METHOD OF WORKING PLAN [MOWP]

AERODROME	NADI INTERNATIONAL AIRPORT, NADI (NFFN)
	EA 2040 (30 DUNIMAY DAYEMENT MAINTENANCE DROCDAMME
	FA – 2019/20 RUNWAY PAVEMENT MAINTENANCE PROGRAMME
	MIL & FILL
PROJECT DESCRIPTION	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).
REFERENCE	
NUMBER	
DATES	Commencement of Works: 29 th October 2020
	Completion of Work: 22nd November 2020
	Expiry of MOWP: 30 th November 2020
CONTENTS	1. Works Information
	2. Safety
	3. Restrictions to Aircraft Operations
	4. Restrictions to the works 5. Administration
	6. Authority
	7. Distribution List
	8. Drawings 9. Attachments
	- Appendix A; CAAF SD Aerodromes
	- Appendix B; Construction Plans
	 Appendix C; Works Programme Appendix D; Inspection Checklist / Operation Sign Off
	- Appendix B, inspection checknist / Operation sign on - Appendix E; Methodology Statement
	- Appendix F; Workmen/Plant/Machinery Listing

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.

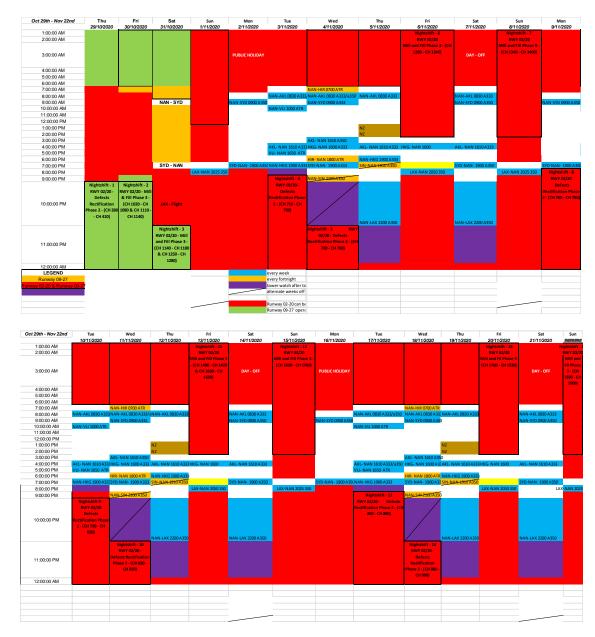
The Contractor shall give two clear working days' notice (Monday –Friday) prior to commencement of works.

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 (October & November 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

Refer to 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.

<u>Smoking</u> 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 Airside roads 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 : Llyal 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 30th November 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	Je De
Manager Safety & Risk Management	fin.
Contractor's Representative	Mysh
	02/09/2020
Consultant Engineer (GHD)	
Fiji Airports General Manager ATM & Op	s LAMORH

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

Appendix B

Construction Plans



FIJI AIRPORTS NADI AIRPORT FY19/20 PAVEMENT MAINTENANCE PROGRAMME 12504408

DRAWING LIST

DRAWING TITLE

COVER SHEET, LOCALITY PLAN AND DRAWING LIST

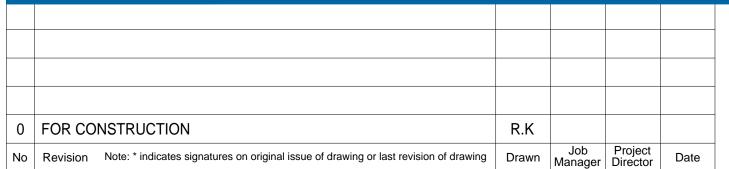
LAYOUT PLAN



LOCATION PLAN NOT TO SCALE

person or for any other purpose

FOR CONSTRUCTION





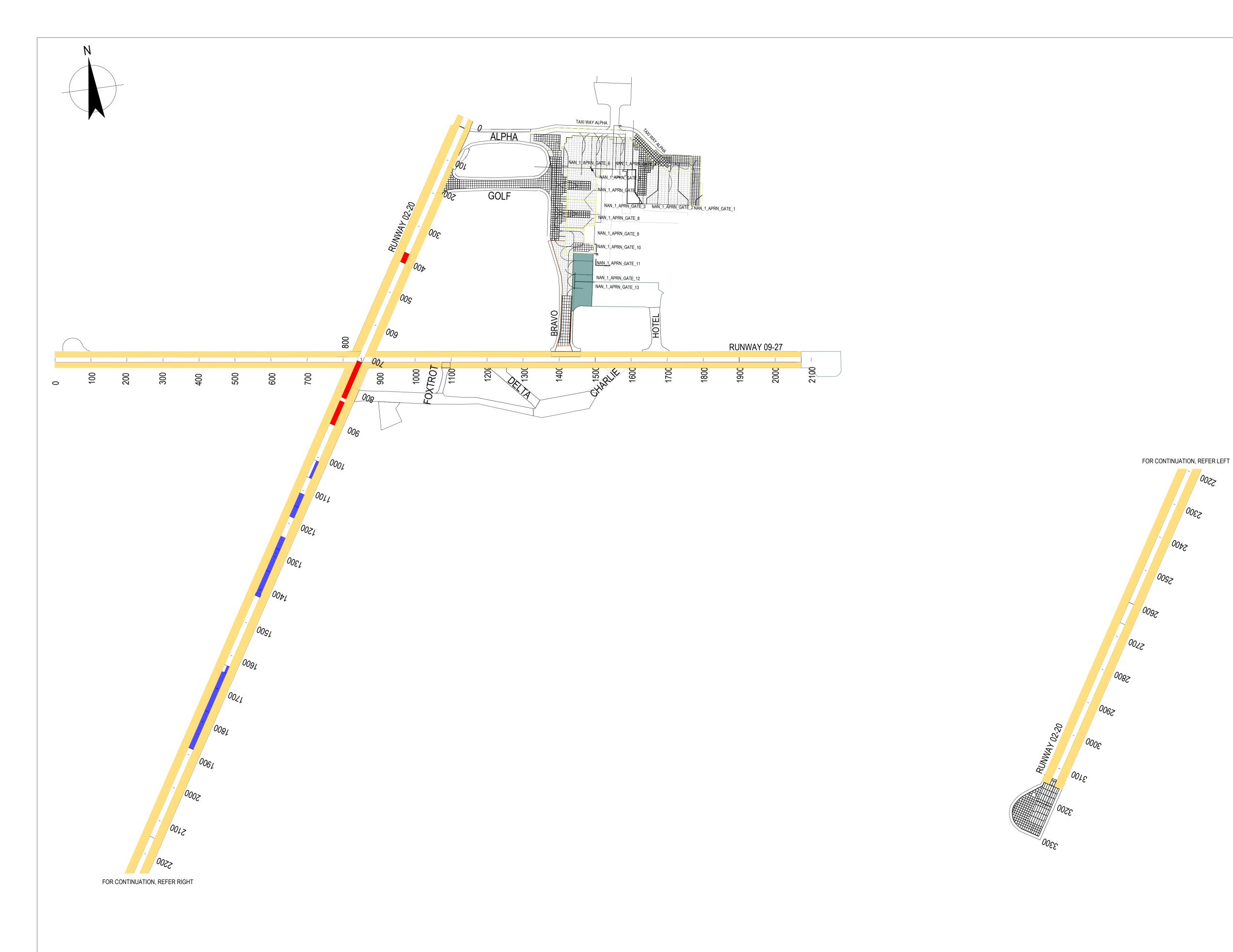
GHD
Shop 16, New Wing, Sports City Complex Grantham Road, Suva, Fiji T 679 32 6400 F 679 330 0354 E suvmail@ghd.com W www.ghd.com

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	This document may only be used by GHD's client (and any other person who	Approve (Project	d Director)			Title
GHD has agreed can use this document)		Date				
	for the purpose for which it was prepared and must not be used by any other	Soolo	NOT TO SCALE		Drawing must not be	Origin

FIJI AIRPORTS LIMITED Project NADI AIRPORT FY 19/20 PAVEMENT MAINTENANCE COVER SHEET, LOCALITY PLAN & DRAWING LIST

Drawing No: 12504408-C000

Rev: 0



NOTES

- 1. ALL SURFACE ENRICHMENT SEAL TREATMENT AND SANDED BITUMEN EMULSION TO RECEIVE CRACK SEALING PRIOR TO
- 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.

<u>LEGEND</u>

5300

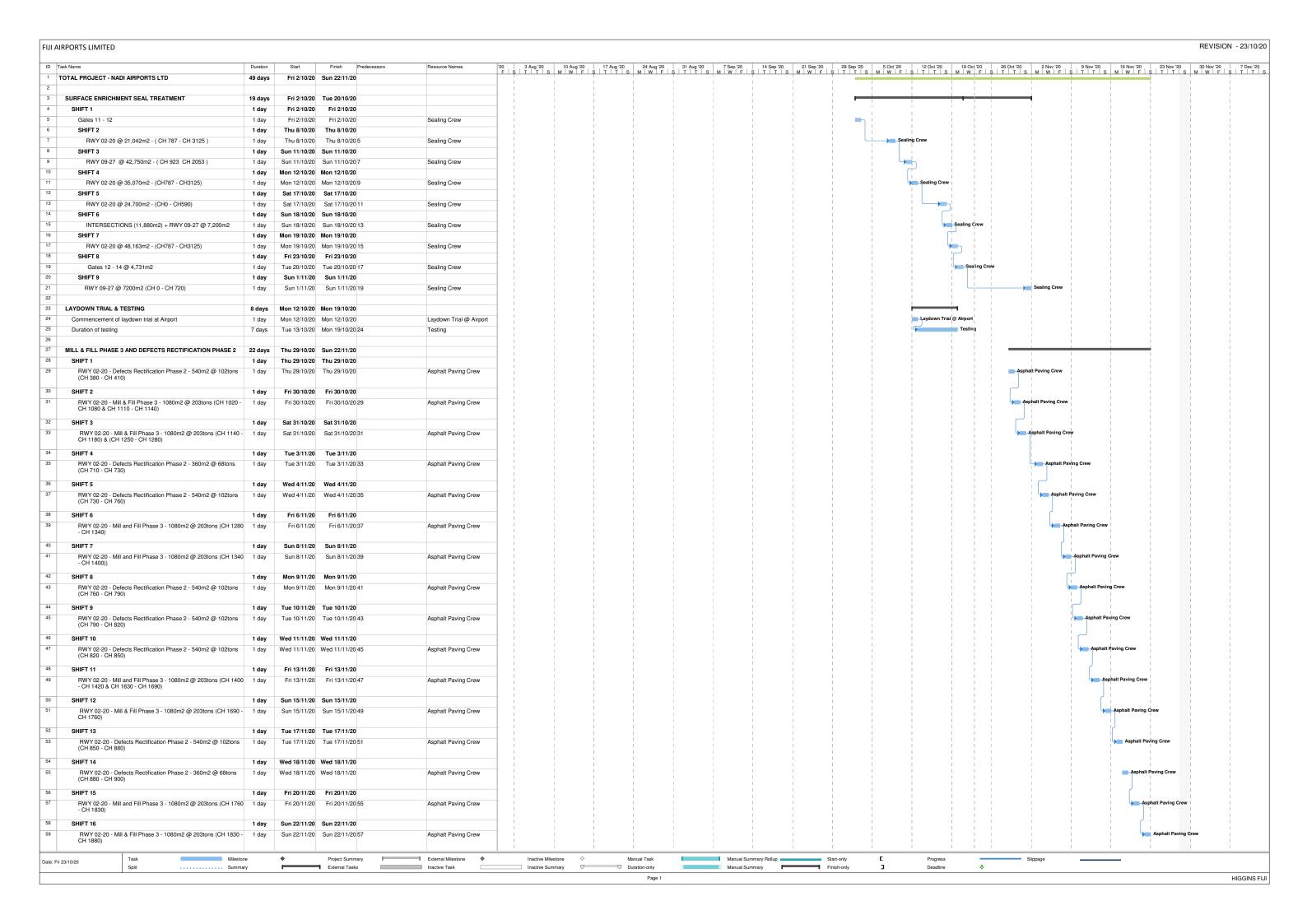
- SANDED BITUMEN EMULSION SPRAY SEAL WITH CRACK REPAIRS THROUGHOUT.
- SURFACE ENRICHMENT SEAL TREATMENT WITH CRACK SEALING REPAIRS THROUGHOUT
- PHASE 2 REMEDIAL WORKS
- PHASE 3 MILL AND FILL
- OLD CONCRETE SLAB
 - **NEW CONCRETE SLAB**

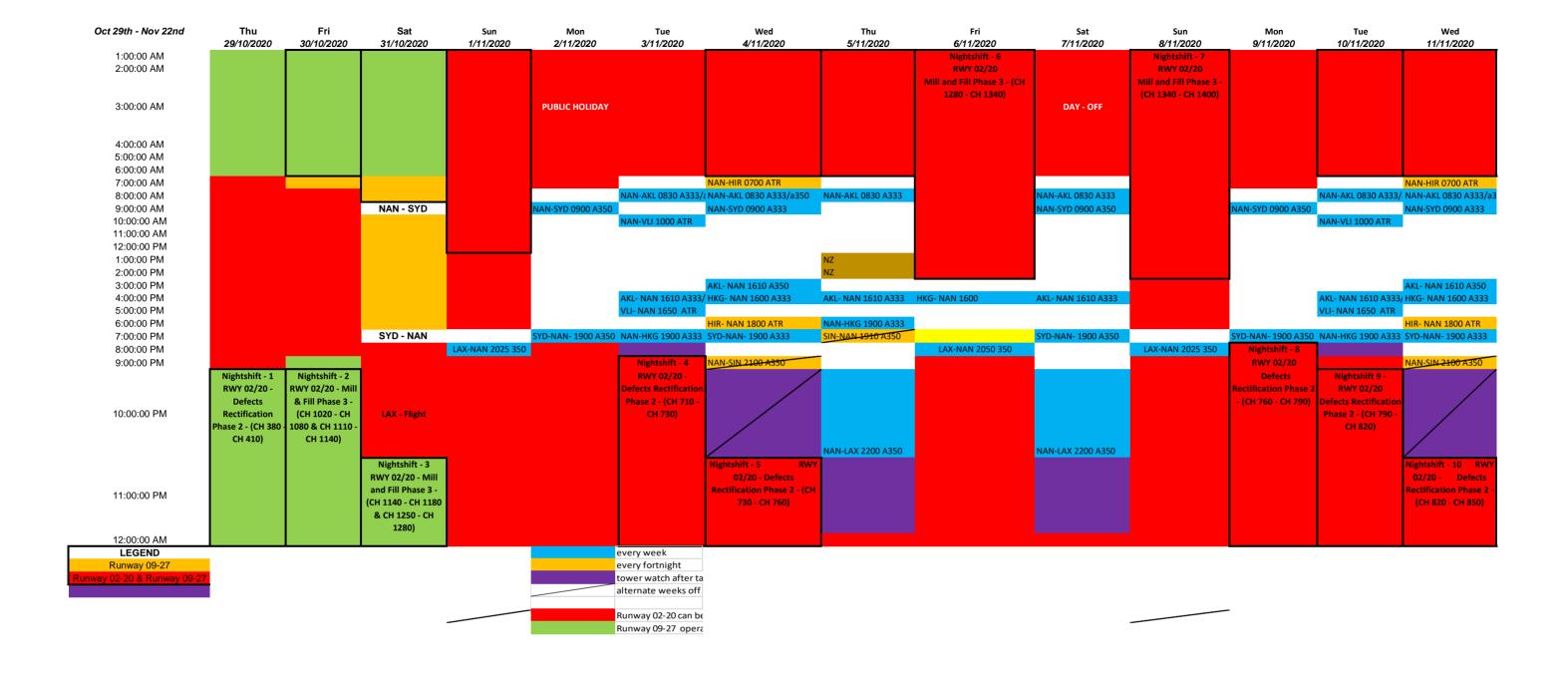
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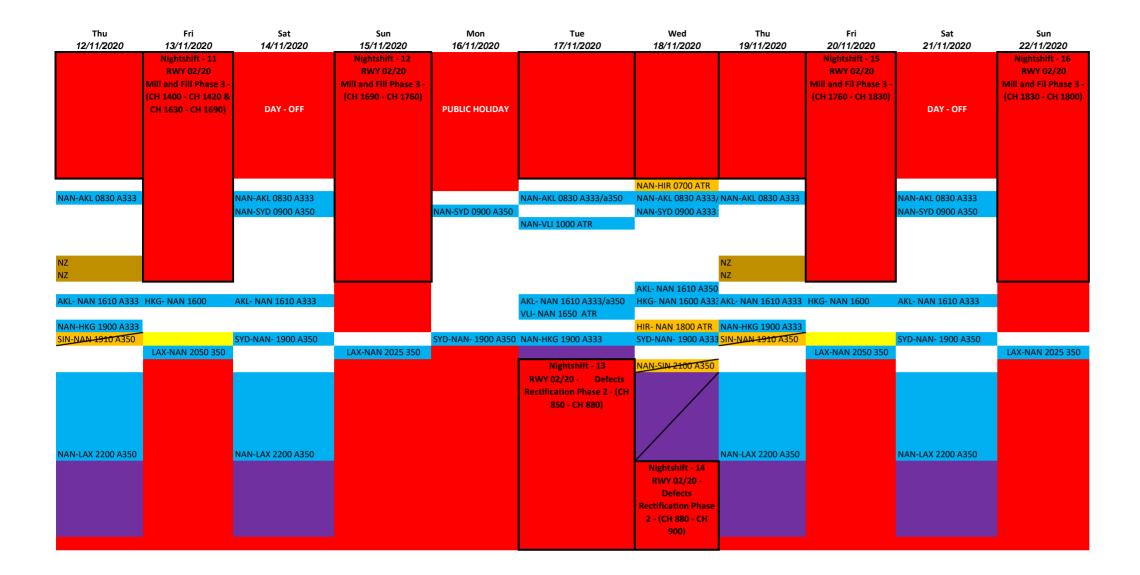
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				This document may only be used by	Approved (Project Director)		Title LAYOUT PLAN	
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0 FOR CONSTRUCTION RK No Revision Note: * indicates signatures on original issue of drawing or last revision of drawing Drawn Manager Director Date	SCALE 1:5000 AT ORIGINAL SIZE	FIJI AIRPORTS	T 679 32 6400 F 679 330 0354 E suvmail@ghd.com W www.ghd.com	and must not be used by any other person or for any other purpose.	Scale AS SHOWN	This Drawing must not be used for Construction unles signed as Approved	A1 Drawing No: 12504408-C001	Rev: 0

Appendix C

Works Programme







Appendix D

Inspection Checklist / Operation Sign Off

APPEI	NDIX D:				
INSPE	CTION CHECKLIST				
AIRPO	DRT:				
DATE:	· TII	ME:			
TOCA.	TION AND BRIEF DESCRIPTION OF WORKS:				
LOCA	HOW AND BRIEF DESCRIPTION OF WORKS.				
(Note	for non-critical task where Engineer is not requi			equired)	
ITEM	DESCRIPTION	YES / NO	COMMENTS		Responsibility Engineer / Contractor
1	The Engineer has confirmed that the surface has been prepared to specification and fit for the Aircraft Operation				
2	All operational area has been restored to fully operational condition before reopening				
3	All pavement markings are correct and that any unserviceable markers in place during the work have been removed; and				
4	No damage has been done to other equipment or facilities in the vicinity of the work				
5	No hazardous conditions have been created (equipment left in safety areas, unacceptable pavement edges created by ground alteration work, ruts from equipment); and				
6	All area worked on or constructed / pavement meets current specifications				
7	Construction or maintenance materials are properly stored or stockpiled to prevent them being moved by wind, jet blast, or propeller wash; and				
8	All Quality checks are done to ensure works completed as per the Technical Specification.				
9	All Site reports are checked and compliant to requirements to open Aerodrome				
10	Construction and maintenance areas are managed to ensure all debris or foreign objects is contained within the work site.				
11	Other specific works checks by Engineer				
	1		Ι.		

ROLE	NAME	SIGNATURE
CONTRACTORS REPRESENTATIVE		
ENGINEERING SUPERVISOR		

Safety Officer Sign Off

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?			

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.

Appendix E

Methodology Statement



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

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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/m2 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 at will be kept between the asphalt plant operator and the asphalt supervisor on-site to ensure 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 hoper 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.

[REFER ATTACHMENT 2]

Appendix F

Workmen/Plant/Machinery Listing



Mill and Fill

<u>Plants</u>

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 – Vogele 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

<u>Plants</u>

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