the overall TvAIP. This document must be read in conjunction with the FUN EMP for background information, details of the other project components and general impacts and mitigation measures related to the overall TvAIP.

The MCT through the CAD manage the airport operations and are responsible for compliance with national and international civil aviation requirements. The public road network is managed by the Public Works Department (PWD).

1.2 TvAIP Objective

The TvAIP project objective is to enable air transport infrastructure and operations of FUN to meet International Civil Aviation Organisation (ICAO) standards, and to improve sustainability of the airport and civil aviation of Tuvalu. In addition, the project aims to rehabilitate the road surface on Funafuti to improve road safety.

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1.3 Environment Management Plan Development and Scope

The TvAIP is a Category B project which requires the development of a site specific EMP. The WB involuntary resettlement policy OP/BP4.12 is triggered by the components of the TvAIP particularly the road pavement rehabilitation component due to the potential temporary need for laydown areas (e.g. small stockpiles), removal of vegetation (potentially food trees) infringing on the line of sight for road users and moving of stalls or other non-permanent structures away from the road edge.

The FUN EMP was developed to meet requirements of the WB Policy and Tuvalu legislation. In order to finalise the FUN EMP for inclusion with the pavement (runway and road), and navigational aids and lighting contractor procurement bid documents for the TvAIP, the information pertaining to the terminal was left at the draft detailed design stage. This Addendum to the FUN EMP specifically addresses the final detailed design for the terminal as approved by MCT.

An EMP is a dynamic document to be updated if there are changes to the project scope, detailed designs, or if further information becomes available as a result of consultation with stakeholders and the general public. The objective of the EMP 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 FUN EMP and Terminal EMP Addendum 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 EMP also provides the details of how the community and stakeholders are to be engaged and the mechanisms for ongoing consultation and communication.

This Terminal EMP Addendum is limited to the scope of works as described in Section 2 of this document and addresses impacts and mitigation measures identified at each stage of the terminal upgrade works execution, namely detailed design, construction and operation. This Terminal EMP Addendum builds on the impacts and mitigation measures as identified in the overarching EMP and FUN EMP which included outcomes of the consultation undertaken to date. This Terminal EMP Addendum and the FUN EMP will both be included in the bidding documents for construction contractors and form the basis of the Contractor’s EMP for the terminal upgrade work. The mitigation measures identified in this EMP 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

A full description of the development of the environmental safeguards documentation and hierarchy of documents for the PAIP and specifically the TvAIP, are detailed in Section 1.3.1 of the FUN EMP. Figure 1 presents an updated schematic showing the environmental safeguard document hierarchy which includes this Terminal EMP Addendum.
1.4 Terminal EMP Addendum Methodology

The methodology of this Terminal EMP Addendum is developed from the terminal component of the TvAIP. It comprised a review of the final detailed design drawings, contract specifications and final detailed design report for the terminal upgrade works. This process identified specific impacts associated with the agreed terminal upgrade works and the required mitigation measures for the terminal upgrade impacts.

The construction and operational impacts and mitigation measures applicable to the overall TvAIP project works and to the entire FUN site are detailed in the approved FUN EMP. This Terminal EMP Addendum must be read in conjunction with the FUN EMP. The terminal works Contractor(s) are responsible for implementing this Terminal EMP Addendum and where relevant, the FUN EMP.

The terminal related documentation that has been reviewed in preparing this Terminal EMP Addendum is as follows:

- Pacific Aviation Investment Program (PAIP), Airport Terminal Concept Design Report – Tuvalu (D2), 8 March 2013.
- Pacific Aviation Investment Program (PAIP), Funafuti International Airport Terminal Architectural Drawings (For Tender), November 2014. (Beginning with Drawing 60277008-AR-5300).
- Pacific Aviation Investment Program (PAIP), Funafuti International Airport Terminal Architectural Drawings (For Tender), November 2014. (Beginning with Drawing 60277008-AR-5339).
- Pacific Aviation Investment Program (PAIP), Funafuti International Airport Terminal Building Upgrade / Extension – Electrical Services Drawings (For Tender), October 2014.
1.4.1 FUN EMP References

As previously stated, this Terminal EMP Addendum specifically addresses the terminal upgrade scope of work, potential impacts and mitigation measures. Background information and overall project related information is documented in the FUN EMP. The terminal Contractor is responsible for ensuring the FUN EMP is reviewed and implemented along with the specific requirements of this Terminal EMP Addendum. Specific references in the FUN EMP that will also apply to the terminal upgrade works and this Terminal EMP Addendum are as follows:

- **Section 2.0 FUN Upgrade Description of Works**
  This section of the FUN EMP provides the scope of work and proposed construction methodology for each component of the Tuvalu Airports Improvement Project (TuAIP) (runway pavements, road rehabilitation, terminal (updated in Section 2.0 of this Terminal EMP Addendum), and runway lighting and navigational aids). It also documents alternatives, aggregate sources, construction laydown areas and the duration and timing of works which are relevant to all TuAIP components.

- **Section 3.0 Policy, Legal and Administration Framework**
  This section of the FUN EMP is applicable to all TuAIP components including the terminal upgrades and documents the Tuvalu regulatory framework and WB policy to which this project must comply.

- **Section 4.0 Environmental and Social Environment**
  This section of the FUN EMP provides the baseline of the current physical (e.g. climate, geology, water resources, surrounding land uses), biological (e.g. marine, terrestrial and rare or endangered species) and socio-economic (e.g. demographics, livelihoods, land tenure) environment in which FUN exists and operates. It also documents the projected climate changes and potential impacts that could influence design (e.g. increased rainfall and sea level rise).

- **Section 5.0 Consultation and Stakeholder Engagement**
  This section of the FUN EMP documents the approach to consultation and application of the WB safeguards policies. Consultation and stakeholder engagement that had been undertaken to date (then September 2011 and October 2012) was documented in this section. An EMP is a dynamic document which should be updated according to outcomes of consultation and / or changes in scope or design.

- **Section 8.0 Roles and Responsibilities**
  This section of the FUN EMP identifies the hierarchy of responsibilities and roles of the primary stakeholders (e.g. MCT, Department of Environment [DOE]) and the institutional capacity requirements for implementing and monitoring the EMP. The complaints and incident reporting procedure is documented in this section.

- **Section 9.0 Compliance and Monitoring Plan**
  This Terminal EMP Addendum provides specific monitoring requirements however the overall approach and requirements for reporting are documented in the FUN EMP.

- **Section 10.0 Contingency Plan**
  This section of the FUN EMP requires all contractors to develop a Contingency Plan for dealing with adverse weather conditions to reduce environmental risks.

- **Appendix A Plans and Detailed Designs**
  Appendix A in this document includes the specific terminal designs only. The FUN EMP includes detailed designs for the pavement, navigation and lighting upgrades.
Appendix C Monitoring Plan

Appendix C identifies the environmental monitoring requirements to ensure that all the mitigation measures identified in FUN EMP are implemented effectively.

2.0 Terminal Upgrade Description of Works

THIS SECTION IS UPDATED BASED ON THE APPROVED FINAL DETAILED DESIGNS AND REPLACES SECTION 2.1.3 OF THE FUN EMP

2.1 Background

The existing terminal building, completed in 1994, is undersized for the existing one way peak hour of 40 passengers (ATR 42-500). The terminal building is in poor condition and is at the end of its serviceable life. A detailed review of the existing Terminal passenger processing functions and the condition of the existing terminal is provided in the Inception Report.

The runway, taxiway and aprons are at a low elevation relative to sea level. The outer areas of the runway strip reportedly flood during the annual high-tide season from January to April. The terminal and apron are located adjacent to the main street in the centre of Vaiaku, directly opposite the Government building. The availability of airport land area for terminal and apron redevelopment is constrained. The existing terminal building stands in the way of apron expansion required to cater for future planned ATR 72-500/600 operations.

An outcome of the site inspection findings, condition assessments of existing buildings, identification of breeches of ICAO Standards and Recommended Practices (SARPS) and direct requests by the FUN CAD and MCT identified two additional buildings that require upgrading or relocation. At present these two additional buildings are not included in the scope of this EMP or this stage of the PAIP.

- A new relocated standalone Air Traffic Control Tower (ATCT).
- A new Airport Rescue and Fire Fighting (ARFF) building to incorporate the new relocated ATCT.

Budget constraints have meant that a staged process has been proposed in developing the terminal and meeting all the design objectives. Through a series of design workshops and an iterative design process (as detailed in the Tuvalu Final Design Report – Airport Terminal & Security (D-5), 8 August 2015) a number of options were developed with ‘Option 6’ being recommended as the final Stage 1 terminal design option. The Option 6 Final Stage 1 Terminal Design is based on the providing for the International Air Transportation Association (IATA) LOS C space standards for a Peak Hour of forty (40) arriving and forty (40) departing passengers to cater for ATR 42-500 or similar fifty (50) seat aircraft at an average 80% Load Factor. Manual bag search for the Hold Bag Screening (HBS) and Passenger and Bag Security Screening functions are provided and access to the Check-in Hall is limited to ticketed passengers in order to reduce the check-in hall area requirement and cater for HBS manual bag search.

2.2 Terminal Design

Proposed terminal site layout plans are shown in Appendix A. The existing terminal building along with the offices on the landside of the terminal will be demolished and a new terminal building constructed. The Falekaupule will be retained.

The recommended Option 6 incorporates environmentally sustainable design elements as outlined below which may be included in the Option 6 construction or later development:

Rainwater collection – collected from the roof catchment area and stored in an underground water storage tank with an estimated total of 600,000 litres (L) storage capacity has been included. The water tank will be located beneath the terminal building footprint.

Retain existing trees to provide shade – siting of the proposed terminal has been done so that most of the existing trees on the airport site can be retained.

Natural ventilation – designed to maximise natural ventilation by providing permeable external and internal walls including the use of operable glass louvers and perforated security screens; a long narrow terminal plan, orientated to take advantage of the prevailing easterly winds; roof ventilation at the highest point of the roof to encourage the stack effect, where hot air rises and increases air movement within the building; and ceiling fans.
Terminal Construction

The proposed construction method, for the FUN terminal project, is to prefabricate the buildings using a ‘flat-pack’ methodology. The prefabricated terminal will be shipped by sea freight to site in 20 foot sea containers and assembled on site by the Contractor. As such, all elements of the building shall be sized to fit inside 20 foot containers.

Sanitary System

The new terminal building will have a new sewerage system comprising two fibreglass underground storage tanks with capacities of 3,000 L and 13,000 L.

2.2.1 Final Design Report

During the options development phase, Option 6 was recommended as the Final Stage 1 Design. After the delivery of the D-5 report, AECOM worked with the Client to further refine and finalise the design by incorporating the following amendments:

- Area of below ground water tank has been increased – to extend from girds GL2 to GL9
- Depth of below ground water tank and maintenance access points finalised
- ‘Live export and produce counter’ added at the north wall of the check-in hall
- Plant room area increased to include hydraulic plant and water tank access point – area of Post Room reduced
- Layout of landside toilet block at GL1 and GLC updated
- Pre-cast reinforced concrete column size finalised – 400 x 600 mm

In order to achieve cost savings by reducing terminal area (m²), the design is based on the following:

- Only ticketed passengers, crew and airport staff are permitted in the Check-in Hall.
- The reduced area Stage 1 Terminal Design provides outdoor covered areas for the public but no public access to the Terminal interior.

2.3 Construction

The finalised construction methodology will include and not be limited to the above mentioned scope; to be agreed by the Contractor. Selected detailed design plans and concept views are included in Appendix A for information.

2.3.1 Site Works and Site Preparation

Prior to delivery and construction of the prefabricated parts of the terminal, site work will be undertaken including: staged demolition of existing buildings; foundations; waterproof tanking; water cistern; raft slab; retaining walls; suspended floor slab; shear walls; block walls; plumbing and drainage services; and electrical and communications services.

The excavation required for the water tank (cistern) will be approximately 686 m³ based on a maximum depth of 1.5 m. The volume required for backfilling will be approximately 83 m³. No dewatering is anticipated so it has not been allowed for. Excavations will remain above the water table. If necessary, the dimensions of the tank will be reduced to ensure dewatering (whether for construction or operation) is not required.

2.3.2 Duration and Timing of Construction Activities

The proposed duration of the terminal upgrade is approximately 9 months. Normal working hours are Monday to Friday, 7 am to 6 pm. It is likely the terminal upgrade works will need to be carried out after hours in addition to the normal working hours in order to work around flight schedules to ensure safe processing of incoming and outgoing passengers. Works outside of these hours will require permission from MCT and notice to affected parties and the public at least 24 hours prior to work commencing. Working on a Sunday is not recommended and would likely only be approved if urgently required for safety purposes.

The footprint of the existing terminal is outside of the new terminal construction area and so the existing terminal will be able to continue to be used during the construction period. Safe access and egress of people past the
construction site to the existing terminal building will be provided by the Contractor and detailed in their site safety management plan.

All flight and construction scheduling must be coordinated with air operators as documented in the Method of Works Plan (MOWP).
3.0 Environmental and Social Impacts

3.1 Overview of Impacts

The TvAIP scope includes upgrading the existing terminal. New land acquisition is not required and the project is unlikely to cause any major negative environmental or social impacts as the work is improving existing infrastructure. The social outcomes of the TvAIP are expected to be positive by improving safety, accessibility and mobility of island communities. As no land acquisition is required, no physical resettlement will be necessary.

The majority of negative impacts related to the airport terminal upgrade are expected to be confined to the construction phase. Public notices and consultation with affected people will continue throughout the project. Where appropriate warning notices and project bulletins will be posted informing the community when particular stages are to be completed and opportunities for involvement, whether through employment, collection and reuse of demolition materials and how to make complaints. With timely and proper implementation of this EMP and application of appropriate mitigation measures, most if not all the potential negative impacts can be prevented or minimized.

This EMP is a dynamic document and any changes in design or construction methodology may result in a reduction of impacts or additional impacts that will require mitigation. Figure 2 shows the location of the existing terminal in relation to surrounding land uses and proximity to the coast.

![Figure 2: Existing terminal location and surrounding land uses and features (Source: Google Earth Pro)](image)

3.2 Environmental Impacts

3.2.1 Solid Waste

Demolition of old the terminal will lead to the generation of debris and solid waste. Funafuti has recognised waste management as a significant problem which the community and Government are struggling to overcome. Implementing reuse and recycling opportunities are paramount as are the removal off island of any unusable waste (including hazardous waste) at the end of the project. The island does not have the capacity to dispose of non-reusable waste generated from the demolition and construction activities.

The export of waste to another territory transfers the potential solid waste impacts (e.g. air, land and water pollution) therefore careful due diligence of the receiving waste facility is required to ensure the facility is a licensed operation (under the receiving country’s legislation) and that it is managed according to best operational
management practices. The trans-boundary movement of waste can also cause pollution at sea if the waste is not stored and transported in a secure manner which avoids discharges from the collected waste.

Some inert solid material from the demolition and excavation works (e.g. crushed concrete, sand, soil) can either be used to backfill areas where old equipment or infrastructure has been removed or as a resource for general use by the PWD and the community.

The re-use of solid material on the island is the preferred management option.

3.2.2 Water Resources

Freshwater will be required for workers and some construction activities (e.g. dust suppression, and also concrete and asphalt production). The impact on current water supply could be significant if not properly mitigated through good resource planning. Rainwater will have to be collected and water efficiency and conservation practices will be adopted during the construction phase.

The demand of the terminal infrastructure on the islet’s water supply has been addressed through the design of an underground water storage tank.

No impacts to groundwater are anticipated. Groundwater will not be used to provide drinking water and no abstraction is anticipated for dewatering requirements as construction, including excavation activities are occurring above the water table.

3.2.3 Biological Resources

The airport is located within an area of Fongafale which is densely populated and developed. Anthropogenic changes have already occurred. The land surrounding the terminal consists of roads, commercial and government office buildings and residential homes. The habitats surrounding the whole airport location are primarily open grass, salt marsh ponds (north eastern side of runway) and pig farming in the area.

It is not anticipated that there will be any loss of habitat due to the terminal upgrade except for a small area of open grass which will be lost to accommodate the new terminal and the loss of five trees. These trees will be transplanted or replaced to a more suitable location within the terminal site. There will be short term disturbance to fauna due to construction and associated activities.

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 trenching) could impact on potential habitats. Mitigation measures will include liaison with the DOE should any fauna (reptile, avian, or mammal) are encountered that affect construction activities (e.g. nesting bird).

3.2.4 Hazardous Materials

Any potential soil and water contamination from construction run-off with fuel and lubricants are expected to be temporary and minor. Work practices and mitigation measures for spills will be implemented, including spill response plan and bunded areas for storage (during construction and operation phase).

There is also potential that hazardous materials may be in the building materials used in existing structures that are to be demolished (e.g. asbestos containing material in the terminal).

3.2.5 Noise and Vibration

Noise and vibration disturbances are particularly likely during construction as a result of the transportation of construction materials from the port and operation of construction equipment. These impacts will be short-term and affect different people at different times.

Impacts include noise and vibration caused by operation of heavy machinery and increased traffic in some sections of roads. Due to the land constraints on Funafuti residential houses and businesses are located adjacent to the airport and road network. In some areas of the road network there is little distance from the road edge and a house or building. Therefore noise and vibration is likely to be an ongoing issue throughout the construction stage.

The increased shipping requirements for materials and equipment will increase the noise and vibrations caused by cargo unloading and loading and movement of materials and equipment to storage areas.

During the operational phase of the project local residents have expressed concern regarding noise and fumes from aircraft, particularly if the frequency and number of flights were to increase. The scope of work for the TVAIP is general maintenance and improvement with a view to ensuring the continued operation of the airport, not
increasing capacity and frequency of flights or vehicle traffic. So there will be no increase in noise or vibration levels during operation and only potentially small decreases due to improved pavement surfaces.

3.2.6 Erosion and Sediment Control

Some soil erosion may occur as a result of the terminal upgrade works. The impacts on vegetative cover will be short-term and reversible through natural regeneration and new landscaped areas. The unsealed areas comprise a thin surficial topsoil layer and surface runoff can filter through to shallow groundwater easily. Where topsoil is required to be removed, it will be set aside for re-use during the restoration of disturbed areas.

Sediment has the potential to be generated during any excavation work.

3.2.7 Air Emissions

Air pollution can arise due to improper maintenance of equipment, dust generation and the bitumen smoke / fumes arising from application of pavement seal in the car park adjacent to the new terminal. 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. No ongoing impact to air quality is expected. As stated in Section 3.2.3 Fongafale is densely populated, while air quality impacts are likely to be short-term they will affect more people due to the central location of the terminal. Dust and fumes are likely to be the primary sources of air pollution.

Air quality also has the potential to be impacted as a result of the increased shipping of materials and equipment to the port for the project. Ships exhaust can emit harmful and odorous gasses which can be both a nuisance and be detrimental to human health if prolonged and concentrated exposure is experienced.

3.2.8 Traffic and Airport Operations

Impacts will occur during the transport of equipment and materials from the port. 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 of pedestrian traffic at peak times (e.g. before and after school). 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 (FOD protection, airfield security, and responsibility hierarchy and communication methods.

3.2.9 Wastewater Discharges

Uncontrolled wastewater (e.g. sewage and grey water from sanitary facilities, and wash water from plant or machinery) discharges have the potential to contaminate soil, water and spread disease.

During construction, temporary sanitary facilities for workers will be provided to prevent lagoons or other areas being used. During operation, wastewater from the terminal will drain by gravity flow to one of two holding tanks. These tanks of 3,000L and 13,000L capacity are located below ground at 2 different locations (refer site plan drawing 60277008-AR-5302). The three toilet/bathroom areas will only be used during flight times. The wastewater from these tanks will need to be cleaned out periodically (dependent on level of use). As the capacity of the terminal is not being increased, the volume of wastewater from the new sanitary facilities in the terminal is expected to be similar to the current situation. Specification of sanitary facilities and the discharge of the wastewater will be at the advice of the Solid Waste Authority of Tuvalu (SWAT) and PWD.

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.

Concrete is required for construction of the terminal. 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. Sediment loads in wash water if allowed to discharge to either marine or freshwater systems can also adversely impact aquatic life and water quality. 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.

The increase in ships to the harbour could also cause an increase in marine water pollution as a result of discharges of bilge and ballast water, vessel sewage, and oily wastewater. These discharges can adversely affect benthic communities, fish, and general water quality. Ballast water also has the potential to introduce new potentially invasive species which can displace and compete with local marine species.
3.2.10 Quarry and Aggregate Supply
All aggregate material will need to be imported as there are very limited natural resources available on Tuvalu.

3.2.11 Biosecurity
As mentioned in Section 3.2.10, all aggregate material and equipment will need to be imported as there are very limited natural resources available on Tuvalu. Imported aggregate and equipment can harbour plant and animal species which may pose a threat to Tuvalu’s biodiversity and ecosystems. The aggregate can also be a source of contamination from pesticides and other harmful substances which can pose short and long term environmental and public health risks.

As stated in Section 3.2.9 ballast water also has the potential to introduce new potentially invasive species which can displace and compete with local marine species for food and habitat.

3.2.12 Coastal and Marine Environment
A number of activities have the potential to adversely affect the marine and coastal environment, including uncontrolled discharges (e.g. stormwater, wastewater, spills), and increased shipping. Impacts range from disturbance to reduced or contaminated water quality and loss of aquatic life due to pollution.

3.2.13 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 (MCT). 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 terminal and office block are existing infrastructure which has existing impacts (e.g. water and energy consumption, wastewater generation). In most cases the TvAIP will not be able to remedy these impacts however the designs can lessen and in some cases mitigate some of the impacts. For example the new terminal design has increased water storage so that this water may be used off-site (i.e. for non-airport uses).

3.3 Social Impacts

3.3.1 Health and Safety
During construction and operation phases, health and safety is to be managed through a site specific Safety Management Plan (to be developed by the Contractors for the terminal upgrade); this document should include international environmental, health and safety (EHS) standards (WB/International Finance Corporation (IFC) EHS Guidelines).

The primary hazards that have been identified are:
- Working with electricity
- Heights
- Working in extreme ambient temperatures

Trenches for drainage and / or cabling may be required however these are not expected to exceed 1.2 m in depth; however slope battering or shoring may be required to stabilise the sides of the trenches. Exposed trenches pose a risk to the community and airport operations therefore trenches will be progressively filled as the drainage or cabling is laid. At any one time, the maximum length of exposed trench shall be no more than 30 m. Exposed trenches shall be secured at night to prevent access by non-authorised personnel.

The excavation required for the terminal foundations and underground water storage tank will not exceed 1.5 metres depth.
3.3.2 Social impacts

The building adjacent to the existing terminal area is used by the Tuvalu National Council of Women (TNCW) although they have no formal lease (personal communication, V. Isoefa dated 18 January 2016). Within this building, the TNCW make crafts to sell and operate a café. The new terminal building has facilities for one café/concession and it is intended to offer the TNCW this space, it will be less than they currently are using.

The space in front of the existing terminal building is used by the community outside of flight times. The useable public space after the construction of the new terminal will differ. The area between the old terminal and road will no longer be available, however:

- There will be some open space behind the new terminal where the existing terminal is located. While new security fencing will reduce the accessibility to this area, the public will still have access to it outside of flight times.
- There will be external paved areas around the south and west and north sides of the building. The roof of the Terminal covers part of the western and northern side, providing some shade for the public, irrespective of whether the terminal is in use.
- The Falekaupule located to the south of the existing terminal building (refer Figure 2) will remain a public, community asset.
- A new recreational area is proposed through the Waterfront Recreational Area Project (WRAP), however the detail, scale and approval to proceed has not been confirmed.

The new terminal will have a number of improved accessibility features such as ramps, accessible toilet and shower design, maximum level change door thresholds and pavement slopes.

There is likely to be increased employment opportunities during construction. While some skilled imported labour will be required, the majority of manual labour will be sourced locally. In addition the foreign contract and project staff will utilise existing local accommodation providing an economic benefit to the community during the construction period. However the importation of foreign labour could have negative health impacts through introduction and spread of diseases or disruption to local life from being accommodated within existing facilities.
4.0 Mitigation Measures

There are a number of mitigation measures that will be applied to the proposed terminal upgrade activities which are applicable to all aspects of the project and those applicable just to the terminal upgrade components. Sensitive receptors and environmental values have been identified in the vicinity of the airport site; these will require specific mitigation measures for safety and environmental protection. The mitigation measures are summarised in appended mitigation tables which 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 (refer Appendix B).

This Terminal EMP Addendum should be included in all bidding documents and form the basis of the Contractor’s EMP which will detail the implementation of the mitigation measures. EMPS 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 EMP) or consultation. Mitigation measures associated with the impacts identified in Section 3 are detailed below.

4.1 Aggregate and Quarrying

All imported materials and equipment must be fumigated and official certificates issued prior to arrival on Fongafale to ensure no plant or animal pests are accidentally introduced. The aggregate and any other fill type material will need to be completely inert and free of contaminants. Verification of source and or results from laboratory testing must be provided for importation. Importation permits and quarantine certification shall be obtained from the PWD and Quarantine Department before applying for export permits from the source country of materials. Natural resources of important biodiversity value such as coral reefs shall not be used as construction materials (either locally or imported).

The increased shipping needs for the import of materials and equipment can have an adverse impact on the port facilities and local lagoon habitats. The scale of shipping needs is to be determined by the Contractor and is dependent on the project schedule and construction methodology. All shipping schedules are to be coordinated with the Harbour Master and MCT.

4.2 Hazardous Substance Use, Storage and Disposal

4.2.1 Hazardous Substance Storage Areas

Hazardous liquids (e.g. fuel and lubricants) must be managed within hardstand and bunded areas to prevent runoff to surrounding permeable ground. Water tight bunded areas (secondary containment) must be able to contain 110% of volumes being stored or 25% if total volume 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 spill 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.

4.2.2 Asbestos

Asbestos (hazardous substance) is suspected to be in some building materials used in the terminal. Other areas, such as wrapped pipes, may also have asbestos containing material (ACM). The IFC EHS Guidelines for Occupational Health and Safety (Section 2.4 Chemical Hazards) should be followed for demolition, handling and transport of any ACM. An asbestos management plan which clearly identifies the locations where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibres), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of employees who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities, including the DOE and Ministry of Health (MOH).

The ACM will need to be removed from island so any international transport and disposal requirements will also need to be complied with (e.g. Waigani Convention and Basel Convention) and clearly documented in the asbestos management plan. Any personnel in contact with the ACM must be wearing suitable personal protective equipment (PPE) including respiratory protection, suitable for the removal of asbestos to be worn while handling and transporting the material. All workers should be provided with onsite washing facilities, and should wash
hands, face, and boots/shoes before eating, drinking or smoking, and before returning home. Work clothing should be removed as soon as possible after arriving home and should be washed separately from other family laundry. It advisable that an officer from the DOE and / or MOH be onsite during asbestos removal and packing, to assist in monitoring and ensuring compliance with EHS requirements. The exact nature of EHS requirements (also dependent on the type, scale, and deterioration of asbestos containing material identified) should be documented in the asbestos management plan. The plan should describe the work in detail and may include but not be limited to the following:

- Containment of interior areas where removal will occur in a negative pressure enclosure.
- Protection of walls, floors, and other surfaces with plastic sheeting.
- Construction of decontamination facilities for workers and equipment.
- Removing the ACM using wet methods and promptly placing the material in impermeable containers.
- Final clean-up with special vacuums and dismantling of the enclosure and decontamination facilities.
- Inspection and air monitoring as the work progresses, as well as final air sampling for clearance by an entity independent of the contractor removing the ACM.

4.2.3 Unexpected Discovery of Soil Contamination

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

- Staining / discoloration 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 CAD and Department of Environment.

4.3 Safety and Traffic Management

The road forms the backbone of the town and there are only a few unpaved links in the network. Traffic loading is generally light with only a limited number of heavy vehicles. Both pedestrians and vehicles use the road. Road safety during transport of materials and equipment from the port will be managed through the preparation and implementation of a Traffic Management Plan (TMP) to be written by the contractor and approved by the MCT. The TMP shall include details of site entry and exit layout, use of signage and flag operators (including night-time safety), and PPE to be worn by workers (e.g. high visibility vests).

Mitigation measures may include use of cones or barriers to guide traffic and pedestrians through the worksite and restricted travel 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. This should also address how safe access to the existing terminal will be provided during the construction of the new terminal.

4.4 Stormwater and Water Management

Potable water on the island is limited. Water required for construction activities such as dust suppression and concrete production will need to be managed carefully as there is to be no impact on the island’s freshwater supply as a result of the TvAIP construction or operational stages.

Water for use during construction should be carefully planned for at the pre-construction mobilisation stage by the contractor. Rain water should be collected in advance and if required, a project specific mobile desalination plant
imported (or other mobile water treatment unit). Possible non-potable water sources (e.g. seawater) and uses should be identified (e.g. dust suppression, machinery washing), provided there will be no risk of contamination of groundwater. Water saving measures includes sweeping of work areas and vehicles tyres instead of washing to prevent dust.

During operation water required will be collected from the roof and stored in an underground water storage cistern with an estimated total storage capacity of 600,000 L.

Runoff from disturbed areas is not to be discharged directly to the marine or coastal environment. Sediment laden runoff is to be treated (via settling pond or tank) and discharged to land or reused.

### 4.5 Bitumen, Asphalt and Concrete Plant

Asphalt production requires very high temperatures which pose a significant risk to workers and the general public. Therefore if an asphalt plant is required for apron and or car park pavements it should be located within a secure compound, at either the construction camp or port, to ensure security and reduce risk of unauthorised access. The plant also requires use of hazardous materials which must be stored on hard stand areas or within bunded areas (both should be available at the construction camp).

The project requires concrete production for the terminal. While the walls and other primary structural features of the terminal are to be prefabricated off-island and transported to Funafuti it is likely that small amounts of concrete will be required and mixed in-situ. If concrete is to be constructed on the island care needs to be taken with slurry and runoff from the concrete. Concrete production should only take place when there is no rain forecast and not within the coastal margin (e.g. restricted to the construction camp). 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 fine cement debris must be collected and disposed of as a hazardous substance and removed from the island. Wastewater from 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 away from surface water and permeable ground.

### 4.6 Construction Camp

A construction camp 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. The construction camp compound must be fenced and secured to prevent access by unauthorised personnel. Security of the camp should be undertaken by a local security firm. Areas within the compound must be clearly marked for solid waste collection, machinery maintenance, hazardous substance storage, plant operations (concrete, 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. Including 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). The construction camp is not a residential camp. Foreign contract and project staff will utilise existing local accommodation. The ground of the construction camp will likely be compacted by the end of its use and so restoration will require scarification of the soil, application of topsoil and planting as required.

### 4.7 Erosion and Sediment Control

The land on Tuvalu 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 (earth bund or sand bags) 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. The largest stockpiles will be within the construction camp for the excavated spoil. Any stockpiles will need to be on an impermeable geotextile or hardstand and runoff directed to permeable land. Stockpiles must be covered to prevent dust and sediment laden runoff during rain events.

Runoff from stockpiles and excavations is prohibited from discharging directly to the marine or coastal environment.
4.8 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 on the island, the contractor is responsible for 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 mobile proprietary treatment systems (to be imported for the project) and composting systems. The contractor is responsible for ensuring the treatment and disposal of wastewater is in accordance with SWAT advice and approved by MCT and PWD.

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 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 (refer Section 4.5). All wash down areas and wastewater treatment areas, where practical should be located within the construction camp or PWD compound.

Treated wash water where possible should be reused for dust suppression or within other processes. Direct discharge to the marine or coastal environment is prohibited. Discharges of treated wash water are to occur to land only.

Wastewater from vessels at the port is to comply with the Harbours Act and Harbours Regulations which prohibit discharges of sewage and wastewaters (e.g. ballast, oil). The Harbour Master is responsible for policing this and issuing fines in accordance with the legislation. The vessels shall be equipped with spill response kits for on-board spills of potentially environmentally damaging substances (e.g. fuel, oil).

During operation, wastewater from sanitary facilities will be generated and stored in tanks. As there is no capacity for dispersion fields, final disposal of sewage will be off-site to existing disposal facilities (currently disposed to sea from the PWD compound). Toilet facilities will only be used during flight times so it is not anticipated to be a significant increase in volumes generated when compared with the existing situation. No additional mitigation measures are proposed.

4.9 Solid Waste Management

Waste generated by the project that cannot be recycled or reused (to be determined in consultation with the PWD, SWAT and Funafuti Kaupule) is to be removed from Tuvalu at the completion of the contractors work. The contractor is responsible for ensuring the waste is packed in shipping containers or other suitable impermeable containment to ensure waste (solid and liquid) is not inadvertently discharged at sea. Details of the receiving waste facility (including transport documentation and agreements to receive the waste) must be provided to MCT to ensure the facility is licensed or permitted.

4.10 Marine and Coastal Specific Mitigation Measures

The runway is located at the widest section of the island and at its closest point is approximately 50 m from the ocean (south eastern end of runway). The terminal is approximately 120m from the lagoon to the west of the terminal site.

Surrounding the port are industrial and commercial properties, so while noise and vibration at the port is likely to increase during the project due to the increased shipping, it is unlikely to cause problems with adjoining properties. However loading and unloading activities should be restricted to day time hours (7 am to 6 pm) and the transport of materials and equipment scheduled through the TMP in consultation with the schools and hospital.

4.11 Social Impact Mitigation

There will be a loss of public space in front of the existing terminal however this will be mitigated by providing more shaded public space, and some grassed areas behind the new terminal. The Falekaupule, located to the
south of the existing terminal is to remain as a community accessible space. The area in front of the new terminal, while not accessible during flight times, will be available as a public space. A new waterfront recreational area is proposed on the lagoon side of the Government building, opposite the terminal. The WRAP aims to create a public open recreational space available to the people of Funafuti to gather for community events and celebrations, family get-togethers, and public meetings. It is proposed that an area of approximately 2,400 m² is to be reclaimed as part of this project. At the time of this version of the Terminal EMP, full approval to proceed with the WRAP had not been received.

All contractors and workers are to be given awareness training regarding prevention of communicable and sexually transmitted diseases (particularly HIV/AIDS). Contractors are to coordinate with Ministry of Health regarding training. Foreign labours and project staff are to undergo a health check and provide a signed declaration.
5.0 Roles and Responsibilities

Section 8.0 of the FUN EMP details the roles and responsibilities associated with the project, including the terminal upgrade works. This section also describes the institutional capacity and the complaints and incident reporting procedures for the project under MCT.
6.0 Compliance and Monitoring Plan

Section 9.0 of the FUN EMP provides compliance and monitoring plan requirements associated with the project, including the terminal upgrade works. Section 9.0 and Appendix C of the FUN EMP detail the monitoring plan for the project, including the environment monitoring methodology and monthly monitoring plan reporting.
7.0  Contingency Plan

Section 10.0 of the FUN EMP provides information regarding contingency planning for the project, including the terminal upgrade works.
Appendix A

Plans and Detailed Designs
HYDRAULIC SERVICES DRAWINGS FOR

FUNAFUTI INTERNATIONAL AIRPORT
TERMINAL BUILDING UPGRADE / EXTENSION

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AECOM
REICULATION PIPING SCHEMATIC
FOR WATER RE-USE

TYPICAL VENT TERMINATION
DETAIL

DETAIL OF PIPING WITHIN SUITING BELOW SLAB
(TYPICAL)
A BUBBLE UP OVERFLOW DETAIL

FOR TENDER

PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)

FANUFUT: INTERNATIONAL AIRPORT (FNU)
HYDRAULIC SERVICES
RAINWATER REUSE U/S DRAINAGE PIPING LAYOUT

FOR TENDER

AECOM New Zealand Limited
TRAVEL DISTANCES:

DEAD END PATH TRAVEL - ALLOWABLE 40m
D - E = 8m

OPEN PATH TRAVEL - ALLOWABLE 100m
A - B = 20m
F - E = 23m
G - H = 25m
J - I = 29m
ELECTRICAL SERVICES DRAWINGS FOR

FUNAFUTI INTERNATIONAL AIRPORT
TERMINAL BUILDING UPGRADE / EXTENSION

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AECOM
MECHANICAL SERVICES DRAWINGS FOR

FUNAFUTI INTERNATIONAL AIRPORT
TERMINAL BUILDING UPGRADE / EXTENSION

BONRIKI INTERNATIONAL AIRPORT – DRAWING LIST

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<td>VENTILATION LAYOUT</td>
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AECOM
NOTES:

1. THE WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
   - REMOVAL OF ALL REDUNDANT SERVICES INCLUDING THE TOILET FANS AND DUCTING WHERE THE NEW DESIGN DUCTS AND FANS WILL BE INSTALLED TO REPLACE THESE CURRENT SYSTEMS.
   - WORKSHOP DRAWINGS.
   - COORDINATION WITH BUILDING STRUCTURE AND OTHER TRADES.
   - CONSTRUCTION ENGINEERING TO CONFIRM FAN STATICS, MOTOR SIZES ETC.
   - EXTRACT PLANT COMPLETE WITH DUCTWORK, PIPEWORK AND FILTERS.
   - TESTING AND COMMISSIONING OF ALL MECHANICAL PLANT WITH TESTING REPORTS.
   - INSTALLATION CERTIFICATION.
   - MAINTENANCE AND WARRANTY THROUGHOUT THE DEFECTS LIABILITY PERIOD.
   - PROVISION OF SEISMIC RESTRAINTS AND CONNECTIONS.
   - WORKSHOP DRAWINGS.

2. THE MECHANICAL SERVICES CONTRACTOR SHALL SEEK DIRECTIVE PRIOR TO TERMINATING ANY UNKNOWN SERVICE.

3. THE CONTRACTOR SHALL ENSURE THAT ALL REDUNDANT SERVICES ARE STRIPPED OUT AND MADE GOOD.

4. PROVIDE ACCESS PANELS TO ACCESS DAMPERS AND TO MAINTAIN EQUIPMENT AS REQUIRED.

5. PROTECT ALL SURFACES AGAINST CORROSION IMMEDIATELY AFTER FABRICATION AND/OR ERECTION. TREAT SURFACES TO ENSURE ALL DUCTS, FANS AND EXPOSED SURFACES ARE PROTECTED FROM CORROSION IN A MARINE ENVIRONMENT.

6. FOR FINAL LOCATION OF DIFFUSERS, GRILLES AND CEILINGS ACCESS PANELS REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS. THE CONTRACTOR SHALL CONFIRM THE FINAL LOCATIONS ON SITE PRIOR TO INSTALLATION. ANY ADHOC INSTALLATION OR FabRICATION SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

7. ALL PLANT AND EQUIPMENT SHALL BE VIBRATION ISOLATED TO ACHIEVE AN ISOLATION EFFICIENCY OF NOT LESS THAN 90%.

8. DUCT SIZES ARE CLEAR AIRWAY DIMENSIONS IN mm.

9. DUCT SIZES - 1st FIGURE : SIDE SHOWN
   - 2nd FIGURE : SIDE NOT SHOWN

10. CONFIRM DUCTWORK SIZES ON SITE FOR CO-ORDINATED FIT PRIOR TO ORDERING EQUIPMENT OR MANUFACTURE.

11. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA.

12. ALL FLOOR, WALL AND ROOF PENETRATIONS C/W UPSTANDS AND UNDERFLASHING AS REQUIRED SHALL BE BY BUILDING TRADE IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATION. THE MECHANICAL CONTRACTOR SHALL PROVIDE OVERFLASHINGS TO SUCH PENETRATIONS WHERE REQUIRED.

13. ALL WIRING IN ACCORDANCE WITH AS/NZS 3000.

14. ALL SYSTEMS SHALL BE BALANCED & COMMISSIONED BY CERTIFIED PERSONNEL. THE CONTRACTOR SHALL SUBMIT BALANCING FIGURES FOR REVIEW.

15. ALL EQUIPMENT SHALL BE PROVIDED WITH LOCAL ELECTRICAL ISOLATORS.

16. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA.

17. ALL FLOOR, WALL AND ROOF PENETRATIONS C/W UPSTANDS AND UNDERFLASHING AS REQUIRED SHALL BE BY BUILDING TRADE IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATION. THE MECHANICAL CONTRACTOR SHALL PROVIDE OVERFLASHINGS TO SUCH PENETRATIONS WHERE REQUIRED.

2.0 Grilles

NAME: [Grille Name]
UNIT: [Unit]
DESCRIPTION: [Description]
TYPE: [Type]
SIZE: [Size]
NOTES: [Notes]

NOTES:

1. System resistances and static pressures quoted are estimates only and are to be recalculated and confirmed based on workshop drawings.

2. The final system static pressure shall include all the resistance against which the fan must operate including fan cowls, grilles and dampers.

3. Motor sizes shall be selected to include minimum 30% spare capacity above the scheduled input power at design conditions.

4. Toilet Extract Fans (TEF) shall be duct mounted and shall be complete with roof cowls.

2.0 Flexible Duct Schedule

NAME: [Flexible Duct Name]
UNIT: [Unit]
DESCRIPTION: [Description]
TYPE: [Type]
SIZE: [Size]
NOTES: [Notes]

NOTES:


2. Colours of grilles and diffusers shall be advised by architect.

Equipment Schedules

1.0 Fans

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>TEF-01</th>
<th>TEF-02</th>
<th>TEF-03</th>
<th>TEF-04</th>
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<tr>
<td>Toilet Extract Fan</td>
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<td>Flowrate</td>
<td>L/s</td>
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<td>80</td>
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<tr>
<td>Power Consumption</td>
<td>W</td>
<td>50</td>
<td>50</td>
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</tbody>
</table>

Notes and Requirements:

1. System resistances and static pressures quoted are estimates only and are to be recalculated and confirmed based on workshop drawings.

2. The final system static pressure shall include all the resistance against which the fan must operate including fan cowls, grilles and dampers.

3. Motor sizes shall be selected to include minimum 30% spare capacity above the scheduled input power at design conditions.

4. Toilet Extract Fans (TEF) shall be duct mounted and shall be complete with roof cowls.
NOTES:
1. See framing section - NE 45° 45' for anti-cyclone
   trim detail.
LEGEND - FLOOR FINISHES

TIL1

FLR3

SE2

NOTE:
1. BATHROOM FIXTURES & FITTINGS NOT SHOWN FOR CLARITY.
2. REFER TO DRAWING AR-5302 SITE PLAN FOR EXTERNAL PAVING.
3. PROVIDE SE2 TOPPING SLAB (75mm NOM.) SUBSTRATE FOR ALL FLR3.
4. PROVIDE SE2 TOPPING/SCREED TO FALLS SUBSTRATE FOR ALL TIL1 TOILET FLOOR TILES.
5. SAWCUTS SHALL BE IN STRAIGHT LINES PARALLEL TO THE STRUCTURAL GRID/WALLS.
6. PROVIDE 20mm (MAXIMUM) STEP AT INSIDE TO OUTSIDE THRESHOLD - THROUGHOUT TERMINAL.
LIGHTING NOTES:
1. ALL LIGHT FITTINGS SHALL BE TO ELECTRICAL ENGINEERS SPECIFICATION. REFER TO ELECTRICAL ENGINEERS DRAWINGS AND SPECIFICATION.
2. ALL FIXING BRACKET AND FIXINGS TO BE IN CORROSION RESISTANT MATERIALS AND FINISHES TO MATCH ELECTRICAL ENGINEERS SPECIFICATIONS.
3. PROVIDE BLACK FIXING BRACKET AND FIXINGS.
4. LIGHT FITTINGS AND FIXINGS TO BE IN COMPLIANCE WITH BUILDING REGULATIONS.

LIGHT FITTING/FAN.
SERVICES LOCATIONS.
3. REFER TO FIRE ENGINEERS DRAWINGS FOR COMPLETE FIRE FIXING BRACKET AND FIXINGS.

INSTALL LIGHT FITTINGS IN ALL CL3 CEILINGS BOTTOM FLUSH - LIGHT FITTING/FAN.

TYPE CEILINGS.

LIGHT FITTINGカラー & INSTALLATION GUIDE:
1. PROVIDE WHITE LIGHT/LUMINAIRE FITTINGS IN ALL CL1 TYPE CEILINGS.
2. PROVIDE BLACK LIGHT/LUMINAIRE FITTINGS IN ALL CL3 AND CL7 TYPE CEILINGS.
3. INSTALL LIGHT FITTINGS/LUMINAIRE SHED IN ALL CL3 CEILINGS BOTTOM FLUSH - LIGHT FITTING/FAN.

COLOR: MATTE BLACK. FIXING: SUPPLY WITH PROPRIETARY WALL RESISTANT MATERIALS AND FINISHES TO ELECTRICAL ENGINEERS SPECIFICATION. REFER TO THE ELECTRICAL ENGINEERS SPECIFICATION.
FOR TENDER

NOTE:
1. PROVIDE PF4 PAINT FINISH TO ALL NEW EXTERNAL BLOCKWORK - ENTIRE TERMINAL.
NOTE:

1. ALL STL1 FRAME HOLES REQUIRED SHALL BE PRERED - PRIOR TO GALVANISING AND APPLICATION OF PF10 FINISH. SITE DRILLING AND CUTTING IS NOT PERMITTED. PROVIDE OVERSIZE HOLES, SIZE AND SETOUT TO CLAD SUPPLIER'S FIXING REQUIREMENTS.
NOTE:

1. PROVIDE NON-INTEGRATEDeland ALL WALLS CONSTRUCTED TO THE TERMINAL WALLS IN THE DRAWING.

2. PROVIDE IN-PART SUBMITTED TO THE DRAWING TO ALL WALLS, WINDOW, DOOR, PANEL, STAIR, ELEVATOR AND CONCRETE STRUCTURE AND ENDS.

3. PROVIDE IN-PART STAIRS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

4. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH A VERTICAL SURFACE IN CONFORMITY TO THE TERMINAL WALLS.

5. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

6. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

7. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

8. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

9. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

10. PROVIDE IN-PART CONCRETE WALLS TO THE DRAWING, WITH THE TERMINAL WALLS IN THE DRAWING.

FOR TENDER

FUAFAUTI INTERNATIONAL AIRPORT
TERMINAL
INTERNAL ELEVATIONS - SHEET 2

AECOM New Zealand Limited

tim mean architects

FOR TENDER 8007708-A0-5315 01
NOTE:
1. ALL STL1 FRAME HOLES REQUIRED SHALL BE PREDRILLED - PRIOR TO GALVANISING AND PF10 FINISH.
   PROVIDE OVERSIZED HOLES, SIZE AND SETOUT TO CLAD 1 SUPPLIER'S FIXING REQUIREMENTS.
2. PROVIDE STL1 SHOP DRAWINGS INCLUDING 1:5 CONNECTION DETAILS.

STL1 410 UB 53 BEAM OVER DOOR/WINDOW

STL1 150 x 90 x 10 EA - FULLY WELD TO STL1 BEAM BOTTOM FLANGE
FIX END OF UEA TO W1 WITH 12mm DIA, 120mm L GALV. MASONRY ANCHORS - SETOUT TO S.ENGS DETAIL

NOTE:
1. PROVIDE PF4 PAINT FINISH TO ALL NEW EXTERNAL BLOCKWORK - ENTIRE TERMINAL.
NOTE:
1. WIDTH AND HEIGHT DIMENSIONS DENOTE THE OVERALL STRUCTURAL OPENING SIZE. THESE OPENINGS SHOULD BE CHECKED AT ALL DIMENSIONS ON-SITE. 
   BEFORE COMMENCING SHOP DRAWINGS AND MANUFACTURING.
2. THE BUILDING'S EXTERNAL FACADES ARE TO BE CONCEALED BY EMBLEMS OF THE DESIGNER.
   DESIGNER FEES ARE TO BE BILLED AS PER THE CONTRACT.
3. ALL SHAPED METALWORK IS TO BE FABRICATED TO MATCH EXISTING METALWORK CLADINGS.
4. FOR DOOR HARDWARE REFER TO DOOR & HARDWARE SCHEDULE.
5. REFER TO DETAIL 1 DRAWING AR-5319 FOR FL2/CLAD1 BEAM PENETRATION FLASHING DETAIL.

FOR TENDER
FOR TENDER

NOTE:
1. WIDTH AND HEIGHT DIMENSIONS DENOTE THE OVERALL STRUCTURAL OPENING SIZE (ROUGH OPENING). THE BUILDER SHALL CHECK ALL DIMENSIONS ON SITE BEFORE COMMENCING SHOP DRAWINGS AND MANUFACTURING.
2. PROVIDE A 15mm GAP TO ALL FOUR SIDES OF WINDOWS AND DOORS (I.E. OVERALL SIZE OF WINDOWS AND DOORS TO ALLOW FOR 15mm GAP).
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH WINDOW AND DOOR PLAN AND SECTION DETAILS.
4. FOR DOOR HARDWARE REFER TO DOOR & HARDWARE SCHEDULE.

FOR TENDER

PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)
FUNAFUTI INTERNATIONAL AIRPORT TERMINAL
WINDOW & DOOR SCHEDULE - SHEET 2

tim mein architects
FC1 FIXTURE IN FRONT OF SINK
1.2mm THICK 316 S/S BENCH TOP WITH SATIN BRUSH FINISH ON 25mm MPL1 BENCH

9mm MPL1 DRAWER BASE

450mm FULL EXTENSION DRAWER RUNNER

316 S/S KICKPLATE WITH SATIN BRUSH FINISH

PEF ROD

TIL4 SPLASHBACK

BBR1

BBT1

WPM1 - TWO COATS

316 S/S BENCH TOP TURNS UP 100mm AT BACK WALL

CLIP-TOP HINGE CUP SET

OUTSIDE OF CUPBOARD DOOR

INSIDE OF CUPBOARD WALL

OUTSIDE OF CUPBOARD DOOR

CONTINUOUS SEL1 (BLACK)

ALUMINIUM 40 x 40 x 3 EQUAL ANGLE TO CONCEAL DOWNLIGHT

PAINT FINISH: TBC

10mm CUPBOARD DOOR OVERHANG FOR OPENING

10 x 50mm (NOM) CONTINUOUS H3.2 PACKER FINISH, COLOUR BLACK

HINGE CUP INSET

H3.2 90 x 45 TIMBER EDGE SUPPORT

LAM1 EDGING

LAM1 EDGING

LAM1 EDGING

LAM1 EDGING

LAM1 EDGING

450mm FULL EXTENSION DRAWER RUNNER

3mm MPL1 DRAWER BASE

3mm MPL1 DRAWER BASE

LAM1 10mm MPL1 DRAWER FRONT COLOUR TBC BY ARCHITECT

450mm FULL EXTENSION DRAWER RUNNER

PL

FOR TENDER
COMPACTED HARDFILL TO S.ENGS DESIGN

25mm MIN. SAND BLINDING
EXISTING GROUND CONDITION - SUBJECT TO S.ENG / GEOTECH ENGS INSPECTION

DPM1 - TWO (2) LAYERS

CONCRETE FINISH:
DIAMOND GRIND SINGLE PASS HONE (1-2mm) USING 100 GRIT METAL BOND - TO EXPOSE AGGREGATE. PROVIDE SODIUM SILICATE OR LITHIUM BASED PENETRATING CLEAR SEALER TO ENTIRE SLAB. KEEP SLAB SURFACE CONTINUOUSLY WET FOR MIN. 14 DAYS. SLIP RESISTANCE WHEN WET: PROVIDE MEAN COEFFICIENT OF FRICTION (WET) OF NOT LESS THAN 0.4 TO COMPLY WITH NZBC D1/AS1. PROVIDE SLIP RESISTANCE TEST CERTIFICATION.

RFN1

CONCRETE PLANKS TO S.ENGS DESIGN

EMT1 ENTRANCE FLOOR MAT SYSTEM.
INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

COLOUR: DARK GREY
GRADE 316 S/S CONCRETE SCREW AT 200 CENTRES
SILICA SAND & RESIN BASED SELF-LEVELLING SCREED - LOW VOC - 1-10mm. PRODUCT SHALL BE LONG-LASTING AND HAVE EXCELLENT RESISTANCE TO LOADS AND TRAFFIC.

FACTORY FABRICATED, ASSEMBLED & FINISHED ALU1 MAT FRAME
FINISH & COLOUR: MATCH EMT1 CONCRETE PLANKS TO S.ENGS DESIGN

FLR3 - LAY USING MANUFACTURER'S APPROVED ADHESIVE AND STRICTLY IN ACCORDANCE WITH MANUFACTURERS/ SUPPLIERS INSTALLATION RECOMMENDATIONS AND SPECIFICATIONS.

CONTROL SAMPLES:
PRIOR TO INSTALLATION OF FLOOR FINISHES:
1. PROVIDE TWO (2) 600 x 600 x 75 FINISHED CONTROL SAMPLES OF SE2 RC SLAB INCLUDING THE PENETRATING CLEAR SEALER ON SINGLE HONE (1.0 - 2.0mm) FINISH. SOURCE AND USE SPECIFIED COLOUR ADDITIVES AND AGGREGATE MIX.
2. PROVIDE TWO (2) 600 x 600 FINISHED TIL1 TILING CONTROL SAMPLES INCLUDING MOV3 GRADE 316 S/S MOVEMENT JOINT.
3. THE CONTROL SAMPLES SHALL BE ISSUED TO ARCHITECT AND CLIENT FOR APPROVAL BEFORE PROCEEDING WITH THE WORK.
4. PROVIDE 'SLIP RESISTANCE WHEN WET' TEST CERTIFICATES FOR THE TWO SE2 AND TIL1 CONTROL SAMPLES. TESTS SHALL BE BY OPUS (NZ) OEA. PROVIDE TEST CERTIFICATES TO CLIENT AND ARCHITECT. ALL FLOOR FINISHES SHALL HAVE SLIP RESISTANCE AS FOLLOWS: PROVIDE MEAN COEFFICIENT OF FRICTION (WET) OF NOT LESS THAN 0.4 TO COMPLY WITH NZBC D1/AS1.

NOTE - ALL FLOOR FINISH TYPES:
1. NEW FLOOR SUBSTRATE (RC SLAB) ACCEPTABLE LEVEL VARIATION TOLERANCES SHALL BE IN ACCORDANCE WITH FLOOR FINISH MANUFACTURERS SPECIFIED REQUIREMENTS I.E. +/- 1mm TOLERANCE LEVELS.
2. PRIOR TO LAYING ANY FLOOR FINISHING AND ASSOCIATED PRODUCTS TEST AND CONFIRM MOISTURE CONTENT OF NEW AND EXISTING RC SLABS TO ENSURE COMPATIBILITY WITH FLOORING MANUFACTURERS SPECIFICATIONS AND REQUIREMENTS.
3. USE ONLY SPECIFIED FLOORING INSTALLATION CONTRACTORS APPROVED BY THE FLOORING MANUFACTURERS AND SUPPLIERS.
4. SLAB SETDOWN SHALL BE BASED ON THE FLOOR SPECIFICATION CONFIRMED DURING CONSTRUCTION; FOR ALL TILED FLOORS; TO CONFIRM SETDOWN DIMENSIONS, USE COMMERCE SPECIFIED MOVEMENT JOINTS OR THE JAGUAR MOVEMENT JOINT.
5. FLOOR LEVELLING SCREEDS SHALL BE COMPATIBLE WITH OTHER PRODUCTS USED IN THE FLOORING INSTALLATION INCLUDING FLOOR PRIMERS, FLOORING ADHESIVES AND OTHER PRODUCTS. USE ONLY COMPATIBLE PRODUCTS. CHECK COMPATIBILITY WITH MANUFACTURERS/SUPPLIERS.

FOR TENDER

CONCRETE PLANKS TO S.ENGS DESIGN

CONCRETE PLANAR PASS HONE (1.2mm) USING 100 GRIT METAL BOND - TO EXPOSE AGGREGATE. PROVIDE SODIUM SILICATE OR LITHIUM BASED PENETRATING CLEAR SEALER TO ENTIRE SLAB. KEEP SLAB SURFACE CONTINUOUSLY WET FOR MIN. 14 DAYS. SLIP RESISTANCE WHEN WET: PROVIDE MEAN COEFFICIENT OF FRICTION (WET) OF NOT LESS THAN 0.4 TO COMPLY WITH NZBC D1/AS1. PROVIDE SLIP RESISTANCE TEST CERTIFICATION.

CONCRETE FINISH:
DIAMOND GRIND SINGLE PASS HONE (1-2mm) USING 100 GRIT METAL BOND - TO EXPOSE AGGREGATE. PROVIDE SODIUM SILICATE OR LITHIUM BASED PENETRATING CLEAR SEALER TO ENTIRE SLAB. KEEP SLAB SURFACE CONTINUOUSLY WET FOR MIN. 14 DAYS. SLIP RESISTANCE WHEN WET: PROVIDE MEAN COEFFICIENT OF FRICTION (WET) OF NOT LESS THAN 0.4 TO COMPLY WITH NZBC D1/AS1. PROVIDE SLIP RESISTANCE TEST CERTIFICATION.
FOR FINISHES REFER TO ROOM FINISHES SCHEDULE

STACK BONDED, CORE FILLED, REINFORCED CONCRETE BLOCKWORK TO S.ENGS. DESIGN

PF4 PAINT FINISH

STACK BONDED, CORE FILLED, REINFORCED CONCRETE BLOCKWORK TO S.ENGS. DESIGN

PAV2 SLAB AT 1:50 FALLS

DPM1 TO ENTIRE FLOOR SLAB AND CONTINUOUS AROUND FOUNDATIONS

25mm SAND BLINDING TO ALL HORIZONTAL FACES OF DPM1

NOTE: THE BELOW GROUND WATER STORAGE TANK AND WATERPROOF 'TANKING' SYSTEM ARE ALL TO AECOM ENGINEERS DESIGN. REFER TO AECOM DRAWINGS AND SPECIFICATION FOR WATERPROOF TANKING DESIGN, CONSTRUCTION DETAILS & SPECIFICATION. MINIMUM WARRANTY PERIOD: 25 YEARS.

COMPLETE WATERPROOF TANKING SYSTEM, AND TANKING PROTECTION SHEETING TO ENTIRE TANK EXTERIOR, ALL TO S.ENGS DESIGN. MINIMUM WARRANTY PERIOD: 25 YEARS.

NOTE:
1. REFER TO STRUCTURAL ENGINEERS DRAWINGS.
2. CONCRETE REINFORCEMENT REFER TO STRUCTURAL ENGINEERS DRAWINGS.
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE CAD SHOP DRAWINGS OF EACH IMPACT PROTECTION TYPE - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
4. PROTOTYPES: PROVIDE ONE COMPLETE PROTOTYPE OF EACH IMPACT PROTECTION TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. PROVIDE PF-10 SPECIALIST STEEL PAINT FINISH OVER GALVANISING. ACCEPTABLE SPECIALIST STEEL PAINT MANUFACTURERS: INTERNATIONAL PAINTS (AKZO NOBEL) OEA.

FOR TENDER
NOTE:
1. PROVIDE TWO (2) FUNAFUTI INTERNATIONAL AIRPORT SIGNS.

2. PROVIDE COMPLETE CAD SHOP DRAWINGS - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.

3. PROVIDE 1 LETTER AND FRAMING PROTOTYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORK.

4. PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.

5. PROVIDE POLISHED FINISH TO VISIBLE GRADE 316 STAINLESS STEEL SURFACES.

6. PROVIDE FULL PENETRATION BUTT WELDS - TO S. ENGS DESIGN.

7. ALL WELDS: FULLY WELD AND GRIND SMOOTH.

PD1
FULLY WELD SIGN LETTERS TO CONTINUOUS GRADE 316 S/S 40 x 5 FLAT BAR BOTTOM RAIL

INDIVIDUAL SIGN LETTERS
LASER CUT FROM 5mm THICK GRADE 316 S/S PLATE FINISH: POLISHED

CLASS 5 GRADE 316 S/S BOLTS WITH STAINLESS STEEL WASHERS BOTH SIDES

30 x 3mm EPDM STRIP

CLASS 5 GRADE 316 S/S BOLTS WITH STAINLESS STEEL WASHERS BOTH SIDES

GRADE 316 S/S INDIVIDUAL SIGN LETTERS FULLY WELDED TO CONTINUOUS GRADE 316 S/S 40 x 5 FLAT BAR BOTTOM RAIL

RS1 ROOF SHEETING
SIGN LETTERS FULLY WELDED TO CONTINUOUS GRADE 316 S/S 40 x 5 FLAT BAR BOTTOM RAIL

GLU1 ROOF BEAM
FINISH - TYPICAL

F   U   N   A   F   U   T   I      I   N   T   E   R   N   A   T   I   O   N   A   L      A   I   R   P   O   R   T

NOTE:
1. PROVIDE TWO (2) 'FUNAFUTI INTERNATIONAL AIRPORT' SIGNS.
25mm AIR GAP

F1 PROFILE FOAM INFILL

FL1

H3.2 PACKER

RS1 ROOF SHEETING

RUC1

RMS1

IN3

RUC2

RMS2

GLU1 BEAM TO S. ENGS DETAIL

H3.2 CEILING JOISTS AT 600mm CENTRES - SIZE TO SUIT SPAN, FIX TO UNDERSIDE OF PURLIN 2 - TO S.ENGS DETAIL.

CL3 50 x 50 TM2 TIMBER CEILING BOARDS WITH 30mm GAPS

CL3 100 x 25 TM2 TIMBER CEILING SLATS WITH 20mm GAPS

PC1 COLUMN TO S. ENGS DETAIL

OUTSIDE INSIDE ROOF PITCH REFER TO SECTIONS

GU1 - WIDTH AND HEIGHT TO H.ENGS. SPECIFICATION

DP1 POP (NOZZLE)

GP1 - WIDTH AND HEAT TO MATCH GU1 AND DP1

OF1 OVERFLOW CIRCULAR WEATHER PROTECTION CAP

GU1 INSTALL GUTTER WITH POSITIVE FALLS TO DOWNPIPE LOCATIONS - MINIMUM 1:100 FALL

TM2 20mm THICK CLADDING OVER STRUCTURAL JoINTS TO ALL FOUR SIDES SHOWN SHADeD - GENERIC GRaDE 316 S/S CONNECTORwHITCH BASE TO S. ENGS DETAIL

RUC3 NON-WOVEN, AIR PERMEABLE BLACK FABRIC SHEET. FIX TAUGHT (IN TENSION) TO UNDERSIDE OF CEILINg BATTENS

CL3 TO FIX-THE-TIMBER CEILING GUTTERS WITH 30mm GAPS

CL3 S/STIMBER CEILING BOARDS WITH 30mm GAPS

H3.2 PACKER AT 600mm CENTRES - SIZE TO SUIT SPAN, FIX TO UNDERSIDE OF PURLIN 2 - TO S. ENGS DETAIL.

CONTINUOUS BLACK PLASTIC FOAM INFLLED WITH GRADE 316 S/S CONNECTOR WITHOUT A BOLT TO S. ENGS DETAIL

CONTINUOUS BLACK PLASTIC FOAM INFLLED WITH GRADE 316 S/S CONNECTOR WITHOUT A BOLT TO S. ENGS DETAIL

GRADE 316 S/S 1.0 BMT FABRICATED BEAM END CAP TYPICAL - TO ALL EXTERIOR, VISIBLE GLU1 EXTERIOR VISIBLE PURLIN ENDS

GLU1 BEAM TO S. ENGS DETAIL - PF9 FINISH TO ALL VISIBLE EXTERIOR ROOF STRUCTURE/FRAME

CONTINUOUS BLACK PLASTIC INSECT MESH WITH GRADE 316 S/S CONNECTOR & BOLTS TO S. ENGS DETAIL

TURN UP ROOF SHEET AT END - TYPICAL

TURN UP ROOF SHEET AT END - TYPICAL

PF9 FINISH TO ALL VISIBLE EXTERIOR ROOF STRUCTURE/FRAME

PLAN - CLAD CONNECTION DETAIL

PLAN - DOWNPIPE & OVERFLOW DETAIL

FOR TENDER
NOTE: PROVIDE FX1 CONCEALED CLIP SYSTEM FIXING RS1 ROOF SHEETING

H2 O CEILING GUTTER AT 600mm CENTRES - SIZE TO SUIT SPAN
TO PURLIN 2 - TO S.ENGS DETAIL.

NOTE: PROVIDE FX1 CONCEALED CLIP SYSTEM FIXING RS1 ROOF SHEETING

H2 O CEILING GUTTER AT 600mm CENTRES - SIZE TO SUIT SPAN
TO PURLIN 2 - TO S.ENGS DETAIL.

25mm AIR GAP
25mm AIR GAP

CL3 100 x 25 TM2 TIMBER CEILING SLATS WITH 20mm GAPS

CL3 100 x 25 TM2 TIMBER CEILING SLATS WITH 20mm GAPS

FOR TENDER
SOLID TIMBER BETWEEN PURLINS
ST1 SLOPE TO INWARD
DETAIL

Section - RS4 Roof Ridge Ventilation End Detail

H3.2 Ceiling Joists at 600mm centres
Due to RS4 Design (at completion of
Purlin 1) to Su Engs Detail

RS4 Roof Sheeting

F1 Profile Foam

Fluorine Treated Timber

Between Purlins

110mm Edge Fixing Profile to Manufacturer's Design
LINE OF FRAMING
CLADDING
WALL UNDERLAY
LAPPED OVER
FLASHING
140mm MIN.
UPSTAND FLASHING
WITH 10mm HEM
STOPEND
250mm
5mm GAP
MAX.
FAR NOTCHED
TURN-DOWN
ROOFING
UNDERLAY CARRIED
UP FACE OF
FRAMING BEHIND
UPSTAND FLASHING

NOTES:
1. RIVETS SHALL BE PRE-FINISHED - COLOUR TO MATCH ROOF SHEETING COLOUR.
2. RIVETS SHALL BE MINIMUM 4mm DIAMETER.
3. RIVET BASE MATERIAL SHALL BE STAINLESS STEEL FOR STEEL ROOF SHEETING.
4. RIVET BASE MATERIAL SHALL BE ALUMINIUM FOR ALUMINIUM ROOF SHEETING.

NOTES:
1. ALL ROOFING SCREWS SHALL BE FIT FOR PURPOSE FOR CYCLONE CONDITIONS.
2. REFER TO ROOF DETAILS TO DETERMINE REQUIRED ROOF SCREW LENGTH FOR EACH LOCATION. CONSULT STRUCTURAL ENGINEER FOR MINIMUM SCREW EMBEDMENT REQUIREMENTS.

NOTES:
1. PROVIDE MINIMUM 45mm EMBEDMENT INTO TIMBER PURLINS.
2. PROVIDE MINIMUM 20mm EMBEDMENT INTO GALVANISED STEEL PURLINS.

FOR TENDER
FOR FINISHES REFER TO ROOM FINISHES SCHEDULE.

NOTE:
1. PROVIDE CONSTRUCTION JOINTS TO S.ENG'S DESIGN AT 2800mm CENTRES MAXIMUM.
   'GROOVED' TYPE MORTAR JOINTS (REFER NZCMA ASSN. GUIDE)
   NOTE: DELAY TOOLING OF MORTAR AFTER INITIAL SET OF MORTAR - AS PER NZCMA ASSN. RECOMMENDATIONS.

2. PROVIDE 140 x 45 NOGS AT 800mm MAX. VERTICAL CENTRES
   SCREED TO FALLS - TO S.ENG'S DESIGN
   PEFC1 ROD AS BOND BREAKER - CONTINUOUS

3. GRADE 316 M12 MASONRY ANCHORS AT 600 CENTRES MAX IN1
   GRADE 316 S/S 'HARDIE DRIVE' COUNTERSUNK 30mm/7g SCREWS
   INSTALL SCREW HEAD MINIMUM 0.5mm BELOW SURFACE TO ALLOW FOR FLUSH STOPPING.

PAPER (CELLULOSE) BASED STOPPING ACCESSORIES NOT PERMITTED. USE SYNTHETIC/PLASTIC BASED PRODUCTS ONLY.

REFER TO STRUCTURAL ENGINEERS DRAWINGS.

CONCRETE REINFORCEMENT

PENDERED CONCRETE BEAM TO S.ENG'S DESIGN

GREEN HYDRO TYPE MORTAR JOINTS (REFER NZCMA ASSN. GUIDE)
   WITH DELAY TO TOOLING OF MORTAR AFTER INITIAL SET OF MORTAR - AS FOR NZCMA ASSN. RECOMMENDATIONS
   STACK BONDED, CORE FILLED, REINFORCED CONCRETE BLOCKWORK TO S.ENG's DESIGN

GREEN HYDRO TYPE MORTAR JOINTS (REFER NZCMA ASSN. GUIDE)
   WITH DELAY TO TOOLING OF MORTAR AFTER INITIAL SET OF MORTAR - AS FOR NZCMA ASSN. RECOMMENDATIONS
   STACK BONDED, CORE FILLED, REINFORCED CONCRETE BLOCKWORK TO S.ENG's DESIGN

PROPRIETARY WATER TANK LIQUID APPLIED WATERPROOFING SYSTEM TO ENTIRE TANK INTERIOR.
   PROVIDE TWO (2) COATS MINIMUM.
   MINIMUM WARRANTY PERIOD: 25 YEARS.
   PROVIDE A 'PRODUCT SUBMISSION.'

STACK BONDED, CORE FILLED, REINFORCED CONCRETE BLOCKWORK TO S.ENG'S DESIGN

FOR FINISHES REFER TO ROOM FINISHES SCHEDULE.

GRADE 316 S/S 'HARDIE DRIVE' COUNTERSUNK 30mm/7g SCREWS
   INSTALL SCREW HEAD MINIMUM 0.5mm BELOW SURFACE TO ALLOW FOR FLUSH STOPPING.

FC1 FIXING SETOUT FOR WALLS/CEILINGS: IN ACCORDANCE WITH MANUFACTURER'S DATA SHEET/SPECIFICATIONS AND FIXING REQUIREMENTS.

FC1 FIXINGS: GRADE 316 S/S 'HARDIE DRIVE' COUNTERSUNK 30mm/7g SCREWS, INSTALL SCREW HEAD MINIMUM 0.5mm BELOW SURFACE TO ALLOW FOR FLUSH STOPPING.

INSTALL SCREW HEAD MINIMUM 0.5mm BELOW SURFACE TO ALLOW FOR FLUSH STOPPING.

NOTE:
1. INSTALL FC1 9mm THK IN ACCORDANCE WITH MANUFACTURER'S DATA SHEET/SPECIFICATIONS AND INSTALLATION REQUIREMENTS.

2. PROVIDE 140 x 45 NOGS AT 800mm MAX. VERTICAL CENTRES
   SCREED TO FALLS - TO S.ENG'S DESIGN
   PEFC1 ROD AS BOND BREAKER - CONTINUOUS

3. GRADE 316 M12 MASONRY ANCHORS AT 600 CENTRES MAX IN1
   GRADE 316 S/S 'HARDIE DRIVE' COUNTERSUNK 30mm/7g SCREWS
   INSTALL SCREW HEAD MINIMUM 0.5mm BELOW SURFACE TO ALLOW FOR FLUSH STOPPING.

4. INSTALL FC1 9mm THK IN ACCORDANCE WITH MANUFACTURER'S DATA SHEET/SPECIFICATIONS AND INSTALLATION REQUIREMENTS.

5. PROVIDE 140 x 45 NOGS AT 800mm MAX. VERTICAL CENTRES
   SCREED TO FALLS - TO S.ENG'S DESIGN
   PEFC1 ROD AS BOND BREAKER - CONTINUOUS

6. PROVIDE 140 x 45 NOGS AT 800mm MAX. VERTICAL CENTRES
   SCREED TO FALLS - TO S.ENG'S DESIGN
   PEFC1 ROD AS BOND BREAKER - CONTINUOUS

7. PROVIDE 140 x 45 NOGS AT 800mm MAX. VERTICAL CENTRES
   SCREED TO FALLS - TO S.ENG'S DESIGN
   PEFC1 ROD AS BOND BREAKER - CONTINUOUS

FOR TENDER
SECTION - IGP1 DOOR HEAD DETAIL

SECTION - IGP1 FIXED GLAZING PANEL HEAD DETAIL

SECTION - IGP1 DOOR SILL DETAIL

SECTION - IGP1 FIXED GLAZING PANEL SILL DETAIL

PLAN - IGP1 DOOR JAMB DETAIL

PLAN - IGP1 DOOR + FIXED GLAZING PANEL JAMB DETAIL

SECTION - IGP1 FIXED GLAZING PANEL JAMB DETAIL

NOTE:
1. PROVIDE SHOP DRAWINGS INCLUDING ELEVATIONS OF ALL IGP1 AND 1:5 HEAD, SILL AND JAMB DETAILS.
2. FIXINGS: FIX USING GRADE 316 S/S SCREWS OR SLEEVE ANCHORS AT 450 CENTRES MAX. FIXING SIZE TO SUIT COUNTRY'S ULS/SLS WIND PRESSURES.
3. REFER TO DRAWING AR-5394 DOOR & HARDWARE SCHEDULE FOR DOOR LEAF WIDTHS AND HEIGHTS.
4. DOOR HARDWARE TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS/SUPPLIERS INSTRUCTIONS AND SPECIFICATIONS.

FOR TENDER
NOTES:

1. PAPER (CELLULOSE) BASED STOPPING/FILLING ACCESSORIES NOT PERMITTED. USE SYNTHETIC/PLASTIC BASED PRODUCTS ONLY.

2. H3.2 TIMBER FRAMING (MSG10) - SIZES AND SETOUT IN ACCORDANCE WITH PB1/FC1 MANUFACTURERS REQUIREMENTS AND TO S.ENGS DETAIL.

3. WHERE WATER HEADER TANKS ARE LOCATED ABOVE CEILING REFER TO S.ENGS DESIGN FOR ADDITIONAL BEAMS AND TANK FIXING DETAILS.

4. REFER TO DRAWING AR-5305 REFLECTED CEILING PLAN FOR CEILING HEIGHTS.

FOR TENDER
NOTE:

1. TILE GROUT: USE 'MAPEI KERAPOXY DESIGN GROUT'
   END. GROUT COLours SWITCH TILE COLOUR. INSTALL
   GROUT IN ACCORDANCE WITH GROUT MANUFACTURER/
   SUPPLIER INSTALLATION RECOMMENDATIONS AND
   SPECIFICATION.

2. PROVIDE TILE GROUT TO ALL TILE JOINTS - TIL1 & TIL2.
1. DJ1/DJ2 DOOR LEAF PF2 FINISH - PROVIDE PF2 PRIMER/SEALER COAT IN THE FACTORY PRIOR TO SHIPPING. PROVIDE TWO (2) PF2 TOP COATS AFTER DOOR INSTALLATION ON SITE.

2. DELIVER DJ1 AND DJ2 DOORS/FRAMES AS COMPLETE PREHUNG UNITS FITTED WITH GRADE 316 S/S DOOR HARDWARE AND GRADE 316 S/S HINGES.

3. HINGES: PROVIDE A MINIMUM OF FOUR (4) GRADE 316 S/S HINGES PER DOOR LEAF. FINISH: BRUSHED.

4. PROVIDE 2mm THICK GRADE 316 S/S KICKPLATES TO BOTH SIDES OF ALL SOLID CORE DOOR LEAVES.
NOTES:
1. REFER TO DOOR DETAIL DRAWINGS:
   - AR 5344 EXTERNAL DOOR DETAILS
   - AR 5359 INTERNAL DOOR DETAILS
2. REFER TO DRAWING AR 5394 FOR DOOR & HARDWARE SCHEDULE FOR DOOR LEAF WIDTHS AND HEIGHTS.
3. PROVIDE 2mm THICK GRADE 316 S/S KICKPLATES TO BOTH SIDES OF ALL SOLID CORE DOOR LEAVES.
4. DOOR HARDWARE TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER’S INSTRUCTIONS AND SPECIFICATIONS.
NOTE:
1. REFER TO DOOR DETAIL DRAWINGS: -AR 5356 INTERNAL GLAZED PARTITION DETAILS
2. REFER TO DRAWING AR 5394 DOOR & HARDWARE SCHEDULE FOR DOOR LEAF WIDTHS AND HEIGHTS.
3. DOOR HARDWARE TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS.
SECTION HEAD DETAIL SCR3 KAYNEMAILE SCREEN

SECTION SILL DETAIL SCR3 KAYNEMAILE SCREEN

NOTE:
1. FINAL SCR3 FRAME AND FIXING DESIGN SHALL BE TO KAYNEMAILE'S DESIGN AND INSTALLATION. ALLOW FOR ALL SYSTEM ELEMENTS AND GRADE 316 S/S FIXINGS REQUIRED FOR THE INSTALLATION AS SHOWN ON INTERNAL ELEVATIONS.

FOR TENDER

AEcom

tim mein architects

PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)

FUNAFUTI INTERNATIONAL AIRPORT
TERMINAL
SCR3 KAYNEMAILE DETAILS
NOTE:
1. PROVIDE 6M PANEL CODE FOLDS AS SHOWN.
2. FABRICATED SHOP DRAWINGS.
   PROVIDE COMPLETE SET OF SHOP DRAWINGS FOR CLIENT, ARCHITECT AND
   ENGINEER.
3. PRESERVES:
   PROVIDE TWO IDENTICAL 6M X 6M FINISHED PRESSOES INCLUDING
   SIDE AND TOP OF PANEL, BOTH SIDES OF PANEL BEFORE CONSTRUCTION.
   MOUNTED PRESSOES ON SITE TO PERMIT PRESSOES TO BE REMOVED FOR
   ALIGNMENT AND ADJUSTMENT.
4. PROTECTIVE PACKAGING FOR SHIPMENT
   PROVIDE PRESSOES IN STRONG CARTONS TO PREVENT DAMAGE TO UNITS
   UNTIL INSTALLATION ON SITE.

FOLD 4mm GRADE 5251
ALUMINIUM SHEET TO
FORM FRAME

THE DRAWING IS TO BE CONSIDERED A WORK IN PROGRESS AND NOT FOR TENDERING.

THE DRAWING SHOULD BE CONSIDERED A WORK IN PROGRESS AND NOT FOR TENDERING.

IP6 PIPE RAIL - CONTINUOUS TO FULL LENGTH OF SIDE SCREEN
CONTINUOUS 25 x 1.5mm NEOPRENE STRIP
M8 x 80 316 S/S HEX HEAD CONCRETE BOLT WITH 1.5mm THICK NYLON WASHER - 3 FIXINGS PER PANEL.
1.5mm GAP
PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

FOLD 4mm GRADE 521 ALUMINIUM SHEET TO
FORM FRAME

IP6 PIPE RAIL - CONTINUOUS TO FULL LENGTH OF SIDE SCREEN
CONTINUOUS 25 x 1.5mm NEOPRENE STRIP
M8 x 80 316 S/S HEX HEAD CONCRETE BOLT WITH 1.5mm THICK NYLON WASHER - 3 FIXINGS PER PANEL.
1.5mm GAP
PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)

PERFORATED 4mm THICK ALU SHIT WITH 50% VERTICALLY.
BASE MATERIAL: GRADE 5251 ALUMINIUM
FINISH: POWDER COATED
COLOUR: WHITE (TBC)
**GRADE 316 SS SHEET CUSTOM MADE END OF WALL IMPACT PROTECTION WITH CORNER BENDS**

**WALL FINISH: BRUSHED HORIZONTALLY**

**SK2 FIXINGS:**
- For Timber Framed Walls: Grade 316 SS Phillips Countersunk 10G x 70mm Screws @ 300 centres max. Locate fixings at Studs where possible.
- For Blockwork Walls: Use Grade 316 SS Phillips Countersunk 10G x 70mm Masonry Fixings @ 400 centres max.

**NOTES:**
1. Provide continuous Construction Adhesive Fixings (in addition to Screw Fixing) for SK2, IP4 & IP5.
2. For Timber Framed Walls: Grade 316 SS Phillips Countersunk 10G x 70mm Screws @ 300 centres max. Locate fixings at Studs where possible.
3. For Blockwork Walls: Use Grade 316 SS Phillips Countersunk 10G x 70mm Masonry Fixings @ 400 centres max.

**FOR TENDER**
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
2. ALL WELDS FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE COS SHOP DRAWINGS OF EACH HANDRAIL, POST AND BASEPLATE FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
4. PROTOTYPES: PROVIDE ONE COMPLETE PROTOTYPE OF EACH HANDRAIL, POST AND BASEPLATE FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORK.
5. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.

GRADE 316 S/S 200 x 100 x 10 THK BASEPLATE
GRADE 316 S/S 50 x 25 POST AT 800 CENTRES MAX - FULLY WELD TO BASEPLATE
GRADE 316 S/S 50 x 6 EA TOP RAIL
GRADE 316 S/S 5mm THK PROTECTION SKIRTING - FULLY WELD TO POSTS
GRADE 316 S/S 200 x 100 x 10 THK BASEPLATE
GRADE 316 M12 MASONRY ANCHORS - TWO (2) PER BASEPLATE
TOILET NOTES:
1. CHECK & CONFIRM ALL DIMENSIONS ON SITE.
2. PROVIDE TIL1 FLOOR TILES TO ALL TOILET FLOORS, ON SCREED LAID TO FALLS (SCREED TO S.ENGS. DESIGN). PROVIDE FALLS TO FLOOR WASTE GULLY (FWG1). PROVIDE 75mm SLAB SETDOWN THROUGHOUT TOILETS TO ALLOW FOR SCREED TO FALLS.
3. MIR1: PROVIDE 6MM MIRROR GLASS COPPER BACKED, WITH ALL EDGES POLISHED.
4. PROVIDE H3.2 TREATED TIMBER DOUBLE NOGGING AND STUD STRUCTURAL FRAMING FOR ALL FIXTURES AND FITTINGS. LOCATE TO SUIT MANUFACTURERS FIXING AND STRUCTURAL SUPPORT REQUIREMENTS.
5. PROVIDE FC1 INTERIOR WALL LINING TO ALL EXISTING AND NEW TOILET WALLS. PROVIDE TIL2 TILE WALL FINISHES IN LOCATIONS SHOWN ON TOILET PLANS/ELEVATIONS.
6. PF1 TOILET PAINT FINISHES SHALL BE MOULD, BACTERIA AND WATER RESISTANT TYPE THROUGHOUT TOILETS. ACCEPTABLE PAINT MANUFACTURERS RESENE OR DULUX.
7. FUTURE HAND DRIERS: PROVIDE POWER SUPPLY ADJACENT TO EACH PTD1 PAPER TOWEL DISPENSER FOR FUTURE HAND DRIERS AS FOLLOWS:
   - ONE S/S BLANK PLATE 1300mm AFFL AND 300mm FROM PTD1
   - ONE S/S ISOLATING SWITCH 1800mm AFFL - DIRECTLY ABOVE BLANK PLATE LOCATION
8. REFER TO DRAWING AR-5358 FOR TIL1 AND TIL2 TILING DETAILS.
9. REFER TO DRAWING AR-5396 FOR BATHROOM FITTINGS & FIXTURES.
NOTES:

1. FIXINGS:
   FIX INTERIOR AND EXTERIOR ALUMINIUM ANGLES AND LVR2 LOUVRE FRAME USING GRADE 316 S/S MASONRY FIXINGS AT 300 CENTRES MAXIMUM.

2. FIXING COLOUR/FINISH:
   ALL FIXINGS INCL. MASONRY FIXINGS AND RIVETS SHALL MATCH THE LVR2 COLOUR/FINISH.

3. ALUMINIUM EXTERIOR/INTERIOR COVER:
   ALL COVER ANGLES/FLATS SHALL MATCH THE LVR2 COLOUR/FINISH.

4. INSECT MESH:
   PROVIDE GRADE 316 STAINLESS STEEL INSECT MESH - FACTORY FITTED TO EXTERIOR FACE OF LVR2 LOUVRES TO MANUFACTURER'S DETAIL.

5. SHOP DRAWINGS:
   CHECK STRUCTURAL OPENING SIZE ON SITE. PROVIDE SHOP DRAWINGS INCLUDING DIMENSIONED SETOUTS AND 1:5 DETAILS.
3mm EPDM SEPARATION STRIP
COLOUR: BLACK

5mm x 40 ALU1 DOWNPIPE BRACKETS AT 750mm CENTRES VERTICALLY. FINISH + COLOUR TO MATCH DP1

8mm THK ALU1 'T' BRACKET - FINISH + COLOUR TO MATCH DP1
GRADE 316 S/S M8 HEX HEAD BOLT

ALIGN PC1 - FACE OF COLUMN
GRADE 316 S/S, M8/75mm CONCRETE SCREW - TWO(2) PER BRACKET

8mm THK ALU1 'T' BRACKET - FINISH + COLOUR TO MATCH DP1
GRADE 316 S/S, M8/75mm CONCRETE SCREW - TWO(2) PER BRACKET

5mm x 40 THK ALU1 DOWNPIPE BRACKETS AT 750mm CENTRES MAX. VERTICALLY. FINISH + COLOUR TO MATCH DP1

3mm EPDM SEPARATION STRIP
COLOUR: BLACK

PC1 - FACE OF COLUMN
8 H x 25 L SLOT IN 'T' BRACKET - FOR ADJUSTMENT/TOLERANCE

PROVIDE 10mm GAP FOR TOLERANCE

PROVIDE EPDM WASHERS BOTH SIDES. COLOUR: BLACK

FOR TENDER
1. **Direction Arrow**:
   - Colour: White
   - Arrow thickness: 30mm (large), 20mm (small)

2. **Information Symbol**:
   - Square size: 170 x 170mm (large), 110 x 110mm (small)
   - Background colour: White
   - Symbol image colour: Dark Grey

   - To match sign board colour

3. **Signage Sheet Material**:
   - 3mm thick aluminium sheet. Clad both sides of sign and all visible edges.
   - Colour: Dark Grey
   - Finish: Powdercoat 30-40% gloss

4. **Text and Symbol Material**:
   - Vinyl sheet decals

5. **Text Font**:
   - Helvetica Neue Standard Medium
   - Font size: 75pt (Large sign), 50pt (Small sign)

6. **Direction of Arrows**:
   - Indicative only. Refer to AR-5392 for a full schedule of terminal signs and locations.

7. **Protective Packaging for Shipping**:
   - Provide protective packaging to prevent damage to units until installation on site.

8. **Notes**:
   - Refer to drawing AR-5392 for sign schedule and indication of type.
   - Direction of arrows indicative only. Refer to AR-5392 for a full schedule of terminal signs and locations.
   - Confirm arrow direction on shop drawings.

**For Tenders**

**AECOM**

Pacific Aviation Investment Program (PAIP)

Funafuti International Airport

Terminal Signage Details - Sheet 1

A1

tim maen architects

B027709R-AR-5372
NOTE:
1. REFER TO DRAWING AR-5392 FOR SIGN SCHEDULE AND INDICATION OF TYPE. DIRECTIONAL ARROWS INDICATIVE ONLY. REFER TO AR-5392 FOR A FULL SCHEDULE OF TERMINAL SIGNS AND LOCATIONS, CONFIRM ARROW DIRECTION IN SHOP DRAWINGS.

FINISH & COLOUR:
1. PROVIDE 'POWDERCOAT' FINISH TO ALU1 ALUMINIUM SHEET AND ALL VISIBLE FIXINGS.

COLOUR: DARK GREY
2mm THICK 316 S/S SHEET BONDED TO 20mm MPL1 (MARINE PLY)

50 x 5 316 S/S EA

50 x 19 316 S/S FLAT BAR

POSTS SHOWN DOTTED

NOTE:

1. PROVIDE FULL PENETRATION BUTT WELDS - TO S. ENGS DESIGN.

2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.

3. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE SET OF SHOP DRAWINGS OF EACH FURNITURE TYPE - FOR CLIENT, ARCHITECT, AND ENGINEERS APPROVAL.

4. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE SET OF SHOP DRAWINGS OF EACH FURNITURE TYPE - FOR CLIENT, ARCHITECT, AND ENGINEERS APPROVAL.

5. PROTOTYPES: PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT, AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.

6. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.

7. STAINLESS STEEL FINISH: PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES

8. FINISH: PROVIDE LAM1 FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.

9. LAM1 COLOUR: TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
NOTE:
1. PROVIDE FULL PENETRATION BUT WELDS - TO S.ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE CAD SHOP DRAWINGS OF EACH FURNITURE TYPE - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
4. PROTOTYPES: PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. STAINLESS STEEL FINISH: PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES
7. FINISH: PROVIDE LIGHT FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.
8. LAMINATE COLOUR: TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
63.2 x 6.3 ALU1 SHS TOP RAIL
10mm THICK GRADE 316 S/S T-PLATE SCREWED TO INSIDE FACE OF FRAMING

63.2 x 6.3 ALU1 SHS BOTTOM RAIL
4mm THICK ALUMINIUM SHEET

60mm WIDE PRECAST CONCRETE BLOCK.

FIXING: PROVIDE FIXING CLEATS WELDED TO ALUMINIUM FRAME.

FIX USING GRADE 316 S/S CHEMSET SCREWS (OEA).

PROVIDE DRILLED, THREADED HOLE TYPICAL 50 x 25 GRADE 316 S/S FLAT BAR

BASE FRAME FINISH: BRUSHED HORIZONTALLY

EDGE PROTECTION 75 x 3 ALU1 FLAT BAR SCREWED TO INTERNAL FRAMING
FINISH: POWDER COAT
COLOUR: TO MATCH BASE FRAME - TOP AND TWO SIDES.

63.2 x 6.3 ALU1 SHS Top Rail
63.2 x 6.3 ALU1 SHS Bottom Rail

50 x 25 GRADE 316 S/S FLAT BAR SIDE VERTICAL FRAME
FINISH: BRUSHED

4mm THICK ALUMINIUM SHEET 10mm THICK GRADE 316 S/S T-PLATE SCREWED TO INSIDE FACE OF FRAMING

GRADE 316 SUS FIXINGS

2mm THICK EPDM SEPARATION STRIP - DOTTED

4mm THICK ALUMINIUM SHEET

FINISH & COLOUR: PROVIDE 'POWDERCOAT' FINISH TO ALUMINIUM SHEET AND ALL VISIBLE FIXINGS.
COLOUR: DARK GREY

NOTE:
1. MOBILE SIGN DESIGN SUBJECT TO STRUCTURAL ENGINEERS DETAIL DESIGN AND CALCULATIONS.
2. FIXINGS: ALL FIXINGS SHALL BE COLOUR MATCHED TO THE SUBSTRATE.
3. PROVIDE SIGN SHOP DRAWINGS: SIGN MAKERS TO PROVIDE PDF ARTWORK (DRAWINGS) AND SIGN FRAMING AND FIXING DETAILS OF SIGN TYPES FOR CLIENT & ARCHITECTS APPROVAL.
4. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. PROVIDE COMPLETE gaps BETWEEN WELDS.
4. PROVIDE COMPLETE gaps BETWEEN WELDS.
5. PROVIDE COMPLETE gaps BETWEEN WELDS.
6. PROVIDE COMPLETE gaps BETWEEN WELDS.
7. PROVIDE COMPLETE gaps BETWEEN WELDS.
8. PROVIDE COMPLETE gaps BETWEEN WELDS.

1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
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5. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
6. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
7. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
8. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.

FOR TENDER
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS:
   PROVIDE COMPLETE SHOP DRAWINGS OF EACH FURNITURE TYPE - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
4. PROTOTYPES:
   PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROTECTIVE PACKAGING FOR SHIPPING:
   PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. STAINLESS STEEL FINISH:
   PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES.
7. FINISH:
   PROVIDE LAM1 FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.
8. LAM1 COLOUR:
   TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG'S DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS:
   PROVIDE COMPLETE LSS SHEET DRAWINGS OF EACH FURNITURE TYPE.
   PROVIDE BLUEPRINTS. ARCHITECT AND ENGINEERS APPROVAL.
4. FABRICATORS SHOP DRAWINGS:
   PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE
   BEFORE COMMENCING MANUFACTURING - TO CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
5. FABRICATORS SHOP DRAWINGS:
   PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO
   LATE ARRIVAL INSTALLATION ON SITE.
6. FABRICATORS SHOP DRAWINGS:
   PROVIDE WRITTEN FROM TO MOBILE 316L STAINLESS STEEL
   SUB表面.
7. FINISH:
   PROVIDE LAMINATE TO ALL SURFACES OF CHECK-IN DESK -
   SUNSHADE AND OTRM.
8. ADDITIONAL:
   CONSULT ARCHITECT FOR COLOUR SELECTION.
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S. ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS: PROVIDE AGED FINISHES OF EACH FURNITURE TYPE - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL.
4. PROTOTYPES: PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. STAINLESS STEEL FINISH: PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES.
7. FINISH: PROVIDE LAM1 FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.
8. LAM1 COLOUR: TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENG. DESIGN.
2. ALL WELDS FULLY PLEDGED AND SMOOTHED.
3. PROVIDE ELECTRIC WELD DRAWINGS OF EACH WELD TYPE - FOR QA/QC ARCHITECT AND ENGINEERS APPROVAL.
4. PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE - FOR QA/QC ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROVIDE PROTECTIVE PACKAGING FOR SHIPPING. PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES.
7. PROVIDE LAM1 FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.
8. LAM1 COLOUR - TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
2mm THICK GRADE 316L S/S SHEET BONDED TO 20mm MPL1 (MARINE PLY)
38 x 38 x 3 GRADE 316L S/S SHS
FINISH: BR
GRADE 316L S/S 12G COACH SCREW @ 250 CENTRES
WHL1

GRADE 316L S/S 40x4mm CLEAT FULLY WELDED TO S/S SHEET-FRAME
GRADE 316L S/S 12G COACH SCREW @ 250 CENTRES

NOTE:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH.
3. FABRICATORS SHOP DRAWINGS: PROVIDE COMPLETE CAD SHOP DRAWINGS OF EACH FURNITURE TYPE, FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. PRE-PRODUCTION DRAFTING AND REVISIONS ARE AT THE EXPENSE OF THE FABRICATOR.
4. PROVIDE ONE COMPLETE PROTOTYPE OF EACH FURNITURE TYPE BEFORE COMMENCING MANUFACTURING - FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL. APPROVED PROTOTYPES MAY BE INCORPORATED INTO THE WORKS.
5. PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.
6. STAINLESS STEEL FINISH: PROVIDE BRUSHED FINISH TO VISIBLE 316L STAINLESS STEEL SURFACES
7. PROVIDE LAM1 FINISH TO ALL SURFACES OF CHECK-IN DESK - INSIDE AND OUTSIDE.
8. LAM1 COLOUR: TBC - CONSULT ARCHITECT FOR COLOUR SELECTION.
OUTSIDE H3.2 TIMBER JAMBLINER

INSIDE

PAV2 1:50 FALL

GRADE 316 S/S 3.0mm THK SHEET
FABRICATED BENCHTOP WITH FULLY WELDED/GROUND CORNERS. PROVIDE 75mm DEEP SIDES. BOND TO 25mm MPL1 SUBSTRATE

CUSTOMS SERVICE BENCH - FRAMED STEEL
FABRICATED BEAM-FORCEFULLY WELDED CORNERS. PROVIDE 75mm DEEP SIDES. BOND TO 25mm MPL1 SUBSTRATE

10.2 TIMBER JAMB LINER

LINE OF CLAD IN FRONT

W1 WALL - PF4 PAINT FINISH

WJ2 SLIDING WINDOW: ALUMINIUM FRAME SLIDING AND FIXED WINDOW PANEL WITH GL4 TRANSLUCENT GLASS

GLU1 BEAM WITH PF3 FINISH TO S.ENGS DESIGN

GRADE 316 S/S CUSTOMS SERVICE BENCH:
1. PROVIDE FULL PENETRATION BUTT WELDS - TO S.ENGS DESIGN.
2. ALL WELDS: FULLY WELD AND GRIND SMOOTH
3. FABRICATORS SHOP DRAWINGS: PROVIDE CAD SHOP DRAWINGS FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL BEFORE COMMENCING FABRICATION
4. PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE

CUSTOMS SERVICE BENCHFRAME:
STRUCTURED TO SURFACE WITH 50mm SCREWS TO FRAME

CUSTOMS SERVICE BENCHFRAME:
STRUCTURE TO 300 centres, FULLY WELD AT JOINTS AND STAYED TO SURFACE WITH 50mm SCREWS TO FRAME

CUSTOMS SERVICE BENCHFRAME:
STRUCTURE TO 300 centres, FULLY WELD AT JOINTS AND STAYED TO SURFACE WITH 50mm SCREWS TO FRAME

FINISH/COLOUR: MATCH BR1 FRAME ADJACENT

HARDWARE:
PROVIDE TWO OPPOSING (INSIDE AND OUTSIDE) DIECAST ZINC/BRASS 250 x 36 'FLUSH PULL' HANDLES - COLOUR TO MATCH WINDOW FRAME

PROVIDE SNIB/LOCK: MATCH TERMINAL KEYING

PROVIDE CONCEALED FIX STAYS WITH FINE TRANSLUCENT GLASS

WJ2 SLIDING WINDOW:
1. CHECK STRUCTURAL OPENING DIMENSIONS ON SITE.
2. FABRICATORS SHOP DRAWINGS: PROVIDE CAD SHOP DRAWINGS FOR CLIENT, ARCHITECT AND ENGINEERS APPROVAL BEFORE COMMENCING FABRICATION.
3. PROTECTIVE PACKAGING FOR SHIPPING: PROVIDE PROTECTIVE PACKAGING TO PREVENT DAMAGE TO UNITS UNTIL INSTALLATION ON SITE.

LINE OF CLAD OVER ALUMINIUM FRAMED SLIDING WINDOW:

FOR TENDER

PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)
FUNAFTI INTERNATIONAL AIRPORT TERMINAL CUSTOMS SERVICE CENTER DETAILS
<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>PRODUCT SPECIFICATION</th>
<th>COLOR/FINISH</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF1</td>
<td>WASH HAND BASIN</td>
<td>CHROME PLATED &amp; ENAMELED ENAMEL MATERIAL</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF2</td>
<td>BATHROOM SET</td>
<td>PLATINUM II / 004</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF3</td>
<td>ACCESSIBLE SHOWER RAIL</td>
<td>3/4&quot; X 2&quot; X 2&quot; X 2&quot;</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF4</td>
<td>SHOWER CURTAIN RAIL</td>
<td>3/4&quot; X 2&quot; X 2&quot; X 2&quot;</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF5</td>
<td>SLEEVES &amp; SHOWER HEADS AND SUPPORTS</td>
<td>CHROME POLISHED</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF6</td>
<td>WASH BATH</td>
<td>CHROME POLISHED</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF7</td>
<td>BATH TAP</td>
<td>CHROME POLISHED</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF8</td>
<td>SHOWER SET</td>
<td>CHROME POLISHED</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF9</td>
<td>BIDET SET</td>
<td>CHROME POLISHED</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
<tr>
<td>INF10</td>
<td>ELECTRIC DRYER</td>
<td>GLOSS BLACK</td>
<td>GLOSS BLACK</td>
<td>YES</td>
</tr>
</tbody>
</table>

*NOTE: All products and finishes shall be RATED MANUFACTURERS' ACCESSORIES,符合所有相关标准和规范。*
THE FOLLOWING SCOPE OF WORK NOTES APPLY TO THE ENTIRE AREA WITHIN THE TERMINAL WORK ZONE LIMIT LINE, AS SHOWN ON DRAWING AR 5397, PLAN P1 - TERMINAL WORK ZONE PLAN:

1. PROVIDE NEW INTERIOR FINISHES TO ALL VISIBLE SURFACES THROUGHOUT THE BUILDING, WITHIN THE TERMINAL WORK ZONE LIMIT LINE.

2. PROVIDE NEW PAINT OR CLEAR SEALER FINISHES TO ALL WALLS, DOORS, DOOR FRAMES, VISIBLE TIMBER, STEEL, BLOCKWORK AND CONCRETE STRUCTURE AND CEILINGS WITHIN THE TERMINAL WORK ZONE LIMIT LINE.

3. PROVIDE PF12 'SODIUM SILICATE' OR LITHIUM BASED, CLEAR, PENETRATING SEALER TO ALL PC1 PRECAST REINFORCED CONCRETE COLUMNS. IN ADDITION, WHERE COLUMNS EMBEDDED IN WALL, PROVIDE PF4 PAINT FINISH TO SELECTED FACES - VERIFY LOCATIONS WITH ARCHITECT.

4. INSTALL ALL FINISHES AND PREPARE ALL FINISH SUBSTRATES IN ACCORDANCE WITH THE FINISH MANUFACTURER/SUPPLIER'S RECOMMENDATIONS AND THE ARCHITECT'S SPECIFICATIONS.

5. SKIRTINGS: PROVIDE SK2 SKIRTINGS TO ALL WALLS. NOTE: NO SKIRTINGS REQUIRED TO WALLS WITH TIL2 TILED FINISH.

6. PROVIDE PF10 PAINT FINISH TO ALL STL1 STEEL STRUCTURE AND SUBFRAME WITHIN THE TERMINAL WORK ZONE.

7. PROVIDE PF4 FINISH TO ALL NEW BLOCKWORK - INTERIOR AND EXTERIOR.

NOTE:
A. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECT'S DRAWINGS AND THE ARCHITECT'S SPECIFICATIONS.
B. REFER TO THE TERMINAL FLOOR PLAN - DRAWING AR-5305.
C. PRIOR TO PRACTICAL COMPLETION, PROVIDE A COMMERCIAL GRADE CLEAN TO:
   - UNDERSIDE OF EXISTING ROOF FRAMING AND STRUCTURAL MEMBERS
   - TOP SURFACE OF EXISTING AND NEW LOW-LEVEL CEILINGS
   - THE ENTIRE INTERIOR OF THE TERMINAL BUILDING

FOR TENDER

PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)
FUNAFUTI INTERNATIONAL AIRPORT
TERMINAL ROOM FINISHES SCHEDULE
tim meiai architects

FOR TENDER

A1  80277003-AR-5397  9
PLAN - TANK FLOOR SLAB

Note:
1. Refer General notes on Drawing 51-5221.
2. Setting out dimensions shall be verified on site by the Contractor, who shall be responsible for their correctness.
3. All dimensions of existing structures shall be checked by the Contractor prior to foundation and excavation.
4. The Contractor shall verify all services and connections.
5. Provide sheet piling system under foundation. Refer specifications.
6. Refer notes 51-5221 Lower Level Foundation Plan
7. Refer notes 51-5221 Upper Level Foundation Plan

FOR TENDER

AEOM New Zealand Limited

A1

FOR TENDER 682770008-51-5212
Note:
1. Refer General notes drawing ST-5201
2. Setting out dimensions shall be verified on site by the Contractor, who shall be responsible for their correctness.
   All dimensions of existing structures shall be checked by the Contractor prior to construction and erection.
Note:
1. Refer General notes drawing ST-5201
2. Setting out dimensions shall be verified on site by the Contractor. The Contractor shall be responsible for their correctness.
All dimensions or existing structures shall be checked by the Contractor prior to construction and erection.

COLUMN LAYOUT PLAN
1:100

FOR TENDER
PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)
FUNAFUTI INTERNATIONAL AIRPORT (FUNI)
COLUMN LAYOUT PLAN

AECOM New Zealand Limited
1. Refer General Notes drawing SI-5201.
2. Refer specifications for steel section system.
Appendix B

Mitigation Measures
# Appendix B  Mitigation Measures

## Environmental & Social Mitigation Plan – For All TvAIP Components

<table>
<thead>
<tr>
<th>POTENTIAL NEGATIVE IMPACT</th>
<th>ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES</th>
<th>IMPLEMENTING LOCATION</th>
<th>ESTIMATED MITIGATION COSTS</th>
<th>EXECUTING AGENCY</th>
<th>SUPERVISING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DETAILED DESIGN/ PRE-CONSTRUCTION MOBILISATION STAGE</strong></td>
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<tr>
<td><strong>Road traffic safety</strong></td>
<td>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 to be implemented around sensitive receptors (e.g. residential dwellings, schools, hospital). TMP to include vehicle and pedestrian traffic. Include renewal of any signage (e.g. speed limits) or other traffic calming measures (e.g. speed bumps) and sidewalks in design for ongoing safety of road users. Include transport of materials and equipment to construction camp (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).</td>
<td>To be decided on site</td>
<td>Minimal (requirement of bidding documents)</td>
<td>Design Consultant and Contractor</td>
<td>Ministry of Communications and Transport (MCT)</td>
</tr>
<tr>
<td><strong>Aviation traffic safety</strong></td>
<td>Each investment within an operational airport is to have a Methods of Works Plan (MOWP) which is to be included in all bid 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.</td>
<td>Operational airport</td>
<td>Minimal (requirement of bidding documents and standard construction practices)</td>
<td>Design Consultant</td>
<td>MCT</td>
</tr>
<tr>
<td><strong>Soil erosion</strong></td>
<td>Minimize 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. Schedule earthworks and construction activities outside of wet season, which is usually between November to April.</td>
<td>All locations</td>
<td>Minimal (part of standard design practices).</td>
<td>Design Consultant</td>
<td>MCT</td>
</tr>
</tbody>
</table>

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3 Costs are estimates only and will be calculated during the detailed engineering design.
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Dust/Air Pollution</td>
<td>Identify and locate waste disposal sites, stockpile sites and equipment (e.g. bitumen plant) to minimize impacts on the environment and nearby population.</td>
<td>Construction camp Work sites</td>
<td>Minimal (part of standard design practices).</td>
<td>Design Consultant</td>
<td>MCT</td>
</tr>
<tr>
<td></td>
<td>Ensure all equipment serviced and issued with warrant of fitness (as required). Equipment over five years old shall only be used with written approval by the Supervising Consultant. Any machinery deemed to be polluting the air must be replaced (or fixed) on instruction by the Supervising Consultant and MCT kept informed.</td>
<td></td>
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</tr>
<tr>
<td>Water and soil pollution</td>
<td>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.</td>
<td>All components</td>
<td>Minimal (part of standard design and construction practices).</td>
<td>Design Consultant</td>
<td>MCT</td>
</tr>
<tr>
<td></td>
<td>Ensure bunded areas and hard stands are allocated at construction camp for the storage of fuel, lubricants and other potential substances required for the project. Water tight and sheltered bunds to be able to contain 110% of volumes being stored or 25% if total volume greater than 1,000L.</td>
<td></td>
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<tr>
<td></td>
<td>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).</td>
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<td></td>
<td>Sanitation treatment system (e.g. compost or proprietary treatment system) is approved by the SWAT and MCT prior to implementation.</td>
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</tr>
<tr>
<td>Water supply</td>
<td>Ensure adequate supply of water for construction and personnel which does not adversely affect the community’s water supply. Collect and store rainwater.</td>
<td>Airport terminals</td>
<td>Minimal (part of standard design practices).</td>
<td>Design Consultant and Contractors</td>
<td>MCT</td>
</tr>
<tr>
<td>Importation of aggregate material</td>
<td>Obtain import permit and Quarantine certification prior to export from country of origin. Certificate of fumigation and verification of source (or proof that material is free of contamination) to be submitted to Department of Public Works and Quarantine Department.</td>
<td>All components</td>
<td>Minimal (part of standard design and construction practices).</td>
<td>Design Consultant</td>
<td>MCT</td>
</tr>
<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
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<tr>
<td>Solid waste generation</td>
<td>Allow for re-use of as much material as possible either within the TvAIP, other projects, or for community use. Funafuti Kaupule and the island recycling business should be consulted to determine if materials or waste can be recycled within the community. The recycling of construction materials will be at the discretion of the Public Works Department (PWD). When planning the construction Camp ensure temporary waste dump areas are allowed for and approved waste disposal sites / methodologies identified for removal of all solid waste. As early as possible in the pre-construction preparation phase suitable receiving waste facility(ies) should be identified and agreements put in place to transport (trans-boundary) remaining project waste from Tuvalu.</td>
<td>All locations</td>
<td>Minimal (part of standard design and construction practices).</td>
<td>Design Consultant and Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Hazardous substances</td>
<td>Fuel shall be obtained from local commercially available sources. Prior arrangement regarding quantity and type will need to be organised (MCT to provide details of providers). Fuel shall not be stored in the construction camp unless permission given by MCT and the Department of Energy. Confirm the presence of asbestos containing material on any buildings to be demolished and make the necessary EHS and customs arrangements to deal with demolition and transport. Ensure containment facilities are set up for the transport of hazardous waste substances that are to be disposed of at licensed waste facility (trans-boundary).</td>
<td>All locations</td>
<td>Minimal (part of mobilisation and construction planning).</td>
<td>Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Loss of public open space</td>
<td>Maintain access to the Falekaupule, apron and terminal car park outside of flight times. Investigation into alternative social gathering spaces / market areas (e.g. Waterfront Reclamation Area Project)</td>
<td>Terminal and Fongafale</td>
<td>Undefined</td>
<td>MCT</td>
<td>GOT</td>
</tr>
<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
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<tr>
<td>CONSTRUCTION STAGE</td>
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</tr>
<tr>
<td>Traffic (vehicle and pedestrian) and construction safety</td>
<td>Implement the traffic management plan to ensure smooth traffic flow and safety for workers, passing vehicles and pedestrian traffic. Where appropriate, employ flag operators on the road to prevent traffic accidents. The workers shall have relevant safety equipment. Special care must be taken when construction works reach the schools and hospital. Coordination with school and hospital representatives must occur for safe passage of students and parents, and hospital visitors/ patients through a construction area. May include restricted work hours, reduced speeds and detours. MOWP to outline how access to operating terminal will be managed during construction so that businesses and enterprises can continue to operate and to ensure the safety of bystanders etc.</td>
<td>From port to airport</td>
<td>Safety equipment included in construction cost.</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Loss of public Open Space</td>
<td>Provision of alternative social gathering spaces / market areas prior to construction starting and for duration of construction.</td>
<td>Funafuti</td>
<td>Undefined</td>
<td>MCT</td>
<td>GOT</td>
</tr>
<tr>
<td>Soil erosion</td>
<td>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.</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Water Supply</td>
<td>Possible non-potable water sources (e.g. seawater) and uses should be identified (e.g. dust suppression, machinery washing), provided there will be no risk of contamination of groundwater. Water saving measures such as sweeping of work areas and vehicles tyres instead of washing to prevent dust shall be used wherever possible.</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice)</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
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<tr>
<td>Waste disposal</td>
<td>Ensure all construction waste material is recycled or packed up for transport off island. The municipal landfill on Funafuti is not suitable for disposal of construction waste generated from the TvAIP. Ensure areas for waste collection, recycling and off-side disposal are clearly marked/sign posted. Segregate waste to avoid cross contamination, such as with contaminated material (hazardous substance). Install waste collection facilities at construction camp to allow for collection and packing of waste. Strictly no dumping of rubbish. Include awareness training in general environmental training. Workers must be provided with a sanitary system to prevent fouling of lagoon or surrounding soils.</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Water and soil pollution</td>
<td>Lubricants shall be collected and recycled if suitable. All waste lubricants shall be removed from island as hazardous waste. Spill response plan training completed for all construction workers. Zones for preliminary accumulation of wastes are designated in areas that will cause no damage to the vegetation cover or leach into groundwater or the marine environment (e.g. within construction camp on hard surface). Excavations are bunded to prevent ingress of water runoff. Sediment laden runoff from excavations or stockpiles must be directed to a settling area (not the sea or beach) or collected for dust suppression provided the runoff is not contaminated with any chemicals (e.g. fuel). Rehabilitation of the construction camp area shall include scarification to loosen compacted ground as a result of stockpiles and construction of hard stand areas (including bunded areas). Any soil found to be impacted by hydrocarbons shall be excavated, treated as hazardous waste and removed from island for disposal at an approved facility.</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
<td>ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES</td>
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<tr>
<td>Generation of dust</td>
<td>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 camp or material shall be refused delivery (if not to the construction camp).</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td></td>
<td>Cover stockpiles containing fine material (e.g. sand and topsoil) when not actively being used.</td>
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<tr>
<td></td>
<td>Keep work areas clean with regular sweeping. Due to freshwater supply constraints large scale water sprinkling should be kept to a minimum. Dust masks and personnel protective equipment must be available for workers during dust generating activities (e.g. pavement milling).</td>
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</tr>
<tr>
<td>Noise and vibration disturbances</td>
<td>Minimise nuisance from noise, especially closer to residential areas, through establishment and communication to affected parties of standard working hours (7 am to 6 pm, Monday to Friday) and avoid increase of noise and number of work equipment at peak hours.</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td></td>
<td>Any work outside prescribed hours of operation requires approval by the MCT and notice to affected peoples provided at least 24 hours prior to out of schedule works starting (work on Sunday is unlikely to be approved unless required due to safety reasons).</td>
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<td></td>
<td>Regularly check and maintain machinery, equipment and vehicle conditions to ensure appropriate use of mufflers, etc.</td>
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<td></td>
<td>Workers in the vicinity of sources of high noise shall wear necessary protection gear rated for the situation they are being used.</td>
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<td>Signage to outline complaints procedure and contact details of recipient of complaints (e.g. phone number, physical address and email).</td>
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<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
<td>ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES</td>
<td>IMPLEMENTING LOCATION</td>
<td>ESTIMATED MITIGATION COSTS</td>
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<td>SUPERVISING AGENCY</td>
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<tr>
<td>Accident risks/Impacts on traffic and pedestrian safety</td>
<td>Arrange necessary measures for pedestrian and passer-by safety and all means of transportation safety (e.g., establish protection zones, by-pass these areas during transportation of materials, etc.) Relevant safety elements such as guardrails, road signs and delineators, pavement markings, barricades and beams, warning lights shall be installed. In some cases a flag operator or traffic control supervisor could be engaged around the specific work site.</td>
<td>All locations</td>
<td>Safety equipment included in construction cost. Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Loss of archaeological artefacts or sites</td>
<td>Work to stop in specific location of unearthed artefacts or site and MCT notified immediately for instruction to proceed.</td>
<td>All locations</td>
<td>No marginal cost</td>
<td>Construction Contractor</td>
<td>MCT</td>
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<tr>
<td>Landscape degradation</td>
<td>Restoration of landscape after completion of rehabilitation works; restore the vegetation cover in accordance with the design and consistency with surrounding land condition (e.g. grass land or shrubs).</td>
<td>All locations</td>
<td>Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
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</tbody>
</table>
### Potential Negative Impact

<table>
<thead>
<tr>
<th>Potential Negative Impact</th>
<th>Environmental and Social Mitigation Measures</th>
<th>Implementing Location</th>
<th>Estimated Mitigation Costs</th>
<th>Executing Agency</th>
<th>Supervising Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous substances and safety and pollution</td>
<td>Store and handle hazardous substances in bunded, hard stand or designated areas only. Bunded areas should be covered to stop rain water entering or constructed to drain to an oil water separator which will need to be constructed or a mobile proprietary unit imported specifically for use on the TVAIP. Bunds (secondary containment) to contain 110% of the largest container/tank required to be stored or 25% of total volume if total volume is over 1,000L. Provide hazard specific personnel protective equipment to workers directly involved in handling hazardous substances (e.g. chemical or heat resistant clothing, gloves). Complete list, including Safety Data Sheets (SDS) for each chemical stored or used shall be accessible at all times. Signage to be posted in storage areas identifying all chemicals present. Spill kits and training of use to be provided to all workers during toolbox meetings. Spill kits to contain PPE gear for the spill clean-up (e.g. gloves and overalls), material to contain the spill and absorbent pads, and a heavy duty rubbish bag to collect absorbent pads or material. Used oil to be collected and taken off island (for disposal or cleaning at approved facility) at completion of works if no on island disposal or recycling facility available.</td>
<td>All locations</td>
<td>Safety equipment included in construction cost. Minimal (part of standard construction practice).</td>
<td>Construction Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Loss of biodiversity</td>
<td>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 Department of Environment and MCT notified immediately for instruction to proceed.</td>
<td>All locations</td>
<td>No marginal cost</td>
<td>Contractor</td>
<td>MCT</td>
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<tr>
<td>POTENTIAL NEGATIVE IMPACT</td>
<td>ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES</td>
<td>IMPLEMENTING LOCATION</td>
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<td>Health and safety</td>
<td>Contractor prepare Site Safety Health and safety Plan&lt;br&gt;Construction camp to be fenced to prevent access by unauthorised personnel.&lt;br&gt;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.&lt;br&gt;All contractors and workers to be given awareness training regarding prevention of communicable and sexually transmitted diseases (particularly HIV/AIDS). Contractor to coordinate with Ministry of Health regarding training.&lt;br&gt;Prepare an Asbestos management plan if asbestos containing material is found, which clearly identifies the locations where the ACM is present, its condition (e.g. whether it is in friable form with the potential to release fibres), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of employees who can potentially come into contact with the material to avoid damage and prevent exposure.&lt;br&gt;Only personnel trained in asbestos handling may be involved in any demolition works involving ACM. Full PPE to be used when handling the material ready for transport.</td>
<td>All locations</td>
<td>Security included in construction cost.&lt;br&gt;Ministry of Health (US$)&lt;br&gt;Ministry of Health (US$)&lt;br&gt;Included in construction costs</td>
<td>Contractor</td>
<td>MCT</td>
</tr>
<tr>
<td>Damage to assets and infrastructure</td>
<td>As a result of TvAIP construction activities any damage to assets or infrastructure must be reported to the MCT and rectified at the expense of the Contractors.</td>
<td>All locations</td>
<td>Dependent on asset/infrastructure and level of damage</td>
<td>Contractor</td>
<td>MCT</td>
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<td>POTENTIAL NEGATIVE IMPACT</td>
<td>ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES</td>
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<td><strong>OPERATION STAGE</strong></td>
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<td>Hazardous substance</td>
<td>Strictly apply and enforce manufacturer’s</td>
<td>All airport</td>
<td>No marginal cost</td>
<td>PWD (roading</td>
<td>MCT</td>
</tr>
<tr>
<td>management</td>
<td>recommendations for handling and storage.</td>
<td>compounds</td>
<td>(standard operating</td>
<td>investment)</td>
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<td></td>
<td>These measures include sealing of drums,</td>
<td></td>
<td>procedure).</td>
<td>Civil Aviation</td>
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<td></td>
<td>and avoiding extreme heat.</td>
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<td>Directorate (CAD)</td>
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<td>Compliance with international good practice.</td>
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<td>(airports)</td>
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<td>Security of storage areas to facilitate</td>
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<td>transport, handling and placement to be</td>
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<td></td>
<td>maintained (e.g. fences and locks fixed</td>
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<td>immediately if broken or vandalised).</td>
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<td>Complete list, including SDS for each</td>
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<td>chemical stored or used shall be</td>
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<td>accessible at all times. Signage to be</td>
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<td>posted in storage areas identifying all</td>
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<td>chemicals present.</td>
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<td>Staff to wear manufacturers recommended</td>
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<td>personnel protective equipment (e.g. gloves</td>
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<td>and overalls) when handling or mixing</td>
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<td></td>
<td>hazardous substances.</td>
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<td>Emergency vehicles are to be serviced and</td>
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<td>maintained at existing workshop areas.</td>
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<td>Water or soil pollution</td>
<td>Workshops or maintenance areas to be fitted</td>
<td>All locations</td>
<td>No marginal cost</td>
<td>PWD (roading</td>
<td>MCT</td>
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<td></td>
<td>with bunded areas for storage of oil and</td>
<td></td>
<td>(standard operating</td>
<td>investment)</td>
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<td></td>
<td>fuel drums (and any other hazardous</td>
<td></td>
<td>procedure).</td>
<td>Civil Aviation</td>
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<td></td>
<td>substances).</td>
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<td>Directorate (CAD)</td>
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<td></td>
<td>Used oil drums should be returned to the</td>
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<td>(airports)</td>
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<td>suppliers or, after being cleaned, sold</td>
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<td>in secondary local market if there is</td>
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<td>demand for this.</td>
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<td>Used oils may be used for emergency</td>
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<td>drills/preparedness exercises as</td>
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<td>appropriate by ARFF.</td>
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<tr>
<td>Maintenance of drainage</td>
<td>Drainage systems shall be periodically</td>
<td>All locations</td>
<td>No marginal cost</td>
<td>PWD (roading</td>
<td>MCT</td>
</tr>
<tr>
<td>and soakage systems</td>
<td>cleared of sediment and organic matter</td>
<td></td>
<td>(standard operating</td>
<td>investment)</td>
<td></td>
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<tr>
<td></td>
<td>build up to ensure appropriate flows and</td>
<td></td>
<td>procedure).</td>
<td>Civil Aviation</td>
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<td></td>
<td>soakage. Material to be disposed at</td>
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<td></td>
<td>Directorate (CAD)</td>
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<td></td>
<td>approved site (e.g. landfill or used as</td>
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<td>(airports)</td>
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<td>cleanfill) or composted if organic.</td>
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<td>Vegetation to be cleared from drainage</td>
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<td>channels and soakage pits and</td>
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<td>composted through Transfer Station.</td>
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<tr>
<td>Loss of Open Space</td>
<td>Investigation into long term alternative</td>
<td>Funafuti</td>
<td>Undefined</td>
<td>GOT</td>
<td>GOT</td>
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<td></td>
<td>social gathering spaces during operation.</td>
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<tr>
<td>Water supply</td>
<td>Include maximum rainwater reclamation in design of terminal</td>
<td>Terminal</td>
<td>Included in design</td>
<td>CAD</td>
<td>MCT</td>
</tr>
<tr>
<td>Wastewater management</td>
<td>Septic systems of the terminal to be regularly emptied and wastewater disposed or treated in accordance with requirements of PWD, Department of Environment and Solid Waste Agency of Tuvalu.</td>
<td>Terminal</td>
<td>No marginal cost for current practice of disposal.</td>
<td>PWD (roading investment)</td>
<td>MCT</td>
</tr>
</tbody>
</table>