

## METHOD OF WORKING PLAN [ MOWP ]

<b>AERODROME</b>	<b>NADI INTERNATIONAL AIRPORT, NADI (NFFN)</b>
	<b>FA – 2019/20 RUNWAY PAVEMENT MAINTENANCE PROGRAMME</b>
	<b>MIL &amp; FILL</b>
<b>PROJECT DESCRIPTION</b>	Pavement Maintenance involving the removal and replacement (mill and fill) of defective Asphalt of 9540sqm in the central 18-metre wide zone on Runway 02-20 South of Intersection (Dip End Zone) and the Remedial Mill & Fill in Phase 2 Section (Intersection and North of Intersection).
<b>REFERENCE NUMBER</b>	
<b>DATES</b>	<p>Commencement of Works: <b>12<sup>th</sup> September 2020</b></p> <p>Completion of Work: <b>7<sup>th</sup> October 2020</b></p> <p>Expiry of MOWP: <b>10<sup>th</sup> October 2020</b></p>
<b>CONTENTS</b>	<ol style="list-style-type: none"> <li>1. Works Information</li> <li>2. Safety</li> <li>3. Restrictions to Aircraft Operations</li> <li>4. Restrictions to the works</li> <li>5. Administration</li> <li>6. Authority</li> <li>7. Distribution List</li> <li>8. Drawings</li> <li>9. Attachments <ul style="list-style-type: none"> <li>- Appendix A; CAAF SD Aerodromes</li> <li>- Appendix B; Construction Plans</li> <li>- Appendix C; Works Programme</li> <li>- Appendix D; Inspection Checklist / Operation Sign Off</li> <li>- Appendix E; Methodology Statement</li> <li>- Appendix F; Workmen/Plant/Machinery Listing</li> </ul> </li> </ol>



# 1. WORKS INFORMATION

## 1.1 Background

**Fiji Airport (FA)** has developed a Pavement Maintenance Framework, which has resulted in a Pavement Maintenance Program involving the periodic implementation of surface treatments over a period of 5 years.

FY19/20 Pavement Maintenance involves various activities: the replacement of Asphalt along Runway 02/20, sand emulsion sealing of Gates 11, 12 and 13, Surface enrichment spray treatment (SEST) of Runway 02-20 and Runway 09-27.

This MOWP is associated with Phase 3 Pavement Maintenance of FY19/20 implementation of periodic maintenance treatments to Nadi International Airport specific to Mill and Fill Works (replacement of defective asphalt along Runway 02/20).

The construction plans for the works is included in Appendix B and trade works packages are in Appendix E.

## 1.2 Description of Work

FY19/20 Pavement Maintenance involves the following;

- Removal of defected asphalt pavement from central 18meters to a depth of 75mm on Runway 02/20 South of Intersection (Dip End Zone).
- Reinstating runway paint marking effected the works.

The work area is divided into shifts and sections to maximise available working period and to avoid disruption in scheduled aircraft movements.

The specific works Methodology Statement is attached in Appendix E.

## 1.3 Construction Traffic

It is proposed that construction traffic will enter and exit the works areas via Main Fire Station Gate or Satellite Fire Station as shown in Appendix B.

All access to the worksites by the Contractor's personnel, plant and equipment will be under strict Safety Officer (SO) escort.

Specific access routes to and from the works area will be directed by the Safety Officer. Movement of vehicles, plant and equipment must be confined to these routes in order to minimise tracking of dirt and debris onto aircraft movement area pavements and to prevent damage to airport lighting.

The Civil Contractor is required to keep all pavements used or traversed during the works clean to the satisfaction of the SO. The Contractor shall use mechanical sweepers or suction trucks for the purpose of keeping the pavement surfaces clean and FOD free.

In the event any of the contractor vehicles damaging any facility, pavement, perimeter road or the environment during the work, the Contractor shall replace or repair the damage immediately.



## 1.4 Timing

A NOTAM will be in place for all works. The actual date and time of commencement will be advised by the NOTAM, and is to be issued by FA 48 hours before work commences or as soon as possible when the 48 hours' notice cannot be achieved.

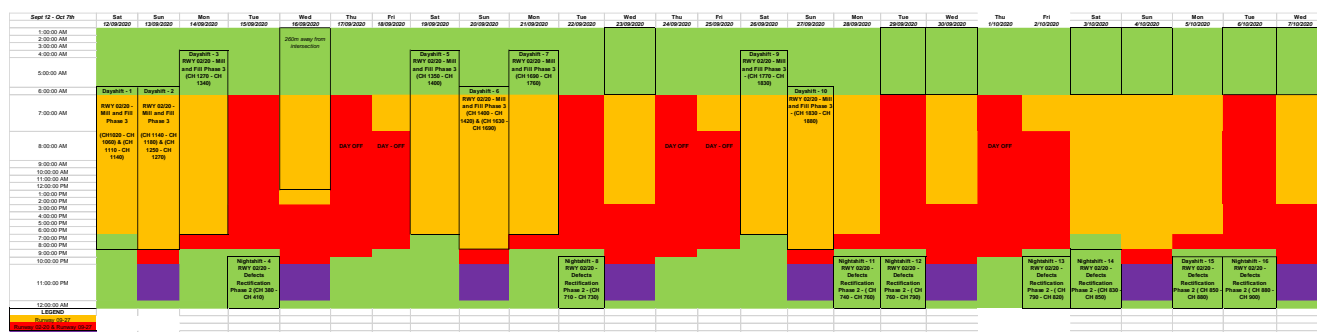
The Contractor shall give two clear working days' notice (Monday –Friday) prior to commencement of works.

Works will be arranged so as not to disrupt scheduled aircraft movements, emergency flights.

However works shall cease whenever directed by the SO.

## 1.5 Working Hours (August & September 2020)

Hours of working will be as follows (based on current airline schedules, may change as schedules alter).



Works on Runway 02/20 can proceed on the following times (100m clear of the 09/27 intersection).

The program is attached in Appendix C.

## 1.6 Programme of Works

The following duration of works are anticipated:

Mobilisation period : 1 Week

Mill & Fill : 16 Shifts

The program is attached in Appendix C.

## 1.7 Sequence of Work

The sequence of works is highlighted in Appendix C.

The area of shift work is to be appropriate for the window of time available to complete all tasks; from access to work zone, clean up, full demobilisation of plant from work zone, inspection and handover to FA.



To ensure maximum use of the allocated time slots and favourable weather conditions, the Contractor shall confirm with the Project Manager of FA during the day at least 5 Hours Prior start of Works.

Confirmation for works to proceed shall be jointly agreed between the Contactor and FA prior to starting works subject to weather condition on the day.

All Contractor personnel and vehicles shall commence entry onto airside at least 3 hours prior to actual commencement of work as NOTAM issued.

All vehicles after clearing security screening at the entry point shall hold at the designated area shown in Appendix B with all personnel remaining in their vehicles.

Once approval is given by SO or PAAE of FA to proceed with the work, only the machines and equipment required for the initial work shall be permitted to enter the manoeuvring area whilst the others remain on the perimeter road.

At no time shall unnecessary vehicles be permitted onto the runway unless specifically authorised by the SO.

## **2. SAFETY**

### **2.1 Method of Working Plan**

Works shall be done in strict accordance with this Method of Works Plan and Fiji Airports Operational Specifications and Technical Specifications.

### **2.2 Safety of Aircraft Operations at All Times**

Aircraft operations and aviation safety take precedence at all times.

The Contractor shall ensure that the runway is returned to service within 90mins of being notified by the SO to stop all work for whatever reason.

### **2.3 Daily Prior Notifications**

The safety Officer (SO) shall contact the tower for mobilization for works before commencement.

## **3. RESTRICTIONS TO AIRCRAFT OPERATIONS**

During the construction work window, times tentatively noted in section 1.5 and 1.6, the Runways will be closed.

Once closed, the closed portion of the runway will only be reopened for emergency flights after 90 minutes prior notice or on the onset of adverse weather.



## 4. RESTRICTION TO WORKS

### 4.1 General

The Contractor shall comply with the requirements of CAAF Standard Document SD 139-05 Operational Safety during Works on Aerodromes, this MOWP and the provision of the specifications for these works (Refer Appendix A).

The Contractor's site representative shall contact the SO at the start of each working shift to ascertain the status for the proposed work with respect to the operational requirements of the aerodrome.

All plant, equipment and materials shall be secured at all times during the work (on site and at laydown area) so that it is not be able to be wind borne. Plant and materials will be stored in such a manner to ensure that they do not infringe the OLS Transition layer for either runway.

All lighting erected and operated by the Contractor shall comply with the Civil Aviation Authority Fiji requirements.

All vehicles and plant operating on or near aircraft operational areas shall display a flashing orange light when vehicles are moving to and from the areas of work.

Prior to commencing each works period, the Contractor personnel shall meet with the SO and the Project Manager or designate in order to ensure that all parties including sub-contractors are aware of the working requirements and the work restrictions for each stage.

Smoking shall not be permitted on airside, or within any FA Airport buildings. A designated smoking area can be designated by FA outside the perimeter fence when requested to by the Contractor.

Upon completion of each work period and before each aircraft operation, the works areas are to be made serviceable to the satisfaction of the SO.

### 4.2 Driving

A speed limit of 50kph applies to all vehicles on the general airport movement area and 10kph when within 15 metres of aircraft. Breaches of these speed limits will result in refusal of access to the airside for the driver involved for the remainder of the works.

All vehicle drivers requiring access onto airside shall undertake safety awareness training delivered by FA and shall be escorted at all times by a SO whilst on the manoeuvring area.

Any non-compliance with respect to this plan shall see immediate removal of the truck and driver from the project. It is mandatory that all vehicles operating on the airside shall have third party and public liability insurance cover of not less than \$1M FJD.

Drivers must ensure that trucks are correctly loaded and where necessary covered prior to entering and leaving site to prevent any spillage. In the event of spillage the truck driver must immediately notify the project manager / safety officer who will oversee the cleaning of spilled materials by the Contractor.

All vehicular movements on airside shall be confined to paved or gravel surfaces unless authorised by the SO.

### 4.3 Pavement Cleanliness – FOD Protection

The Contractor is required to keep all aircraft pavements used or crossed during the works clean to the satisfaction of the SO.



No motor vehicle shall leave or enter the site laden with any materials unless the vehicle is loaded and/or covered in a manner that shall prevent the discharge or dropping of any materials.

The Contractor shall ensure that the wheels, tracks and body of all construction plant leaving the site are free from dirt or any other material, which may discharge or drop. Tracked plant or equipment shall not be used on any existing or new pavement surfaces.

Vehicles or plant not in use shall be parked and immobilised outside the 300 metre wide runway strip (150 metres either side of the runway centreline), or as nominated by the SO.

If the Contractor fails to keep these areas clean, the WSO may arrange cleaning and the cost thereof shall be a debt due and payable by the Contractor to FA.

All damages to the perimeter road by the contractor shall be repaired to its original status by the Contractor.

#### **4.4 Airport Security and Airside Safety Requirements**

Every person desiring to enter the Site shall comply with all safety and security regulations relating to site and with all conditions relating to entry to and behaviour on the Site as contained in the Nadi AOM.

#### **4.5 Marking of Unserviceable Area**

Markers will comprise white reflective banded orange cones or white banded red marker boards to define the limits of the available movement area (if required).

#### **4.6 After Completion of Work**

Prior to operational handover, the pavements will be inspected and accepted for operational use and safety.

#### **4.7 NOTAM**

A NOTAM will be in place for all works.

During the construction work window, times tentatively noted in section 1.5 and 1.6 the Runway 02/20 and Runway 09/27 will be closed.

Once closed, the closed portion of the runway will only be reopened for emergency flights after 90 minutes prior notice or on the onset of adverse weather.

FA shall be responsible for issuing NOTAMs relating to the Project and in accordance with paragraph 1.4 above. The NOTAM shall clearly define the dates and times when works will be in progress, what obstacles will be involved and procedures for clearing these obstacles prior to aircraft movement.



#### **4.8 Denial of Access to the Works**

During declared airport emergencies and/or poor visibility conditions, the Contractor may be either be refused entry to the Site or removed from the airside. Due to the unforeseen nature of these conditions, it may not be possible to give prior warning to the Contractor. In such circumstances, the Contractor shall advise the Contract Administrator on a daily basis of any claim for cost or extensions of time.

#### **4.9 Inspection Checklist & Operational Sign Off**

An inspection checklist will be used during the works to ensure the airfield is left in a suitable condition for operational activities. An example checklist is provided in Appendix D.

#### **4.10 Emergency and Adverse Weather**

In case of aircraft emergencies, the Contractor will comply with all SO Instructions for ceasing operations and removing plant and personnel from the immediate location.

In extreme adverse weather, the SO has the authority to stop the work where personnel or operational safety is considered at risk. Work will resume when those conditions abate but at the discretion of FA.

In such an emergency situation the Contractor shall, if time permits, reinstate the works to a standard required at the close of each shift as follows:

- All Materials, Vehicles, Personnel and Equipment shall be removed from the worksite as required under the operational requirements in the specification. This shall be as a minimum that no plant or materials shall intrude into any transitional surface.
- The runway shall be swept and left clean of any dirt or loose debris that may cover markings, or reduce the smoothness or skid resistance of the surface or may be sucked into engines or be thrown up by their prop wash or air blast.
- All surfaces shall be reinstated to safe condition for their use.
- Complete an inspection of the site with the SO in accordance with the Inspection Checklist.
- Works will be confined only to the work areas on the runway.
- FA will provide a Safety Officer (SO) who will have complete authority to direct the Contractor on Aerodrome Operational Requirements.
- All staff involved in the works must undergo a site specific briefing in relation to works safety and security requirements prior to commencing on site. FA will deliver the first briefing and thereafter the Contractor will be responsible for briefing new workers on safety and security requirements.
- The Contractor shall comply with the requirements of the Contract Documents produced for this project and this MOWP. The Contractor's site representative shall contact the SO at least one hour prior to the start of each working period to ascertain the status for the proposed work with respect to the operational requirements of the aerodrome.



#### **4.11 Personnel, Equipment, Plant and Materials**

The nominated personnel for key roles are specified in Section 5: Administration.

All personnel involved on this job shall be bound by any instructions issued by the Safety Officer either verbally and/or written. The Safety Officer may refuse access to persons likely, in his opinion, to compromise aircraft safety on the aerodrome.

Personnel are to be confined to the defined work area and access routes at all times.

All staff are to wear high visibility jackets and safety boots or safety shoes whilst working on the airport. Staff must also wear hand gloves, dust protectors, safety glasses and ear muffs (as required through Contractors Health and Safety requirements).

The Contractors access will be limited to the work areas as shown on the Access Layout plan in Appendix B.

All construction work will be required to withdraw personnel and equipment from the construction area in the event of an emergency.

Only equipment, plant and materials that are required for daily construction activities shall be permitted Airside.

Refer Appendix G – Machinery/Plant/Vehicle Listing

#### **4.12 Aircraft Operations**

Aircraft Operators and Airlines are required to notify FA at least 24 hours prior to any proposed deviation to the approved flight schedules.

Aircraft operators who do not notify changes in a timely manner will be required to re-schedule or incur significant delays.

#### **4.13 Work Limits**

All works and the Contractors Constructor's plant, equipment, materials and personnel shall be confined to the areas established by the Contractor, in coordination with the SO.

White banded orange cones will define the limit of the specific works area during all phases.

#### **4.14 Control of the Contractor's personnel and Security**

The directions of the SO shall bind all personnel associated with the work in respect of operational safety matters.

All personnel requiring access to the works site must have appropriate identification identifying them as an employee of the Contractor and have a valid Airport ID card.

Additionally, the following provisions will apply to all Contractor personnel carrying out works on the airside of the airport:



- All workers must attend a security / Safety briefing provided by the Airside & AVSEC Section;
- All vehicles must use only designated access routes;
- All Contractor personnel must comply with any additional security provisions, which may be imposed by FA;
- Unauthorized persons must not enter the Works Area.
- Persons and vehicles shall be subjected to security screening prior to every entry onto Airside.
- Any sites controlled by the Contractor Landside are to be secured by the Contractor's personnel against theft or interference;

FA reserves the right to limit or restrict access to airside areas at short notice to comply with security systems and/or procedural variations resulting from increases in aviation threat levels.

Employees of The Contractor shall obey any directions given by Safety Officers or FA Authorised Officers.

#### **4.15 Access to Works Area**

Specific access routes to and from the works areas will be as directed by the SO (The Contractor is to liaise with the SO to confirm the access routes and update the plan attached in Appendix B).

Movement of vehicles, plant and equipment must be confined to designated routes in order to minimise tracking of dirt and debris onto airfield pavements and to prevent damage to airport lighting.

#### **4.16 Parking**

Equipment parking must only be located in areas designated to the Contractor by the SO or as show in the Appendix B.

#### **4.17 Contractors Vehicles and Plant**

Vehicles allowed airside must be checked by the Airside Operation officer before an Airside Vehicle Permit can be issued. The designated drivers will have to show a valid driving licence and a letter from the Contractor to indicate they are designated drivers before they are issued with a temporary AVP.

No movement of vehicles or plant is to take place outside the works areas or designated access routes without the consent of the SO. Only vehicles and plant actually engaged in the work shall be permitted at the works site.

At the end of each work period or in preparation for a landing, all vehicles and plant shall be moved clear of the movement area and parked in an area pre-designated for parking.

Private vehicles belonging to Contractor personnel shall be permitted to park only in the public car park areas or such other areas made available by FA. Private vehicles will not be permitted airside.

All vehicles used airside must be covered under The Contractors full comprehensive insurance, including third party insurance.

All vehicles allowed airside must be equipped with a portable fire extinguisher.



#### **4.18 Reinstatement of Disturbed Areas**

Passage of vehicles to/from any airside worksite must be stabilised against erosion and reinstated with turf at the completion of works.

#### **4.19 Cleanliness**

Measures shall be taken at all times for control of dust, debris or other nuisance materials and the Contractor shall immediately respond to any direction by the SO to eliminate a problem.

The Contractor is to ensure that aircraft pavements used or crossed during the works are kept clean and free of debris at all times. The SO on duty will determine when the pavement is in a sufficiently clean condition to allow the safe operation of aircraft.

The Contractors personnel are to take every precaution to prevent any spillage of material on or in the vicinity of aircraft movement areas, or in transit to and from the work site. Any spillage shall be removed by the Contractor to the satisfaction of the SO.

For airfield pavement areas that are to be returned to operational service following the completion of the work and within the remaining period, the treated pavements shall be completed and cleaned to a condition suitable for aircraft operations. Rolling, brooming, line marking, cleaning and plant removal may then be undertaken until 30 minutes prior to the completion of the stage detailed in the MOWP, at which time the work site shall be vacated.

Prior to the completion of each stage, the Contractor is to:

- Remove all personnel, equipment and rubbish from the work site;
- Ensure all pavements are swept clean and left in a condition assessed as serviceable and safe by the Safety Officer;
- Restore any damaged areas to the satisfaction of the SO;

The Contractor must employ a fully operational self-propelled vacuum sweeper, or approved equivalent, to clean each work area throughout the duration of each work period.

At the completion of each work stage, FA representatives / SO will undertake a commissioning inspection.

#### **4.20 Visual Ground Aids**

The Contractor must protect all runway and apron edge lights in each work area through the installation of approved barriers.

The barriers must be placed prior to the commencement of work and must remain in place for the duration of the work period/day that work is being carried out.

#### **4.21 Security**

The requirements relating to operational safety set out in CAAF Standard Document SD 139-05 shall apply and the directions of the Safety officer shall bind all personnel associated with the work in respect of operational safety matters.

All personnel requiring access to the works site must have valid ID's issued by FA Security and comply with the above as well as any other security requirements provided by the Safety Officer from time to time.



All personnel are to wear their Security passes on the outside of their clothing / PPE at all times while on the airport. At the completion of the Works, all security passes shall be handed back to FA.

Aviation Security officers will be monitoring all works associated with the Project airside for security reasons.

#### **4.22 Communications**

The Safety Officer will have possession of a portable VHF Air Band transceiver radio tuned to the Control Tower frequency. This radio will be carried at all times by the Safety Officer whilst works are in progress on the movement area. The Safety Officer shall be the primary contact for the Control Tower for all safety related communications and to warn the contractor to vacate the movement area due to aircraft movements.

For general discussions and problems regarding the project, the Control Tower shall contact the FA Project Manager.

### **5. ADMINISTRATION**

#### **5.1 Project Manager**

Project Manager : Ashley Kumar

This position is held by : Pavement Engineer

Contact Number (s) : +679 9929167

Is responsible for the operational safety aspects of the project. The Project Manager's is to be represented on site by the Safety Officers who will communicate with the Contractors Representative and Contract Administrator on matters necessary for ensuring the safe progress of the work.

#### **5.2 Works Safety Officer**

Is nominated as being : Duty Officer

Contact Number (s) : +679 9906021

The SO shall be responsible for the safe and effective implementation of project and includes;

- Ensure safety of aircraft operations in accordance with directions in the MOWP during project implementation;
- Ensure that, where applicable, works are notified by issue of a NOTAM;
- Liaise daily with ATC on information pertinent to the safety of aircraft operations  
Discuss daily with the Project Manager and Contractor's Representative, any matters necessary for the safety of aircraft operations;
- Ensure that unserviceable portions of the movement area, temporary obstructions, and the limits of the works area are correctly marked in accordance with the MOWP;
- Ensure that all other requirements relating to vehicles, plant and equipment and materials are complied with
- Establish access routes for the Contractor to and from the work areas; and
- Report immediately to ATC, MAO and the GM ATM & OPS any incident, or damage to facilities, likely to affect the safety of aircraft.



### **5.3 Engineers Representative**

Is nominated as being : Ronil Raj

Contact Number (s) : +679 8952572

The responsibilities of the Engineer's Representative is as follows:

- Ensure that work is carried out in accordance with the MOWP;
- Ensure safety of aircraft operations in accordance with directions in the MOWP during project implementation;
- Ensure that work is carried out in accordance with the Technical Specification;
- Ensure the Contractors personnel follow directions given by the SO.

### **5.4 Contractors Representative**

Is nominated as being : Lyal Mathewson

Contact Number (s) : +679 2215914

The responsibilities of the Contractor's Representative is as follows:

- Ensure that the Contractors personnel involved in the Project are well trained and briefed on safety requirements, the rules and regulations associated within this MOWP
- Inducted frequently on Health and Safety Requirements and wear the appropriate PPE.
- Ensure that all the contract and related works are carried out carefully so as not to damage existing facilities and services and in accordance with the Contract technical specifications and best practice.
- Ensure that vehicles, plant and equipment involved in the project are licensed, appropriately marked and equipped with flashing orange beacons.
- Ensure that work is carried out in accordance with the recognised standards.
- Ensure the contracted personnel follow directions given by the SO.

## **6. AUTHORITY**

### **6.1 Issue**

This MOWP is issued in accordance with the Nadi Aerodrome Manual – Aerodrome Works Safety Section 4.8-1.

### **6.2 Variation**

No variation to this MOWP is to take place without the written approval of the FA Project Manager in consultation with the Contractor.

### **6.3 Expiry**

This MOWP will remain in force until the 10<sup>th</sup> October 2020 unless extended by an amendment.



## 6.4 Approval

This MOWP is authorised by FA & all works will be carried in compliance with these requirements and approved by FA Management.

Project Manager

Manager Airside Operations

Manager Safety & Risk Management

Contractor's Representative

Consultant Engineer (GHD)

Fiji Airports General Manager ATM & Ops

Qu

J. P.

CMGK

Raj

02/09/2020

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## 7. DRAWING

To be used as guide drawings only. Final and as-maintained design drawings.

## 8. DISTRIBUTION

Fiji Airports, Project Manager, Contractor's Representative, MAO, GM ATM & OPS, Safety Officer, Air Traffic Control, MASS, MARFFS,MSRM, and CAAF.



# Appendix A

## CAAF SD Aerodromes



## 6.4 Approval

This MOWP is authorised by FA & all works will be carried in compliance with these requirements and approved by FA Management.

Project Manager

Manager Airside Operations

Manager Safety & Risk Management

Contractor's Representative

Consultant Engineer (GHD)

Fiji Airports General Manager ATM & Ops

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## METHOD OF WORKING PLAN [ MOWP ]

<b>AERODROME</b>	<b>NADI INTERNATIONAL AIRPORT, NADI (NAN)</b>
<b>PROJECT DESCRIPTION</b>	<p><b>2020 MAINTENANCE PLAN – SEST (SURFACE ENRICHMENT SPRAY TREATMENT)</b></p> <p>Pavement Maintenance involving the spraying of CAT30 emulsion from the edge line 21 metres wide on Runway 02-20, 13.5 metres wide from the edge line on runway 09-27, and adjacent Domestic Terminal Gates 11,12 and 13</p>
<b>REFERENCE NUMBER</b>	
<b>DATES</b>	<p>Commencement of Works: <b>18<sup>th</sup> September 2020</b></p> <p>Completion of Work: <b>29<sup>th</sup> September 2020</b></p> <p>Expiry of MOWP: <b>30<sup>th</sup> September 2020</b></p>
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# 1. WORKS INFORMATION

## 1.1 Background

**Fiji Airports** has developed a Pavement Maintenance Framework, which has resulted in a Pavement Maintenance Program involving the periodic implementation of surface treatments over the next 5 years.

FY19/20 Pavement Maintenance involves various activities: the replacement of Asphalt along Runway 02/20, sand emulsion sealing of Gates 11, 12 and 13, Surface enrichment spray treatment (SEST) of Runway 02-20 and Runway 09-27.

This MOWP is associated with Phase 3 Pavement Maintenance of FY19/20 implementation of periodic maintenance treatments to Nadi International Airport specific to Surface Enrichment Spray Treatment (SEST) on both runways and Domestic Aircraft Stands.

The construction plans for the works is included in Appendix B.

## 1.2 Description of Work

This Phase of work involves spraying CAT30 emulsion onto the existing asphalt surface on Runway 02-20 and 09-27, and also includes the area adjacent the Domestic Terminal Gates 11,12 and 13. The key scope comprise the following;

- Sweeping of existing asphalt surface near the edgeline prior to spraying CAT30 emulsion.
- Protection of existing runway lighting where required
- Spraying CAT30 emulsion onto the existing asphalt surface.
- Reinstating runway paint marking effected by the works.

### 1.2.1 Construction Traffic

It is proposed that construction traffic will enter and exit the works areas via a nominated construction access route as marked on the attached plans. Refer Appendix B.

All access to the worksites by the Contractor's personnel, plant and equipment will be under strict Works Safety Officer (WSO) escort.

Specific access routes to and from the works area will be directed by the Works Safety Officer. Movement of vehicles, plant and equipment must be confined to these routes in order to minimise tracking of dirt and debris onto aircraft movement area pavements and to prevent damage to airport lighting.

The Civil Contractor is required to keep all pavements used or traversed during the works clean to the satisfaction of the WSO. The Contractor shall use mechanical sweepers or suction trucks for the purpose of keeping the pavement surfaces clean and FOD free.

## 1.3 Commencement Date and Execution of Works

### 1.3.1 Timing

A NOTAM will be in place for all works. The actual date and time of commencement will be advised by NOTAM, and is to be issued by FA 48 hours before work commences or as soon as possible when the 48 hours' notice cannot be achieved.

The Contractor shall give two clear working days' notice (Monday - Saturday) prior to commencement of works.



Works will be arranged so as not to disrupt scheduled aircraft movements, emergency flights and approved special flights.

However works shall cease during the following times

- During scheduled aircraft movements as directed by the WSO
- When directed by the WSO **Working Hours**

### 1.3.2 Working Hours

Operational Hours of the Airport are as follows:

The SEST works also impact Runway 09-27, gates 11-13 and the Domestic Apron in staged closure.

Hours of working will be as follows (based on current airline schedules, may change as schedules alter).

Sept 12 - Oct 7th	Thu 17/09/2020	Fri 18/09/2020	Sat 19/09/2020	Sun 20/09/2020	Mon 21/09/2020	Tue 22/09/2020	Wed 23/09/2020	Thu 24/09/2020	Fri 25/09/2020	Sat 26/09/2020	Sun 27/09/2020	Mon 28/09/2020	Tue 29/09/2020
1:00:00 AM					SHIFT 4-RWY02-20		SHIFT 6				SEST CURE		SEST CURE
2:00:00 AM					CH1890-CH3140		RWY 02-20				PAINT		SEST CURE
3:00:00 AM		SHIFT 1 GATES 11-12 DOMESTIC TERMINAL	RWY 02-20	RWY 02-20	SEST APPLY	SHIFT 5 GATES 12-13 DOMESTIC TERMINAL	CH1310-1880				PAINT		PAINT
4:00:00 AM			CH0-CH1300	CH1890-CH3140	SEST APPLY		SEST APPLY				PAINT		PAINT
5:00:00 AM			SEST APPLY	SEST APPLY	SEST APPLY		SEST CURE				PAINT DRY		PAINT DRY
6:00:00 AM			SEST APPLY	SEST APPLY	SEST CURE		SEST CURE				PAINT DRY		PAINT DRY
7:00:00 AM		SEST APPLY	SEST APPLY	SEST APPLY	SEST CURE	SEST APPLY	SEST CURE						
8:00:00 AM		SEST CURE	SEST CURE	SEST CURE	SEST CURE	SEST CURE	SEST CURE						
9:00:00 AM		SEST CURE	SEST CURE	SEST CURE	SEST CURE	SEST CURE	PAINT						
10:00:00 AM		SEST CURE	SEST CURE	SEST CURE	PAINT	PAINT	PAINT						
11:00:00 AM		PAINT	SEST CURE	SEST CURE	PAINT	PAINT	PAINT DRY						
12:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT	PAINT DRY						
1:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT	PAINT DRY						
2:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT	PAINT DRY						
3:00:00 PM		PAINT	PAINT	PAINT	PAINT DRY	PAINT DRY	PAINT DRY						
4:00:00 PM		PAINT DRY	PAINT	PAINT	PAINT DRY	PAINT DRY	PAINT DRY						
5:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY						
6:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY						
7:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY						
8:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY						
9:00:00 PM													
10:00:00 PM													
11:00:00 PM													
12:00:00 AM													
LEGEND													
Runway 09-27													
Runway 02-20 & Runway 09-27													

All times displayed in LOCAL TIME.

### 1.3.3 Programme of Works

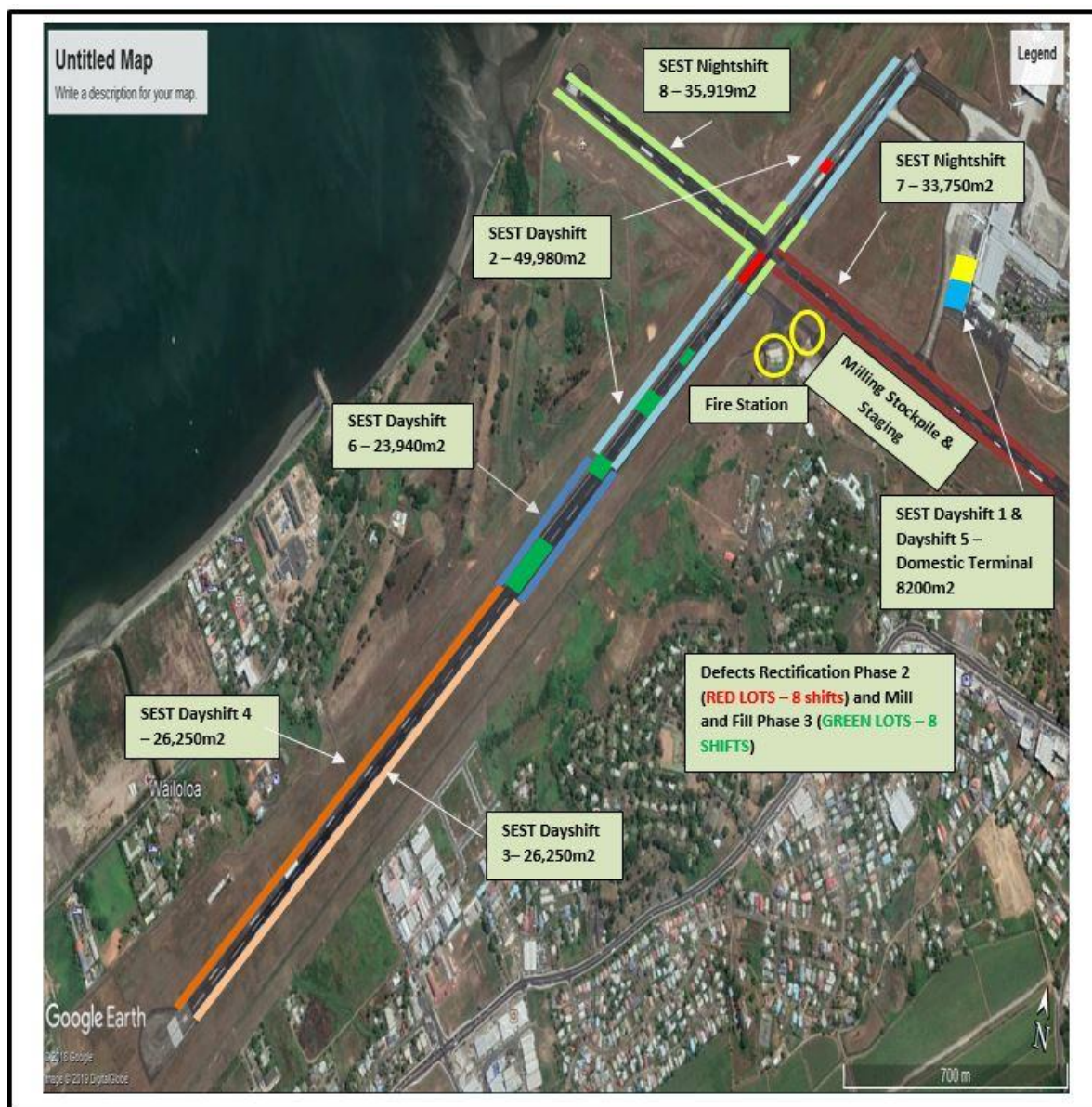
The following duration of works are anticipated as per below:

Mobilisation period – 1 week

Surface Enrichment Spray Treatment: 8 Shifts

Refer below Sequence Diagram





### 1.3.4 Sequence of Work

The sequence of work will commence on Gates 11-13 on the Friday to ensure that airside operations and the progress of the works on the first day airside (this follows a landside trial) are conducted safely and the SEST achieves the necessary hardness prior to operations in a low risk environment. Following this work being completed successfully the works commence from the 20 end of runway 02/20 and progressively work towards the 02 end during dayshift hours. Due to the volume of air traffic on runway 09/27 during the day, we will be planning to complete all of this work during our nightshift. The total area completed during each shift is dependent on the window of time available, complete all tasks; from access to work zone, clean up, full demobilisation of plant from work zone, inspection and handover to AFL.

To ensure maximum use of the allocated time slots and favourable weather conditions, the Contractor shall confirm with the Project Manager of FA during the day at least 5 Hours Prior start of Works.

We must also take into consideration for the time required for FA staff to complete the re-marking of the existing runway marking post spraying of the SEST.



## 2. SAFETY

### 2.1 Method of Working Plan

Works shall be done in strict accordance with this Method of Working Plan (MOWP)

### 2.2 Safety of Aircraft Operations at All Times

Aircraft operations and aviation safety take precedence at all times.

### 2.3 Daily Aircraft Schedule Update

The Works Safety Officer (WSO) shall contact the tower after 20:00 every evening to obtain an update to the aircraft schedule giving any deletions, changes, special additions to the weekly schedule put out on the day before the work commences.

## 3. RESTRICTIONS TO AIRCRAFT OPERATIONS

There will be **NO** restrictions imposed on scheduled aircraft operations for Runway 02/20 and Runway 09/27. During the construction work window, times tentatively noted in section 1.3.2, the Runway will be closed.

In the case of low visibility conditions being forecasted before the construction shift commences, the works will be delayed or cancelled accordingly, to facilitate continued aircraft operations.

FA will publish aeronautical Information pertaining to the Nadi aerodrome operating status via NOTAM's. Any variations to that advised above will be notified via NOTAM.

## 4. RESTRICTIONS TO THE WORKS

### 4.1 General

The Contractor shall comply with the requirements of CAAF Standard - Aerodromes, this MOWP and the provision of the specifications for these works (Refer Appendix A).

The Contractor's site representative shall contact the WSO at the start of each working shift to ascertain the status for the proposed work with respect to the operational requirements of the aerodrome.

All plant, equipment and materials shall be secured at all times during the work (on site and at laydown area) so that it is not be able to be wind borne. Plant and materials will be stored in such a manner that wing tip clearances of aircraft operating in close proximity the site are not compromised.

All lighting erected and operated by the Contractor shall comply with the Civil Aviation Authority Fiji requirements.

All vehicles and plant operating on or near aircraft operational areas shall display a flashing orange light when vehicles are moving to and from the areas of work.

### 4.2 Driving



A speed limit of 40kph applies to all vehicles on the general airport movement area and 8kph when within 15 metres of aircraft. Breaches of these speed limits will result in refusal of access to the airside for the driver involved for the remainder of the works.

All vehicle drivers requiring access onto airside shall undertake training delivered by FA.

Any non-compliance with respect to this plan shall see immediate removal of the truck and driver from the project. It is mandatory that all vehicles operating on the airside shall have third party and public liability insurance cover of not less than \$1M FJD.

Drivers must ensure that trucks are correctly loaded and where necessary covered prior to entering and leaving site to prevent any spillage. In the event of spillage the truck driver must immediately notify the project manager / safety officer who will oversee the cleaning of spilled materials by the Contractor.

#### **4.3 Pavement Cleanliness – FOD Protection**

The Contractor is required to keep all aircraft pavements used or crossed during the works clean to the satisfaction of the WSO.

No motor vehicle shall leave or enter the site laden with any materials unless the vehicle is loaded and/or covered in a manner that shall prevent the discharge or dropping of any materials.

The Contractor shall ensure that the wheels, tracks and body of all construction plant leaving the site are free from dirt or any other material, which may discharge or drop. Tracked plant or equipment shall not be used on any existing or new pavement surfaces.

Vehicles or plant not in use shall be parked and immobilised outside the 300 metre wide runway strip (150 metres either side of the runway centreline), or as nominated by the WSO.

If the Contractor fails to keep these areas clean, the WSO may arrange cleaning and the cost thereof shall be a debt due and payable by the Contractor to FA.

#### **4.4 Airport Security and Airside Safety Requirements**

Every person desiring to enter the Site shall comply with all safety and security regulations relating to site and with all conditions relating to entry to and behaviour on the Site.

#### **4.5 Marking the Unserviceable Area**

Markers will comprise white banded orange cones or white banded red marker boards to define the limits of the available movement area (if required).

#### **4.6 Emergencies, Adverse Weather and Late Aircraft**

Under certain emergency situations or in the event of adverse weather conditions, the Contractor may be denied access to the airside of the airport and to the work areas. This will only apply prior to the scheduled commencement of the daily works.

Once closed, the closed portion of the runway cannot be re-opened for any aircraft operations including emergencies or adverse weather due to works in progress unless an assessment by appropriate personnel indicate that a safe landing or take off can be achieved.

#### **4.7 After Completion of Work**



Prior to operational handover, the pavements will be inspected and accepted for operational use and safety.

Pilots should exercise caution on pavement areas treated in line with the sequence of works and NOTAM detail.

#### **4.8 NOTAM**

Works in Progress (WIP) will be arranged to minimise restrictions to schedule aircraft movements. The WSO shall be responsible for issuing NOTAMs relating to the Project and in accordance with paragraph 1.3 above. The NOTAM shall clearly define the dates and times when works will be in progress, what obstacles will be involved and procedures for clearing these obstacles prior to aircraft movement.

#### **4.9 Denial of Access to the Works**

During declared airport emergencies and/or poor visibility conditions, the Contractor may be either be refused entry to the Site or removed from the airside. Due to the unforeseen nature of these conditions, it may not be possible to give prior warning to the Contractor. In such circumstances, the Contractor shall advise the Contract Administrator on a daily basis of any claim for cost or extensions of time.

#### **4.10 Inspection Checklist**

An inspection checklist will be used during the works to ensure the airfield is left in a suitable condition for operational activities. An example checklist is provided in Appendix D.

#### **4.11 Emergency and Adverse Weather**

In case of aircraft emergencies, the Contractor will comply with all WSO Instructions for ceasing operations and removing plant and personnel from the immediate location.

In extreme adverse weather, the WSO has the authority to stop the work where personnel or operational safety is considered at risk. Work will resume when those conditions abate but at the discretion of the AFL.

In such an emergency situation the Contractor shall, if time permits, reinstate the works to a standard required at the close of each shift as follows:

- All Materials, Vehicles, Personnel and Equipment shall be removed from the worksite as required under the operational requirements in the specification. This shall be as a minimum that no plant or materials shall intrude into any transitional surface.
- The runway shall be swept and left clean of any dirt or loose detritus that may cover markings, or reduce the smoothness or skid resistance of the surface or may be sucked into engines or be thrown up by their prop wash or air blast.
- All surfaces shall be reinstated to safe condition for their use.
- Complete an inspection of the site with the ASO in accordance with the Inspection Checklist.
- Works will be confined only to the work areas on the runway, taxiway and apron as shown on the plans.
- AFL will provide a Works Safety Officer (WSO) who will have complete authority to direct the Contractor on Aerodrome Operational Requirements.

All staff involved in the works must undergo a site specific briefing in relation to works safety and security requirements prior to commencing on site. AFL will deliver the first briefing and thereafter the Contractor will be responsible for briefing new workers on safety and security requirements.



The Contractor shall comply with the requirements of the Contract Documents produced for this project and this MOWP. The Contractor's site representative shall contact the WSO at least one hour prior to the start of each working period to ascertain the status for the proposed work with respect to the operational requirements of the aerodrome.

Prior to commencing each works period, the Contractor personnel shall meet with the WSO and the Contract Administrator in order to ensure that all parties including sub-contractors are aware of the working requirements and the work restrictions for each stage.

Smoking is not permitted on airside, or within any AFL Airport buildings. A designated smoking area can be designated by AFL when requested to by the Contractor, and if a suitable location can be identified outside of the operational runway strip.

Upon completion of each work period and before each aircraft operation, the works areas are to be made serviceable to the satisfaction of the WSO.

#### **4.12 Personnel, Equipment, Plant and Materials**

The nominated personnel for key roles are specified in Section 5: Administration.

All personnel involved on this job shall be bound by any instructions issued by the Works Safety Officer either verbally and/or written. The Works Safety Officer may refuse access to persons likely, in his opinion, to compromise aircraft safety on the aerodrome.

Personnel are to be confined to the defined work area and access routes at all times.

All staffs are to wear high visibility jackets and safety boots or safety shoes whilst working on the airport. Staff must also wear hand gloves, dust protectors, safety glasses and ear muffs (as required through Contractors Health and Safety requirements).

The Contractors access will be limited to the work areas as shown on the Access Layout plan in Appendix B.

All construction work will be required to withdraw personnel and equipment from the construction area in the event of an emergency.

Only equipment, plant and materials that are required for daily construction activities shall be located within the construction site.

All plant, equipment and materials shall be secured at all times during the work so that it is not vulnerable to jet blast or be able to be wind borne. Plant and materials will be stored in such a manner that wing tip clearances of aircraft operating around the site are not compromised.

All plant, equipment and materials shall not exceed plant height restrictions.

All vehicles and personnel involved in the project will be clearly marked and held to one side of the runway at a distance of not less than 75 metres from the runway centreline during aircraft movements.

#### **4.13 Aircraft Operators**

Aircraft Operators and Airlines are requested to notify AFL of any proposed deviation to the approved flight schedules in a timely manner. Aircraft operators who do not notify changes in a timely manner may be required to re-schedule.

#### **4.14 Works Limits**



All works and the Contractor's plant, equipment, materials and personnel shall be confined to the areas established by the Contractor, in coordination with the WSO. White banded orange cones will define the limit of the specific works area during all phases

#### **4.15 Control of the Contractor's Personnel and Security**

The directions of the WSO shall bind all personnel associated with the work in respect of operational safety matters.

All personnel requiring access to the works site must have appropriate identification identifying them as an employee of the Contractor and have a valid Airport ID card. Additionally, the following provisions will apply to all Contractor personnel carrying out works on the airside of the airport:

Site supervisors and foremen must attend a security briefing provided by the WSO;

- All vehicles must use only designated access routes;
- All Contractor personnel must comply with any additional security provisions, which may be imposed by AFL;
- Unauthorized sightseers or persons without permission must not enter the Works Area to visit the site;
- Persons and vehicles may be subject to a search at any time;
- Any sites controlled by the Contractor are to be secured by the Contractor's personnel against theft or interference;
- The Contractor is to maintain records of all personnel entering or leaving any site within the Security Restricted Area (this is usually done at the entry gate); and
- Children, dogs, animals and firearms are prohibited airside.

AFL reserves the right to limit or restrict access to airside areas at short notice to comply with security systems and/or procedural variations resulting from increases in aviation threat levels.

Employees of The Contractor must obey any directions given by Airport Safety Officers or FA Authorised Officers.

#### **4.16 Access to the Works Area**

Specific access routes to and from the works areas will be as directed by the WSO (The Contractor is to liaise with the WSO to confirm the access routes and update the plan attached in Appendix B).

Movement of vehicles, plant and equipment must be confined to designated routes in order to minimise tracking of dirt and debris onto airfield pavements and to prevent damage to airport lighting.

#### **4.17 Parking**

Equipment parking must only be located in areas designated by the Contractor and approved by the WSO.

#### **4.18 Contractor's Vehicles and Plant**

Vehicles allowed airside must be checked by the maintenance personnel before Aviation Security issues an Airside Vehicle Permit. The designated drivers will have to show a valid driving licence and a note from the Contractor to indicate they are designated drivers before their ID Cards show they are issued with Airside Drivers Permit.



No movement of vehicles or plant is to take place outside the works areas or designated access routes without the consent of the WSO. Only vehicles and plant actually engaged in the work shall be permitted at the works site.

At the end of each work period or in preparation for a landing, all vehicles and plant shall be moved clear of the movement area and parked in an area pre-designated for parking.

Private vehicles belonging to Contractor personnel shall be permitted to park only in the public car park areas or such other areas made available by AFL. Private vehicles will not be permitted airside.

All vehicles used airside must be covered under The Contractors full comprehensive insurance, including third party insurance.

All vehicles allowed airside must be equipped with a portable fire extinguisher.

#### **4.19 Reinstatement of Disturbed Areas**

All natural surface areas that are disturbed by earthworks or the passage of vehicles to/from any airside worksite must be stabilised against erosion and reinstated with turf at the completion of works.

#### **4.20 Cleanliness**

Measures shall be taken at all times for control of dust, debris or other nuisance materials and the Contractor shall immediately respond to any direction by the WSO to eliminate a problem.

The Contractor is to ensure that aircraft pavements used or crossed during the works are kept clean and free of debris at all times. The WSO on duty will determine when the pavement is in a sufficiently clean condition to allow the safe operation of aircraft.

The Contractors personnel are to take every precaution to prevent any spillage of material on or in the vicinity of aircraft movement areas, or in transit to and from the work site. Any spillage shall be removed by the Contractor to the satisfaction of the WSO.

#### **4.21 Security**

For airfield pavement areas that are to be returned to operational service following the completion of the work and within the remaining period, the treated pavements shall be completed and cleaned to a condition suitable for aircraft operations. Rolling, brooming, line marking, cleaning and plant removal may then be undertaken until 30 minutes prior to the completion of the stage detailed in the MOWP, at which time the work site shall be vacated.

Prior to the completion of each stage, the Contractor is to:

- Remove all personnel, equipment and rubbish from the work site;
- Ensure all pavements are swept clean and left in a condition assessed as serviceable and safe by the Safety Officer;
- Restore any damaged areas to the satisfaction of the WSO; and
- areas where work is being conducted is marked off with cones

The Contractor must employ a fully operational self-propelled vacuum sweeper, or approved equivalent, to clean each work area throughout the duration of each work period.

At the completion of each work stage, AFL representatives / WSO will undertake a commissioning inspection.



#### **4.22 Visual Ground Aids**

The Contractor must protect all runway and apron edge lights in each work area through the installation of approved barriers. The barriers must be placed prior to the commencement of work and must remain in place for the duration of the work period/day that work is being carried out.

Refer Appendix E Methodology Statement

#### **4.23 Security**

The requirements relating to operational safety set out in CAAF Standard Document SD 139-05 shall apply and the directions of the Safety officer shall bind all personnel associated with the work in respect of operational safety matters.

All personnel requiring access to the works site must have valid ID's issued by AFL Security and comply with the above as well as any other security requirements provided by the Safety Officer from time to time.

All personnel are to wear their Security passes on the outside of their clothing / PPE at all times while on the airport. At the completion of the Works, all security passes shall be handed back to AFL.

Aviation Security officers will be monitoring all works associated with the Project airside for security reasons.

#### **4.24 Communications**

The Works Safety Officer will have possession of a portable VHF Air Band transceiver radio tuned to the Control Tower frequency. This radio will be carried at all times by the Works Safety Officer whilst works are in progress on the movement area. The Works Safety Officer shall be the primary contact for the Control Tower for all safety related communications and to warn the contractor to vacate the movement area due to aircraft movements. For general discussions and problems regarding the project, the Control Tower shall contact the AFL Project Manager.

Should contact fail to be made via the Air Band transceiver, the Tower will use the mobile phone number of the Works Safety Officer. Should this method fail to elicit a response, the Tower shall contact the Fire station or go immediately to the works area to make contact with the Works Safety Officer.

### **5. ADMINISTRATION**

#### **Project Manager**

This position is held by: **Ashley Kumar**  
Contact Number (s) **+679 992 9167**

Is responsible for the operational safety aspects of the project. The Project Manager's is to be represented on site by the Safety Officers who will communicate with the Contractors Representative and Contract Administrator on matters necessary for ensuring the safe progress of the work.

#### **Works Safety Officer**

Is nominated as being: **Airside Safety Officer**  
Contact Number (s) **+679 9906021**

The WSO shall be responsible for the safe and effective implementation of project and includes;



- Ensure safety of aircraft operations in accordance with directions in the MOWP during project implementation;
- Ensure that, where applicable, works are notified by issue of a NOTAM;
- Liaise daily with ATC on information pertinent to the safety of aircraft operations;
- Discuss daily with the Resident Engineer and Contractor's Representative, any matters necessary for the safety of aircraft operations;
- Ensure that unserviceable portions of the movement area, temporary obstructions, and the limits of the works area are correctly marked in accordance with the MOWP;
- Ensure that all other requirements relating to vehicles, plant and equipment and materials are complied with;
- Establish access routes for the maintenance team to and from the work areas; and
- Report immediately to ATC and the Executive Chairman any incident, or damage to facilities, likely to affect the safety of aircraft.

### **Engineer's Representative**

Is nominated as being: **Ronil Raj**  
Contact Number (s) **8952572**

The responsibilities of the Engineer's Representative is as follows:

- Ensure that work is carried out in accordance with the MOWP;
- Ensure safety of aircraft operations in accordance with directions in the MOWP during project implementation;
- Ensure that work is carried out in accordance with the Technical Specification;
- Ensure the Contractors personnel follow directions given by the WSO.

### **Contractor's Representative**

Is nominated as being: **Liyal Mathewson**  
Contact Number (s) **+679 2215914**

The responsibilities of the Contractor's Representative is as follows:

- Ensure that the Contractors personnel involved in the Project are well trained and briefed on safety requirements, the rules and regulations associated within this MOWP, the Contract Technical Specification and Higgins Project Delivery procedures and systems.
- Inducted frequently on Health and Safety Requirements and wear the appropriate PPE.
- Ensure that all the contract and related works are carried out carefully so as not to damage existing facilities and services and in accordance with the Contract technical specifications and best practice.
- Ensure that vehicles, plant and equipment involved in the project are licensed, appropriately marked and equipped with flashing orange beacons.
- Ensure that work is carried out in accordance with the recognised standards.
- Ensure the contracted personnel follow directions given by the WSO.

### **Distribution List**

To include:

Airports Fiji Limited, Engineering Supervisor, Contractor's Representative, Works Safety Officer, Air Traffic Control, Aviation Security, Manager ARFF, Airlines, CAAF, General Aircraft Operators



## 6. AUTHORITY

### 6.1 Issue

This MOWP is issued in accordance with the Aerodrome Manual – Aerodrome Works Safety Section 4.8-1.

All works will be carried out in accordance with the MOWP.

### 6.2 Variation

No variation to this MOWP is to take place without the written approval of the FA Project Manager in consultation with the Contractor.

### 6.3 Expiry

This MOWP will remain in force until 30<sup>th</sup> September 2020, unless extended by an amendment.

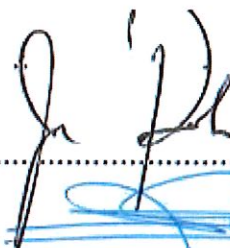
### 6.4 Approval

This MOWP is authorised by Fiji Airports & all works will be carried in compliance with these requirements and approved by FA Management.

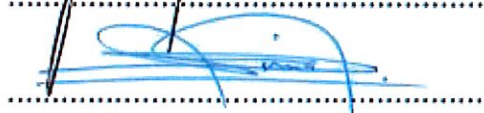
Project Manager



Manager Airside Operations



Manager Safety & Risk Management



Contractors Representative



02/09/2020

Consultant Engineer (GHD)



Fiji Airports General Manager ATM & Ops





## **7. DRAWINGS**

To be used as guide drawings only. Final and as-maintained design drawings

## **8. APPENDICES**

Appendix A; CAAF SD - Aerodromes  
Appendix B; Construction Plans  
Appendix C; Works Programme  
Appendix D; Inspection Checklist  
Appendix E; Methodology Statement  
Appendix F; Workmen/Plant/Machinery Listing



## Appendix B

### Construction Plans



## Appendix C

### Works Programme



## Appendix D

### Inspection Checklist / Operation Sign Off



## Appendix E

### Methodology Statement



## Appendix F

### Workmen/Plant/Machinery Listing



ACCESS ROUTES







# FIJI AIRPORTS

## NADI AIRPORT FY19/20

# PAVEMENT MAINTENANCE PROGRAMME

# 12504408

### DRAWING LIST

DRG No.	DRAWING TITLE
12504408 - C000	COVER SHEET, LOCALITY PLAN AND DRAWING LIST
12504408 - C001	LAYOUT PLAN
12504408 - C002	SURFACE ENRICHMENT SEAL TREATMENT - SHIFT ALLOCATION PLAN
12504408 - C003	MILL AND FILL - SHIFT ALLOCATION PLAN
12504408 - C004	FLEXIBLE PAVEMENT REPAIR



LOCATION PLAN  
NOT TO SCALE

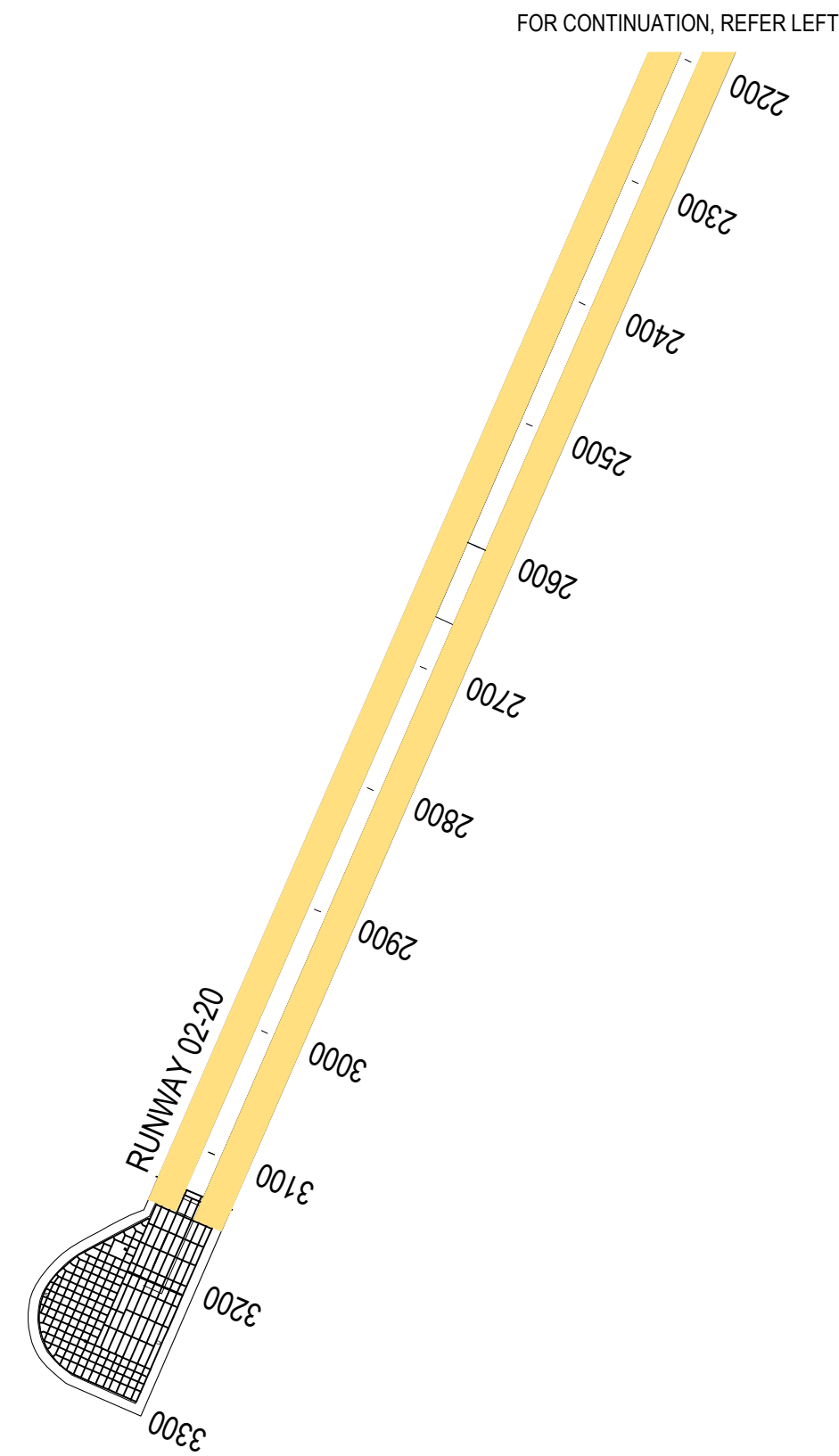
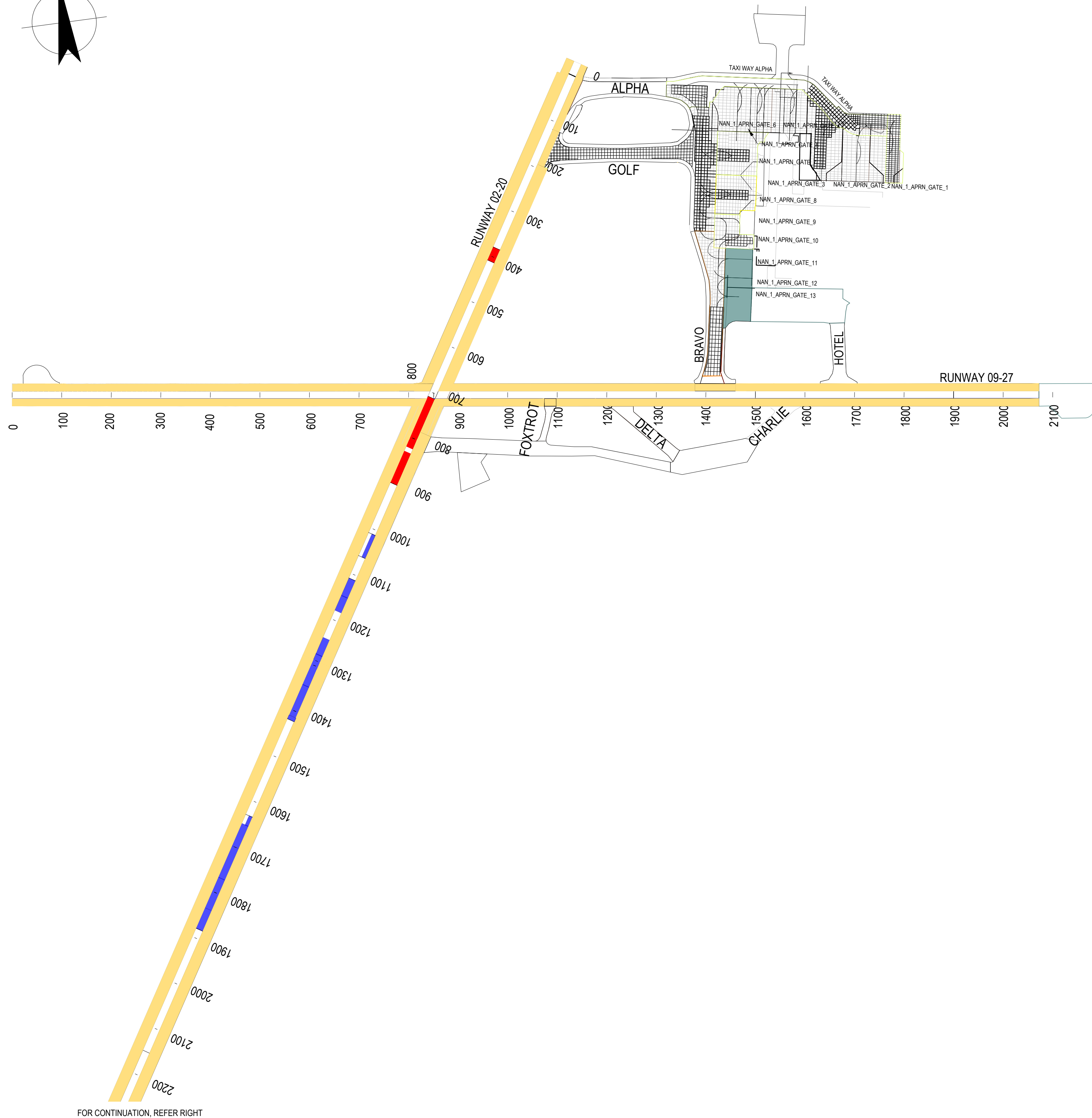
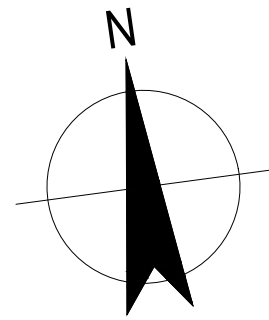
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<b>DO NOT SCALE</b>		Drawn R.KARAVAKI	Designer V.PRAKASH	Client <b>FIJI AIRPORTS LIMITED</b> Project <b>NADI AIRPORT FY 19/20 PAVEMENT MAINTENANCE</b> Title <b>COVER SHEET , LOCALITY PLAN &amp; DRAWING LIST</b>
GHD (Fiji) Pte Limited Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.		Drafting Check J.CZASTKA	Design Check J.LARSEN	
		Approved (Project Director) Date		
Scale NOT TO SCALE				Original Size <b>A1</b> Drawing No: <b>12504408-C000</b> Rev: <b>0</b>





NOTES

- ALL SURFACE ENRICHMENT SEAL TREATMENT AND SANDED BITUMEN EMULSION TO RECEIVE CRACK SEALING PRIOR TO WORKS.
- HIGGINS/ FIJI AIRPORTS WILL CARRY OUT REINSTATEMENT OF PAINT MAKING AFFECTED IN THE MILL AND FILL AREA AND SURFACE ENRICHMENT SEAL TREATMENT.
- ANY PAINT MARKINGS TAINTED BY CONSTRUCTION ACTIVITY OUTSIDE OF MILL/FILL AREAS ARE TO BE REPLENISHED AT THE CONTRACTORS EXPENSE.
- FOR TYPICAL DETAILS REFER TO 12504408-C004.
- SHIFT PLAN SHOWN IS REFLECTIVE OF CONTRACTORS PROGRAMME.
- ALL AERONAUTICAL GROUND LIGHTING AND OTHER STRUCTURES ARE TO BE PROTECTED, ALONG WITH THEIR PAINT MARKING.
- A SURVEY TO BE DONE AT ALL LOCATIONS WHERE PAINT MARKING WAS AFFECTED.

LEGEND

- SANDED BITUMEN EMULSION SPRAY SEAL WITH CRACK REPAIRS THROUGHOUT.
- SURFACE ENRICHMENT SEAL TREATMENT WITH CRACK SEALING REPAIRS THROUGHOUT
- PHASE 2 REMEDIAL WORKS
- PHASE 3 MILL AND FILL
- OLD CONCRETE SLAB
- NEW CONCRETE SLAB

FOR CONSTRUCTION

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director
					Date



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Drawn R. KARAVAKI

Designer V. PRAKASH

Drafting

Design

Check

Check

Approved

(Project Director)

Date

Scale

AS SHOWN

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signed as Approved

Client

FIJI AIRPORTS LIMITED

Project

NADI ARIPORT FY 19/20 PAVMENENT

Title

LAYOUT PLAN

Original Size

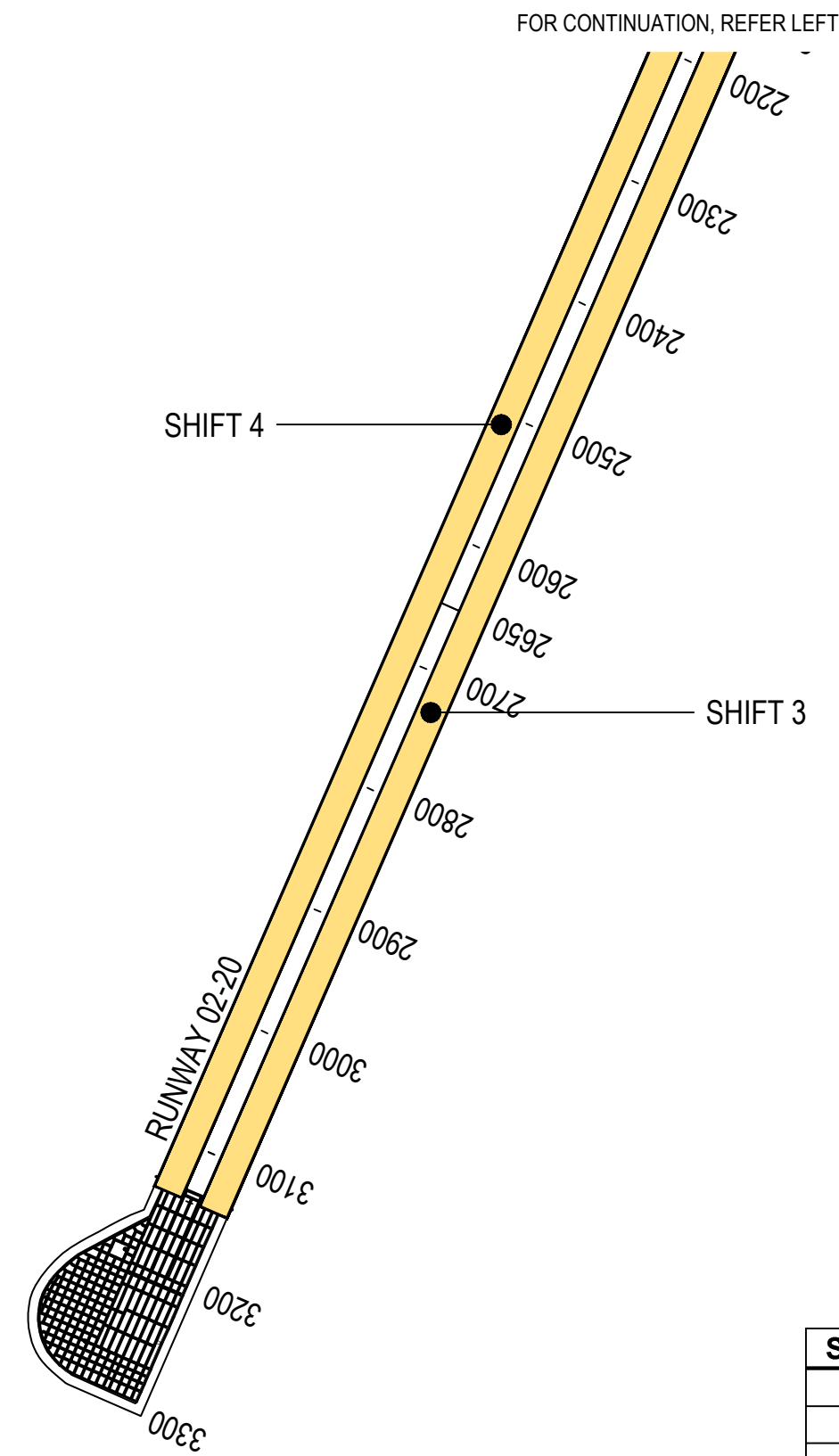
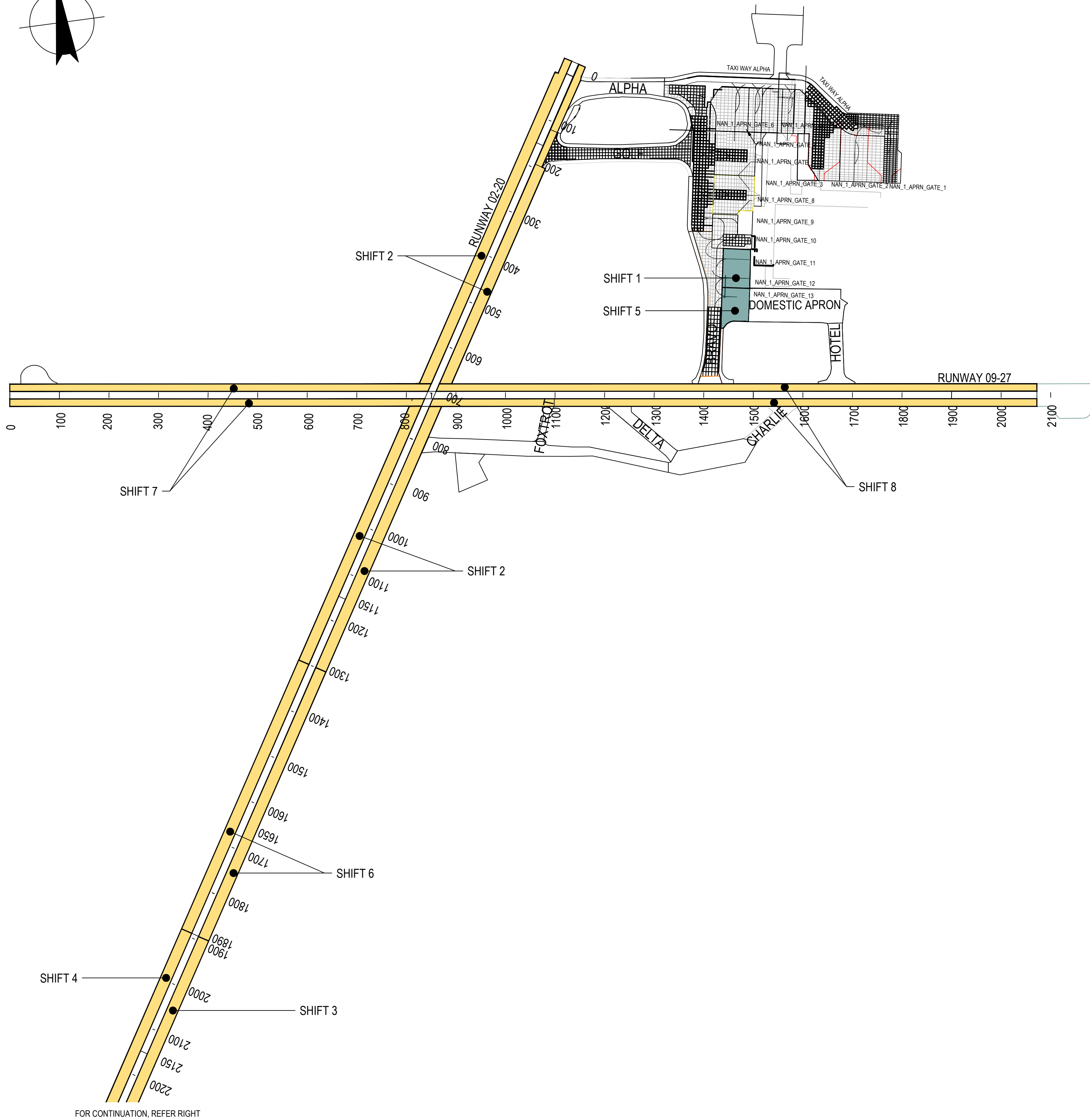
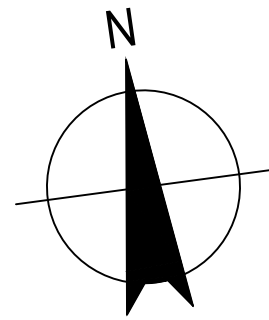
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Drawing No:

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Rev: 0





NOTES

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- HIGGINS/ FIJI AIRPORTS WILL CARRY OUT REINSTATEMENT OF PAINT MAKING AFFECTED IN THE MILL AND FILL AREA AND SURFACE ENRICHMENT SEAL TREATMENT.
- ANY PAINT MARKINGS TAINTED BY CONSTRUCTION ACTIVITY OUTSIDE OF MILL/FILL AREAS ARE TO BE REPLENISHED AT THE CONTRACTORS EXPENSE.
- FOR TYPICAL DETAILS REFER TO 12504408-C004.
- SHIFT PLAN SHOWN IS REFLECTIVE OF CONTRACTORS PROGRAMME.
- ALL AERONAUTICAL GROUND LIGHTING AND OTHER STRUCTURES ARE TO BE PROTECTED, ALONG WITH THEIR PAINT MARKING.
- A SURVEY TO BE DONE AT ALL LOCATIONS WHERE PAINT MARKING WAS AFFECTED.

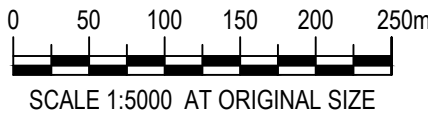
LEGEND

- SANDED BITUMEN EMULSION SPRAY SEAL WITH CRACK REPAIRS THROUGHOUT.
- SURFACE ENRICHMENT SEAL TREATMENT WITH CRACK SEALING REPAIRS THROUGHOUT

SHIFT	CHAINAGE	AREA
1	-	GATE 11 - 12
2	0-1300	RWY 02/20: BOTH SIDES
3	1890 - 3140	RWY 02/20: TERMINAL SIDE
4	1890 - 3140	RWY 02/20: NOT TERMINAL SIDE
5	-	GATE 12 - 13
6	1300 - 1890	RWY 02/20: BOTH SIDES
7	0 - 790	RWY 09/27: BOTH SIDES
8	850 - 2090	RWY 09/27: BOTH SIDES

FOR CONSTRUCTION

0	FOR CONSTRUCTION	RK			
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director

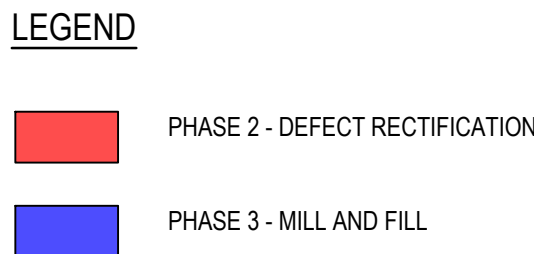


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<b>DO NOT SCALE</b>		Drawn R. KARAVAKI	Designer V. PRAKASH
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		Approved (Project Director) Date	
		Scale AS SHOWN	This Drawing must not be used for Construction unless signed as Approved

Client	FIJI AIRPORTS LIMITED		
Project	NADI ARIPORT FY 19/20 PAVMENENT		
Title	SURFACE ENRICHMENT SEAL TREATMENT SHIFT ALLOCATION		
Original Size	A1	Drawing No: 12504408-C002	Rev: 0





1. ALL SURFACE ENRICHMENT SEAL TREATMENT AND SANDED BITUMEN EMULSION TO RECEIVE CRACK SEALING PRIOR TO WORKS.
2. HIGGINS/ FIJI AIRPORTS WILL CARRY OUT REINSTATEMENT OF PAINT MAKING AFFECTED IN THE MILL AND FILL AREA AND SURFACE ENRICHMENT SEAL TREATMENT.
3. ANY PAINT MARKINGS TAINTED BY CONSTRUCTION ACTIVITY OUTSIDE OF MILL/FILL AREAS ARE TO BE REPLENISHED AT THE CONTRACTORS EXPENSE.
4. FOR TYPICAL DETAILS REFER TO 12504408-C004.
5. SHIFT PLAN SHOWN IS REFLECTIVE OF CONTRACTORS PROGRAMME.
6. ALL AERONAUTICAL GROUND LIGHTING AND OTHER STRUCTURES ARE TO BE PROTECTED, ALONG WITH THEIR PAINT MARKING.
7. A SURVEY TO BE DONE AT ALL LOCATIONS WHERE PAINT MARKING WAS AFFECTED.
8. ALL MILL AND FILL WORKS TO BE DONE TO A MINIMUM DEPTH OF 75mm.
9. MATCH ALL SECTION EDGES TO EXISTING TIE IN LEVEL.

## FOR CONSTRUCTION

[illegible]

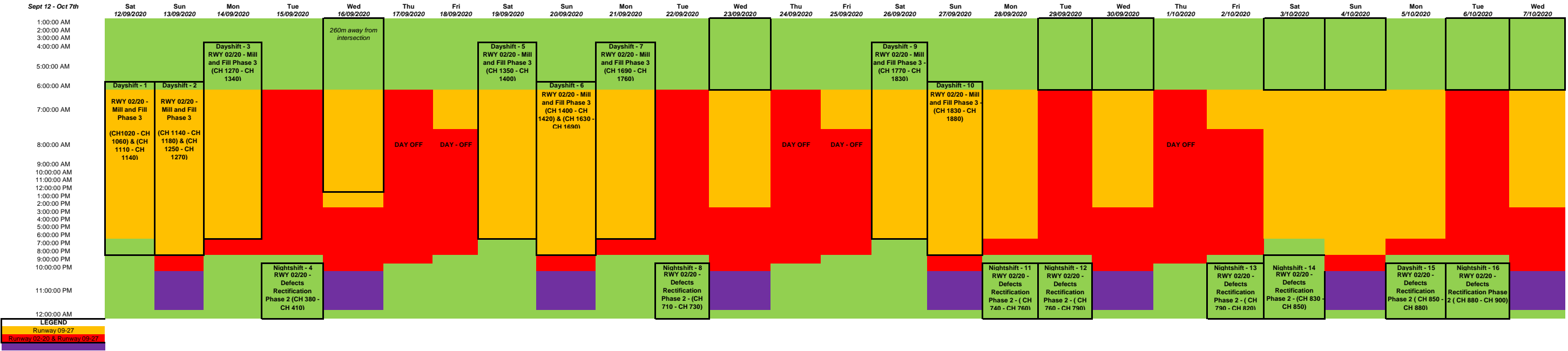






Task Name	Duration	Start	Finish	Resource Names	Predecessors																												
1 TOTAL PROJECT - NADI AIRPORTS LTD	44 days	Mon 24/08/20	Tue 6/10/20																														
2																																	
3 PRODUCTION TRIAL TESTING	8 days	Tue 25/08/20	Tue 1/09/20																														
4 Duration of testing	8 days	Tue 25/08/20	Tue 1/09/20	Duration of Testing for Production Trial																													
5																																	
6 LAYDOWN TRIAL & TESTING	8 days	Wed 2/09/20	Wed 9/09/20																														
7 Commencement of Laydown trial at Airport	1 day	Wed 2/09/20	Wed 2/09/20	Laydown Trial @ Airport																													
8 Duration of Testing	7 days	Thu 3/09/20	Wed 9/09/20	Duration of Testing	7																												
9																																	
10 NADI AIRPORT	32 days	Sat 5/09/20	Tue 6/10/20																														
11 Mobilisation to site	5 days	Sat 5/09/20	Wed 9/09/20	Mobilisation to site																													
12																																	
13 SURFACE ENRICHMENT SEAL TREATMENT	15 days	Wed 16/09/20	Wed 30/09/20																														
14 Trial for SEST	1 day	Wed 16/09/20	Wed 16/09/20	Trial for SEST																													
15 DAYSHIFT - DAY 1	1 day	Fri 18/09/20	Fri 18/09/20																														
16 Gates 11 - 12 @ 4100m2 - 5,330L	1 day	Fri 18/09/20	Fri 18/09/20	Sealing Crew	14																												
17 DAYSHIFT - DAY 2	1 day	Sat 19/09/20	Sat 19/09/20																														
18 RWY 02-20 @ 49,980m2 - 64,976L ( CH 0 - CH 1300)	1 day	Sat 19/09/20	Sat 19/09/20	Sealing Crew	16																												
19 DAYSHIFT - DAY 3	1 day	Sun 20/09/20	Sun 20/09/20																														
20 RWY 02-20 @ 26,250m2 - 34,125L ( CH 1890 - CH 3140 LHS)	1 day	Sun 20/09/20	Sun 20/09/20	Sealing Crew	18																												
21 DAYSHIFT - DAY 4	1 day	Mon 21/09/20	Mon 21/09/20																														
22 RWY 02-20 @ 26,250m2 - 34,125L ( CH 1890 - CH 3140 RHS)	1 day	Mon 21/09/20	Mon 21/09/20	Sealing Crew	20																												
23 DAYSHIFT - DAY 5	1 day	Tue 22/09/20	Tue 22/09/20																														
24 Gates 12 - 13 @ 4100m2 - 5,330L	1 day	Tue 22/09/20	Tue 22/09/20	Sealing Crew	22																												
25 DAYSHIFT - DAY 6	1 day	Wed 23/09/20	Wed 23/09/20																														
26 RWY 02-20 @ 23,940m2 - 31,122L ( CH 1310 - CH 1880 )	1 day	Wed 23/09/20	Wed 23/09/20	Sealing Crew	24																												
27 NIGHTSHIFT - DAY 7	1 day	Sat 26/09/20	Sat 26/09/20																														
28 RWY 09-27 @ 33750m2 - 43,875L ( CH 0 - CH 790 )	1 day	Sat 26/09/20	Sat 26/09/20	Sealing Crew	26																												
29 NIGHTSHIFT - DAY 8	1 day	Mon 28/09/20	Mon 28/09/20																														
30 RWY 09-27 @ 27,630m2 - 35,919L ( CH 850 - CH 2090 )	1 day	Mon 28/09/20	Mon 28/09/20	Sealing Crew	28																												
31																																	
32 MILL & FILL PHASE 3 AND DEFECTS RECTIFICATION PHASE 2	26 days	Sat 12/09/20	Wed 7/10/20																														
33 DAYSHIFT - DAY 1	1 day	Sat 12/09/20	Sat 12/09/20																														
34 RWY 02-20 - Mill & Fill @ 75mm depth - 540m2 @ 97tons (CH 1010 - CH 1060) and 684m2 @ 123tons (CH 1110 - CH 1148)	1 day	Sat 12/09/20	Sat 12/09/20	Asphalt Paving Crew																													
35 DAYSHIFT - DAY 2	1 day	Sun 13/09/20	Sun 13/09/20																														
36 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1148 - CH 1180) & (CH 1240 - CH 1276)	1 day	Sun 13/09/20	Sun 13/09/20	Asphalt Paving Crew	34																												
37 DAYSHIFT - DAY 3	1 day	Mon 14/09/20	Mon 14/09/20																														
38 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1276 - CH 1344)	1 day	Mon 14/09/20	Mon 14/09/20	Asphalt Paving Crew	36																												
39 NIGHTSHIFT - DAY 4	1 day	Tue 15/09/20	Tue 15/09/20																														
40 RWY 02-20 - Defects Rectification @ 75mm depth - 720m2 @ 130tons (CH 380 - CH 410)	1 day	Tue 15/09/20	Tue 15/09/20	Asphalt Paving Crew	38																												
41 DAYSHIFT - DAY 5	1 day	Sat 19/09/20	Sat 19/09/20																														
42 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1344 - CH 1412)	1 day	Sat 19/09/20	Sat 19/09/20	Asphalt Paving Crew	40																												
43 DAYSHIFT - DAY 6	1 day	Sun 20/09/20	Sun 20/09/20																														
44 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1412 - CH 1420) & (CH 1630 - 1650) & (CH 1650 - CH 1700)	1 day	Sun 20/09/20	Sun 20/09/20	Asphalt Paving Crew	42																												
45 DAYSHIFT - DAY 7	1 day	Mon 21/09/20	Mon 21/09/20																														
46 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1700 - CH 1768)	1 day	Mon 21/09/20	Mon 21/09/20	Asphalt Paving Crew	44																												
47 NIGHTSHIFT - DAY 8	1 day	Tue 22/09/20	Tue 22/09/20																														
48 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 710 - CH 740)	1 day	Tue 22/09/20	Tue 22/09/20	Asphalt Paving Crew	46																												
49 DAYSHIFT - DAY 9	1 day	Sat 26/09/20	Sat 26/09/20																														
50 RWY 02-20 - Mill & Fill @ 75mm depth - 1224m2 @ 220tons (CH 1768 - CH 1836)	1 day	Sat 26/09/20	Sat 26/09/20	Asphalt Paving Crew	48																												
51 DAYSHIFT - DAY 10	1 day	Sun 27/09/20	Sun 27/09/20																														
52 RWY 02-20 - Mill & Fill @ 75mm depth - 792m2 @ 143tons (CH 1836 - CH 1880)	1 day	Sun 27/09/20	Sun 27/09/20	Asphalt Paving Crew	50																												
53 NIGHTSHIFT - DAY 11	1 day	Mon 28/09/20	Mon 28/09/20																														
54 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 740 - CH 770)	1 day	Mon 28/09/20	Mon 28/09/20	Asphalt Paving Crew	52																												
55 NIGHTSHIFT - DAY 12	1 day	Tue 29/09/20	Tue 29/09/20																														
56 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 770 - CH 800)	1 day	Tue 29/09/20	Tue 29/09/20	Asphalt Paving Crew	54																												
57 NIGHTSHIFT - DAY 13	1 day	Sat 3/10/20	Sat 3/10/20																														
58 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 790 - CH 820 )	1 day	Sat 3/10/20	Sat 3/10/20	Asphalt Paving Crew	56																												
59 NIGHTSHIFT - DAY 14	1 day	Sun 4/10/20	Sun 4/10/20																														
60 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 830 - CH 850)	1 day	Sun 4/10/20	Sun 4/10/20	Asphalt Paving Crew	58																												
61 NIGHTSHIFT - DAY 15	1 day	Mon 5/10/20	Mon 5/10/20																														
62 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 850 - CH 880)	1 day	Mon 5/10/20	Mon 5/10/20	Asphalt Paving Crew	60																												
63 NIGHTSHIFT - DAY 16	1 day	Tue 6/10/20	Tue 6/10/20																														
64 RWY 02-20 - Defects Rectification @ 75mm depth - 515m2 @ 93tons (CH 880 - CH 900)	1 day	Tue 6/10/20	Tue 6/10/20	Asphalt Paving Crew	62																												







Sept 12 - Oct 7th	Thu 17/09/2020	Fri 18/09/2020	Sat 19/09/2020	Sun 20/09/2020	Mon 21/09/2020	Tue 22/09/2020	Wed 23/09/2020	Thu 24/09/2020	Fri 25/09/2020	Sat 26/09/2020	Sun 27/09/2020	Mon 28/09/2020	Tue 29/09/2020	Wed 30/09/2020
1:00:00 AM			SHIFT 4-RWY02-20				SHIFT 6				SEST CURE		SEST CURE	
2:00:00 AM			SHIFT 2	Shift 3	CH1890-CH3140		RWY 02-20				PAINT		SEST CURE	
3:00:00 AM		SHIFT 1 GATES 11-12 DOMESTIC TERMINAL	RWY 02-20	RWY 02-20	SEST APPLY	SHIFT 5 GATES 12-13 DOMESTIC TERMINAL	CH1310-1880				PAINT		PAINT	
4:00:00 AM			CH0-CH1300	Ch1890-Ch3140	SEST APPLY		SEST APPLY				PAINT		PAINT	
5:00:00 AM			SEST APPLY	SEST APPLY	SEST APPLY		SEST APPLY				PAINT DRY		PAINT DRY	
6:00:00 AM			SEST APPLY	SEST APPLY	SEST APPLY		SEST CURE				PAINT DRY		PAINT DRY	
7:00:00 AM		SEST APPLY	SEST APPLY	SEST APPLY	SEST CURE	SEST APPLY	SEST CURE			SHIFT 7 RWY 09-27 CH850-CH2090				
8:00:00 AM		SEST CURE	SEST APPLY	SEST APPLY	SEST CURE	SEST CURE	SEST CURE							
9:00:00 AM		SEST CURE	SEST CURE	SEST CURE	SEST CURE	SEST CURE	PAINT							
10:00:00 AM		SEST CURE	SEST CURE	SEST CURE	SEST CURE	SEST CURE	PAINT							
11:00:00 AM		SEST CURE	SEST CURE	SEST CURE	PAINT	SEST CURE	PAINT			SHIFT 8 RWY 09-27 CH0-CH790 + INTERSECTIONS				
12:00:00 PM		PAINT	SEST CURE	SEST CURE	PAINT	PAINT	PAINT DRY							
1:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT	PAINT DRY							
2:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT	PAINT DRY							
3:00:00 PM		PAINT	PAINT	PAINT	PAINT	PAINT				SHIFT 7 RWY 09-27 CH850-CH2090				
4:00:00 PM		PAINT	PAINT	PAINT	PAINT DRY	PAINT DRY								
5:00:00 PM		PAINT DRY	PAINT	PAINT	PAINT DRY	PAINT DRY								
6:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY	PAINT DRY								
7:00:00 PM		PAINT DRY	PAINT DRY	PAINT DRY						SEST APPLY				
8:00:00 PM			PAINT DRY	PAINT DRY						SEST APPLY				
9:00:00 PM										SEST APPLY		SEST APPLY		
10:00:00 PM										SEST CURE		SEST CURE		
11:00:00 PM										SEST CURE		SEST CURE		
12:00:00 AM										SEST CURE		SEST CURE		

LEGEND

Runway 09-27

Runway 02-20 & Runway 09-27



## **Toolbox and Prestart Meeting**

Prior to each work shift commencing, the FAL Engineer and Higgins Project Manager will confirm favourable weather conditions to proceed

With the combined decision to proceed, all of the Higgins team will meet at the FAL Entry Point to Nadi International Airport located adjacent the FAL Fire Station to carry out prestart checks on plant and equipment. A toolbox will be carried out at this location to discuss the objectives of the nightworks

## **Site Set-Up**

1. Once we have approval from FAL to enter the runway, traffic cones marking our haul path to the runway will be set out. We will set up our staging area for the loading of emulsion and place the lighting towers strategically along the runway section to be completed. Buckets will be placed over the top of runway lights with a traffic cone placed on top of each bucket.

## **Surface Preparation**

2. Sweeping of the outer edge of the runway will commence to remove any detritus prior to the spraying starting. Sand and paper will be placed around drainage pits as required to eliminate any likelihood of emulsion entering the existing drainage system. All work vehicles will keep inside the work zone to minimise our clean up time at the end of the shift.

## **Emulsion Spraying**

3. Our methodology is based on spraying approx. 18,450ltr/hr of CAT30 emulsion to cover areas on each shift by working between the hours as per the flight schedule programme. With good weather conditions and full access to the runways, we anticipate to complete the SEST treatment within 8 shifts
4. The emulsion sprayer will move into position at each shift, and complete up to 6 individual runs in each nominated section. As each run of CAT30 emulsion @ 1.3lt/m<sup>2</sup> is completed, manual dipping of the emulsion tank will be recorded to confirm our application rates. Due to the location of runway lights on Runway 02-20, we will hand spray directly around these light fixtures with our emulsion trailer being towed behind our Crewcab. We will have one of our trucks fitted with a roller spreader carrying sand as a contingency should any of the emulsion not break during a shift

## **Site Clean-Up**

As the completion of each section is carried out, all redundant plant will be removed from site. The tractor broom will be employed to sweep any site debris, which will be picked up by the bobcat. Following this the FOD broom will be towed around the site to ensure the work areas are free from any remaining FOD, before the light towers and traffic cones are picked up and removed from site



## **Toolbox and PreStart Meeting**

At approx. 4.00pm prior to each nightworks shift commencing, the FAL Engineer and Higgins Project Manager will confirm favourable weather conditions to proceed

With the combined decision to proceed, all of the Higgins team will meet at the FAL Entry Point to Nadi International Airport located adjacent the FAL Fire Station at 9.00pm, to carry out prestart checks on plant and equipment. A toolbox will be carried out at this location to discuss the objectives of the nightworks

## **Site Set-Up**

1. Once we have approval from FAL to enter the runway at 10.00pm, traffic cones marking our haul path to the runway will be set out. We will set up our staging area for the loading of emulsion and place the lighting towers strategically along the runway section to be completed. Buckets will be placed over the top of runway lights with a traffic cone placed on top of each bucket.

## **Surface Preparation**

2. Sweeping of the outer edge of the runway will commence to remove any detritus prior to the spraying starting. Sand and paper will be placed around drainage pits as required to eliminate any likelihood of emulsion entering the existing drainage system. All work vehicles will keep inside the work zone to minimise our clean up time at the end of the shift.

## **Emulsion Spraying**

3. Our methodology is based on spraying approx. 38,000m<sup>2</sup> of CAT30 emulsion each shift, working between the hours of 10.00pm to 4.00am. With good weather conditions and full access to the runways, we anticipate to complete the SEST treatment within 5 shifts
4. The emulsion sprayer will move into position at approx. 10.30pm each shift, and complete up to 6 individual runs in each nominated section. As each run of CAT30 emulsion @ 1.3lt/m<sup>2</sup> is completed, manual dipping of the emulsion tank will be recorded to confirm our application rates. Due to the location of runway lights on Runway 02-20, we will hand spray directly around these light fixtures with our emulsion trailer being towed behind our crewcab. We will have one of our trucks fitted with a roller spreader carrying sand as a contingency should any of the emulsion not break during a shift

## **Site Clean-Up**

As the completion of each section is carried out, all redundant plant will be removed from site. The tractor broom will be employed to sweep any site debris, which will be picked up by the bobcat. Following this the FOD broom will be towed around the site to ensure the work areas are free from any remaining FOD, before the light towers and traffic cones are picked up and removed from site

[REFER ATTACHMENT 1 / 2 / 3]



## SEST

### Plants

Equipment Description	Rego Number	Fleet Number
Sprayer	JO 998	5082
4 Axle Bitumen Trailer	JR 569	5009
Bitumen Bridger Truck	JT 877	5057
4 Axle Transport Trailer	HB 992	2174
2 Axle Bitumen Trailer	HD 134	5027
PTR Vibe Roller	KI 902	4057
Tractor broom	JN 681	4653
Tractor Broom Trailer	JN 679	2919
Tractor Broom	HB 314	4329
Crew Cab	HQ 644	2967
Ute	KG 600	10369
6-Wheeler Truck	JO 996	2352
4 Axle Transport Trailer	HD 133	2267
1 Axle Emulsion Trailer	HB 789	5007
JCP Lighting Tower 1		20017
JCP Lighting Tower 2		Hire
JCP Lighting Tower 3		Hire
JCP Lighting Tower 4		Hire

### Team for SEST

Employee Name	Employee Number	Roles
Ariyan Kumar	768	Leading Hand
Meri Tuisue	982	QA
Danish Singh	699	Tractor Broom Operator
Mohammed Shakib	674	Sprayer Operator
Keshwan Goundar	685	Bitumen Bridger Operator
Avimeleki Vikila	625	Crewcab Operator
Alex Duckworth	629	Sprayer Operator Assistant
Mohammed Shayl	760	Truck Operator
Mohammed Taslim	663	Sprayer Operator



## Mill and Fill

### Plants

Equipment Description	Rego Number	Fleet Number
Paver – BB740	HX 583	5370
Paver – BB632	HX 582	5530
7T Double Drum Roller – Cat CB434D	HQ 640	4533
4T Double Drum Roller – Cat CB34	HQ 639	4535
PTR Roller – Sakai GW750	KI 902	4057
Tractor Broom	HB 314	4329
Crewcab	JZ 674	20185
Crewcab	JW 912	20194
Bobcat	HB 194	3602
Ham HD70VO Roller		4668
7.5T Sakai Vuibe PTR Roller		4033
Paver – Voegel 1803 - 03		5374

### Team for Mill & Fill

Employee Name	Employee Number	Roles
Rajen Samy		Mill and Fill Supervisor
Saten Kumar		Asphalt Supervisor
Ritesh Ram	736	Leading Hand
Asesela Serau	752	Paver side screed
Mesake Beranaliva	717	Roller & Paver Operator
Sanjay Pratap	725	PTR Roller Operator
Kasimiro Saraqara	652	Roller Operator
Sanaila Vunisa	158	Labourer
Malakai Moala	747	Labourer

## Subcontractor – Sahibs Earthmoving Contractors Ltd

### Plants

Equipment Description	Rego Number
Milling machine 1.3m	IW 039
Milling machine 2.0m	IW 084
Bobcat	IX 130
Dump Truck	IW 984
Dump Truck	KE 043
Dump Truck	JU 519
Dump Truck	JG 087
Dump Truck	IZ 546



**Subcontractor Staff**

Names	Roles
Mohammed	Miller Operator
Sami	Truck Operator
Tazim	Truck Operator
Nilesh	Truck Operator
Patrick	Truck Operator
Ameer	Truck Operator

**Subcontractor – Mohammed Sadiq and Sons Contractor Ltd**

Equipment Description	Rego Number
Dump Truck	FZ 828
Dump Truck	FZ 829
Dump Truck	HE 458
Dump Truck	HI 383
Dump Truck	HT 758
Dump Truck	JL 800
Dump Truck	JL 801
Dump Truck	JL 802
Dump Truck	KF 798

**Subcontractor Staff**

Names	Roles
Afzal Hassan	Truck Operator
Rajnesh Vimal Prasad	Truck Operator
Mohammed Ayub	Truck Operator
Riyaz Dean	Truck Operator
Abdul Majid	Truck Operator
Faiz Kaiyum	Truck Operator
Mohammed Shaheem	Truck Operator
Faiyaz Ali	Truck Operator
Abdul Shazaad	Truck Operator
Razak Ali	Truck Operator
Praveen Dayal	Truck Operator
Mohammed Zahid Rahman	Truck Operator



## Toolbox and PreStart Meeting

At approx. 4.00pm prior to each nightworks shift commencing, the FAL Engineer and Higgins Project Manager will confirm favourable weather conditions to proceed

With the combined decision to proceed, all of the Higgins team will meet at the FAL Entry Point to Nadi International Airport located adjacent the FAL Fire Station at 9.00pm, to carry out prestart checks on plant and equipment. A toolbox will be carried out at this location to discuss the objectives of the nightworks

## Site Set-up

1. Work methodology for the task

Initial set out of the site will begin with a crew cab vehicle with road cones followed by two utes towing mobile lighting towers moving on to the runway to the site. Cones marking the haul path and the site extents will be set out from the crew cab as the lighting towers are positioned each side of the work area. The site will be completely enclosed and kept to a minimum area by coning the perimeter. All work vehicles will keep to the inside of this coned area which will aid in the protection of runway lights and in keeping clean-up time to a minimum. Milling plant will move on to the site and begin work from this point.

## Planer Milling

2. Work methodology for the task

This work involves the milling off of 75mm depth of existing asphalt and loading onto trucks. This work will be completed with use of both 1.3m Bomag mill and 2m Wirtgen mill running in tandem to speed up the rate of milling. The area to be cut every shift will initially be 20m to 25m length by 18m wide running for 9m either side of the crown of the runway. Length of area cut per shift will depend on available runway time available for works during the shift. Profiling will begin with a run with the 1.3m profiler along one end of the area to be covered in the shift, followed by transverse cuts along the top and bottom sides. At the same time as the profiling work begins at one end. As soon as enough clearance is available, this milling with the 1.3m mill, will be followed by a cut with the 2m profiler on the next longitudinal run over. This pattern will be repeated across the runway through to where the 2m cutting will join with the 1.3m cut run along the opposing edge of the milled area.

3. Risk registers specific to the task. (includes environmental risks)

Breakdown of a machine- if a profiler were to breakdown while working, the Higgins mechanic on site would immediately assess the machine to determine the extent of repairs required. If the machine is not easily repairable it will be removed from site. If it cannot be removed from site under its own power, a suitable crane has been arranged to be on stand-by to lift the machine onto a transport trailer for removal from site. The amount of work to be completed in the shift can then be reviewed and a new target set to be completed by the remaining working milling machine.

4. Additional safety information applicable to the task

All other safety and environmental risks associated with the task are included in the JSEA for this task.

5. Test and inspection plan for the task

This will involve firstly marking out with paint the outline of the area to be milled, then following each run, dipping of the milled area at 10m intervals to determine the depth of the milled surface. A visual inspection will also be included to confirm that the surface texture and cutting depths between adjoining runs are within acceptable limits.

6. Traffic management plans if applicable



Trucks for milling to be parked in designated parking area until required for work. They will then be guided by a spotter to the correct position in front of the mill. Once loaded they will be guided by a FAL representative to the dumping point on site.

7. Reporting requirements

Results of dipping records will be presented to the Engineer by the Higgins QA technician prior to beginning of asphalt laying on the represented run.

8. Drawings and plans for the work.

As attached

## **Milled Surface Preparation**

9. Work methodology for the task

- a. This work involves the sweeping up of the surface left behind once it has been profile milled, together with the immediate surrounding area. This work will be carried out simultaneously with tractor broom sweeping any debris into one central area where it will be swept into a heap and picked up with a bobcat and broom attachment before being loaded onto a truck for dumping at the FAL designated dump site. Final manual brooming using hand broom and shovel will be carried out to remove any remaining debris trapped in against edges where the machines cannot reach. Following the brooming activities, a Higgins emulsion sprayer will apply a tack coat of CAT 60 bitumous emulsion to target a rate of approximately 0.5lt/m<sup>2</sup> over the entire surface of the milled area, as well as the side surfaces.

10. Risk registers specific to the task. (includes environmental risks)

- a. Breakdown of Emulsion Sprayer – if this unit cannot be fixed in an expedient time, the sprayer will be removed from site and emulsion will be applied with a crew cab and a pull-behind emulsion sprayer trailer
- b. Breakdown of tractor broom or bobcat- if a tractor broom or bobcat were to breakdown while working, the Higgins mechanic on site would immediately assess the machine to determine the extent of repairs required. If the machine is not easily repairable it will be removed from site. If it cannot be removed from site under its own power, these machines will be winched onto a transport trailer for removal from site. If the main tractor broom or bobcat were to breakdown the remainder of the works for the period will be completed by the back-up machines for each which will be waiting ready on-site.

11. Additional safety information applicable to the task

- a. All other safety and environmental risks associated with the task are included in the JSEA for this task.

12. Test and inspection plan for the task

- a. After completion of sweeping and prior to application of the tack coat a visual inspection of the swept area will be undertaken to ensure all debris has been removed. If satisfactory, this will be ticked off on the appropriate check sheet as complete.

13. Traffic management plans if applicable

- a. N/A

14. Reporting requirements

- a. N/A

15. Additional environmental information applicable to the task

- a. N/A

16. Drawings and plans for the work

- a. As attached



## Asphalt Surfacing

### 17. Work methodology for the task

This work involves the placing of new AC20 asphalt to a compacted depth of 75mm in areas as profile milled. Timing of this work will be such that enough asphalt will be made at the plant in order to have available on hand more than what is required to replace the profiled area at any time. 10T of hot storage is available at the AC plant. This storage facility will be filled immediately prior to the beginning of milling, with production continuing at a set pace from this point. Constant communication will be kept between the asphalt plant operator and the asphalt supervisor on-site to ensure there is always a 'buffer' of available asphalt ahead of the total area which has been milled and remains open. It is planned for five trucks to provide the AC20 asphalt for each shift. More trucks are available if asphalt requirements exceed this total. These loads will be covered with tarpaulins to insulate against heat loss. Trucks arriving at the job site will park in the designated area, remaining covered, until the paver is ready to accept the load.

The paving operation of each shift will be conducted in 6 runs of three metres wide for the full length and width of the excavation (20-25m) beginning from the outside of the runway and working towards the opposing side. These runs will be marked out on site prior to the start of laying.

The QA technician on-site will record the temperature of the load from each truck as it is tipped into the paver and present this information to the Engineer. He will also receive the drivers docket for the load and determine the spread rate and the area to be covered by the load. Laying of the asphalt will begin with the paver going forward at a predetermined pace which will ensure good and even mixing of the asphalt through the pavers augers.

Compaction will be carried out as per the predetermined rolling pattern with density and air void indicative checks carried out at regular intervals along the way by the QA technician with the use of an NDM gauge. After the completion of the pre-set rolling pattern it will be determined by the readings obtained through the NDM gauge if the mat is likely to have achieved compliance with specification. If this does not look likely extra compaction effort will be exerted.

Once Higgins are satisfied that the mix has achieved a satisfactory compaction, the mat will be marked for core positions and NDM readings recorded from these positions before core samples are taken during the following shift and then sent to the Higgins laboratory for testing.

### 18. Risk registers specific to the task. (includes environmental risks)

Breakdown of a machine- if a roller or paver were to breakdown while working, the Higgins mechanic on site would immediately assess the machine to determine the extent of repairs required. If the machine is not easily repairable it will be removed from site. If it cannot be removed from site under its own power, a suitable crane has been arranged to be on stand-by to lift the machine onto a transport trailer for removal from site. If the main paver is to breakdown the remainder of the works for the period will be completed by the back-up paver which will be waiting ready on-site. If a roller was to breakdown the compaction required for the remainder of the mat will be completed using the remaining rollers or the back-up PTR roller.

### 19. Additional safety information applicable to the task

All other safety and environmental risks associated with the task are included in the JSEA for this task.

### 20. Test and inspection plan for the task

This will involve firstly marking out with paint the edges of the runs to be taken by the paver. As the run progresses, depth checks of the loose mix behind the paver will be carried out and recorded. The temperature of the asphalt as it is stored in the truck prior to being fed into the paver hopper will be taken and recorded. These results will be shown to the Engineer on site to immediately establish if the mix is acceptable to be laid. During compaction of the asphalt,



percentage of air voids will be constantly monitored at regular intervals to ensure the adopted rolling pattern is able to obtain the required final compaction results. Following compaction the resulting surface will be checked for texture and for shape by measuring the gap under a 3m straight edge. Any variation in surface shape of over 5mm will be deemed to be unacceptable. During the following shift, core samples will be taken from the mat as per M/10 specification. These will be taken to Higgins laboratory for testing to determine air void content and thickness of the compacted mat. The results from this testing will be submitted to the Engineer to determine compliance with the Contract specification.

21. Traffic management plans if applicable

Trucks delivering asphalt are to be parked in designated parking area until required for work. They will then be guided by a spotter to the correct position in front of the paver. Once unloaded they will follow the predetermined and delineated construction route from the site

22. Reporting requirements

Results of NDM testing of the compacted mat as well as surface shape records will be submitted to the Engineer by the Project Manager following the completion of each work period.

23. Results of core sample testing will be presented to the Engineer by the Higgins Project Manager as soon as they become available.

24. Additional environmental information applicable to the task

N/A

25. Drawings and plans for the work.

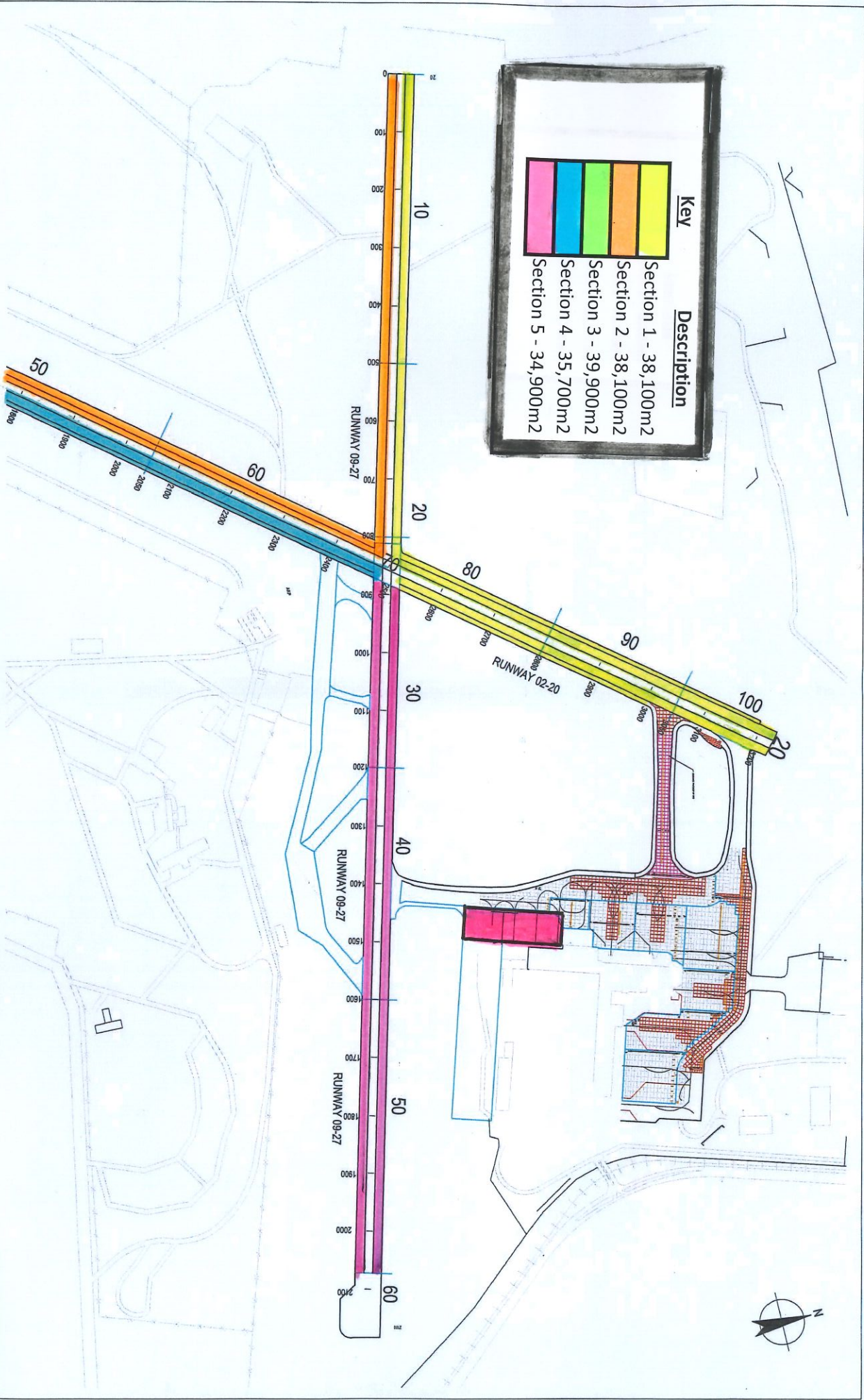
## Site Clean-up

26. Work methodology for the task

The site will be continuously cleaned as work is progressed. As well as hand brooms and shovels being used throughout, the bobcat broom will be picking up loose debris from around the site whenever it is not required to clean-up behind the mill. As the asphalt laying operation is coming to an end and all redundant plant is removed from site, the tractor broom will be employed to sweep the site debris to one area to be picked up by the Bobcat broom. Following this, the FOD Boss broom will be towed around the entire work site to ensure the area is free from any remaining FOD before lighting towers and cones are packed up and taken away.

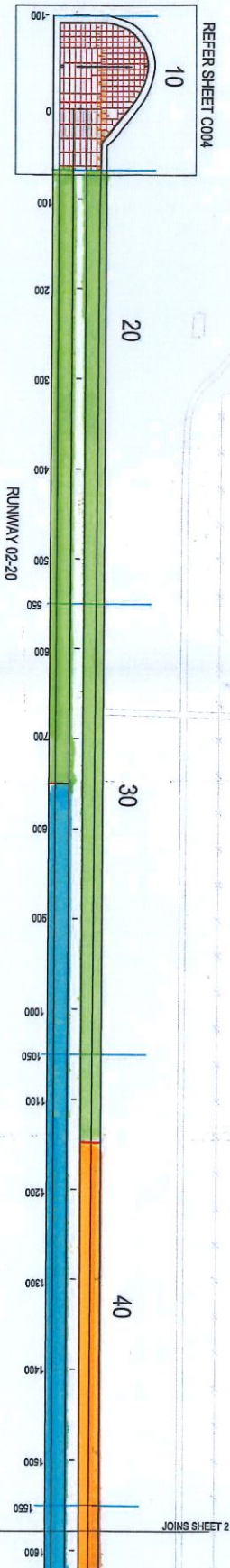
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<div> <p> <b>DO NOT SCALE</b> </p> <p> <small>                     GHD Limited                      277 Pacific Drive, P.O. Box 100, Auckland 1141 New Zealand                      Tel: +64 (0) 9 300 9000                      Fax: +64 (0) 9 300 9001                      Email: <a href="mailto:info@ghd.co.nz">info@ghd.co.nz</a> </small> </p> </div>			
<div> <p> <b>Client</b> </p> <p> <b>AIRPORTS FJI LIMITED</b> </p> </div>		<div> <p> <b>Project</b> </p> <p> <b>NADI INTERNATIONAL AIRPORT</b> </p> </div>	
<div> <p> <b>Title</b> </p> <p> <b>PAVEMENT AREA</b> </p> </div>		<div> <p> <b>Drawing No:</b> </p> <p> <b>51-37014-C001</b> </p> </div>	
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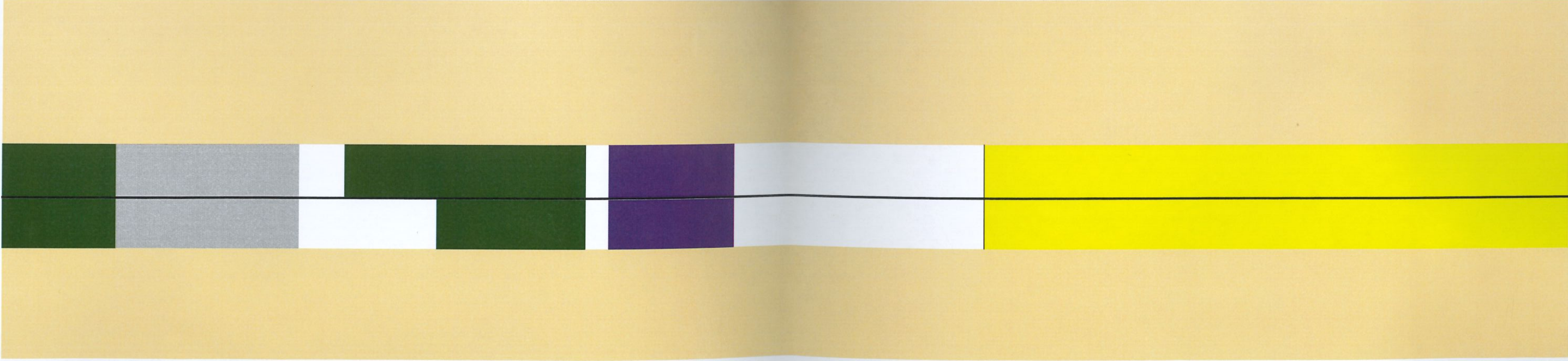
<b>AIRPORTS FIJI LIMITED</b> <b>LI M I T E D</b>		<b>GHD</b> 10th Floor, Suite 1000 27 Market Street, Suva, Fiji Tel: +677 320 8200 / Fax: +677 320 8801 suva@ghd.com		<b>DO NOT SCALE</b> GHD Limited Conditions of Use: This drawing is the property of GHD and is to be used for the project only. It is not to be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of GHD.		Drawn: K. WINDIGOLO Checked: [ ] Date: [ ] Scale: 1:2500m		Designer: [ ] Checked: [ ] Date: [ ] Scale: [ ]		Client: AIRPORTS FIJI LIMITED Project: NADI INTERNATIONAL AIRPORT Title: PAVEMENT AREA SHEET 1 OF 2 Drawing No: 51-37014-C002		Rev: A
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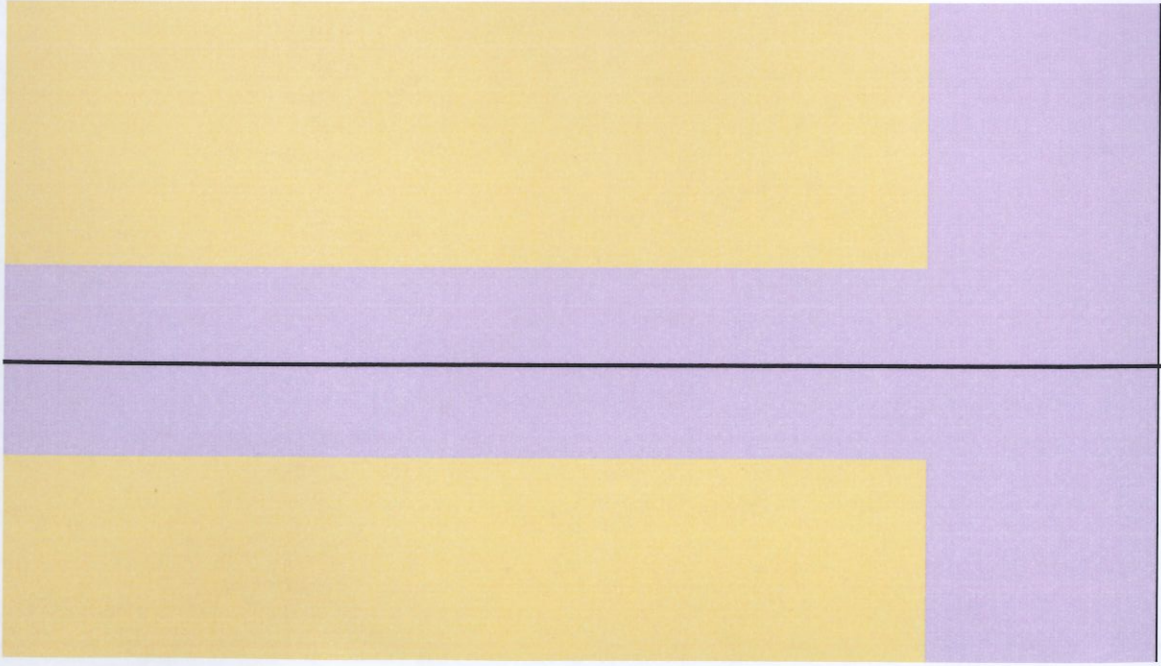


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FY19/20 NADI AIRPORT PAVEMENT MAINTENANCE PROGRAM

Contractor  
Consultant

Higgins Fiji  
GHD



RWY 0927					
Chainage	Inner Strip	Outer 9	Inner 9	Inner 9	Outer 9
0		13.5M	9M	9M	13.5
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TOTALS							
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SEST		56160	28080			28080	



**APPENDIX D:**  
**INSPECTION CHECKLIST**

**AIRPORT: NADI INTERNATIONAL**

**DATE:** ..... **TIME:** .....

**LOCATION AND BRIEF DESCRIPTION OF WORKS:**

.....  
.....

ITEM	DESCRIPTION	YES / NO	COMMENTS	N / A
1	Are all Navigation aids, airfield ground lighting and paint markings are in working order, correctly located and clean?			
2	Has all construction materials, equipment and plant been removed from the works area and located a safe distance from the operational pavements and OLS?			
3	Has all soiled pavement surfaces within the works area been thoroughly cleaned via appropriate means, removed from the operational strips and free from FOD?			
4	Has all operational pavement surfaces used as access to the site been thoroughly cleaned and free from FOD?			
5	Has all excavations been appropriately backfilled, or appropriately marked with red/white stakes or cones, for safe aircraft operations?			
6	Has an appropriate NOTAM been issued in accordance with the progress of the works and is a true representation of the present airfield pavement condition?			
7	Are all personnel involved with the works removed from the operational strips?			
8	The Engineer has confirmed that the surface has been prepared to specification and fit for the Aircraft Operation			

**The Inspection has been completed by:**

ROLE	NAME	SIGNATURE
CONTRACTORS REPRESENTATIVE		
ENGINEERING SUPERVISOR		

The work site and access routes have been cleaned to an acceptable level by the Contractor, the Airfield has been left in a safe and operable condition, has been inspected by the Works Safety Officer and the Airfield can formally be 'handed-over' for full control by Airports Fiji Limited.

**WORKS SAFETY OFFICER: PRINT NAME:** ..... **SIGNED:** .....