Taxiway Alfa Widening Project

Erosion and sediment control plan

Erosion and sediment control is an important consideration in projects involving land disturbance. In the case of the widening and overlay of Taxiway Alfa at Wellington International Airport, erosion and sediment control will primarily involve sediment management. This is driven by two key factors:

- The operational risk of Foreign Object Debris (FOD) creating a hazard to aircraft; and
- The environmental risk of sediment being discharged into the coastal environment, via the stormwater network, if sediment is not managed appropriately.

The methodology proposed is the key means of mitigating both of these risks. This erosion and sediment control plan (ESCP) has been prepared in accordance with Condition 12 of WGN170364 and provides detail about the sequencing of the work programme, which has been developed by the Contractor, and how environmental risk associated with erosion and sediment during earthworks will be managed on the site.

1.0 Responsibilities and contact details

Fulton Hogan (the Contractor) has been appointed to undertake the physical works associated with this project. The key contacts and their responsibilities are detailed below. In the first instance, Lourens van der Vyver should be the first point of contact.

Personnel	Responsibilities	Contact details
Fulton Hogan (the Contractor)		
Lourens van der Vyver *Contract Manager*	Ensuring compliance with, the Contract Management Plan and Company commitments and procedures relating safety, the environment to the Contract	027 207 3277 04 5761141 Lourens.vandervyver@fultonhogan.com
Aaron McArther *Construction Manager*	Planning, resourcing competent supervisors, directing and controlling the environmental outcomes on site	0272434001 aaron.mcarther@fultonhogan.com
Nikki Robinson *Quality/Environment Advisor*	Proactively monitor the contract works to assess conformance with the Contract Management Plan.	0277027204 Nikki.Robinson@fultonhogan.com
Wellington International Airport Limited (the Consent Holder)		
Nick Petkov *Manager Airfield Maintenance*		027294 3513 Nick.Petkov@wellingtonairport.co.nz
Nicola Cordner *Planner*		0275498157 04 385 5106 Nicola.Cordner@wellingtonairport.co.nz

2.0 Overview of the proposed works

The Taxiway Alfa Widening Project includes works to overlay the existing pavement surface with asphalt concrete and increase the width of Taxiway Alfa (TWY A) from 23m to 38m.

2.1 Timing

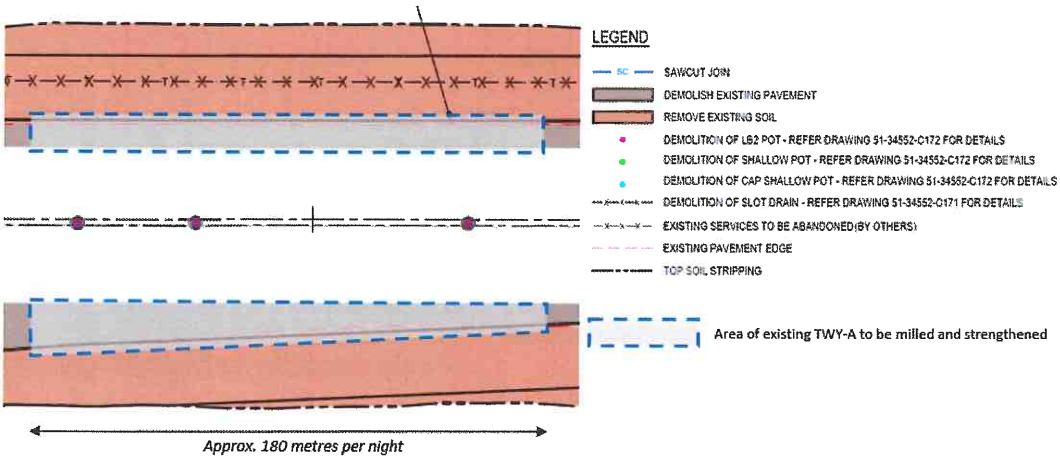
Accounting for weather delays, the work is anticipated to take place between September 2017 and May 2018.

Enabling works (ducting for communications, subsoil drains, airfield guide lighting etc.) will be undertaken first, with works to overlay and widen Taxiway Alfa commencing at the end of November 2017.

There will be a break over the Christmas period, during which time the site will be fully stabilised.

2.2 Key phases of work[1]

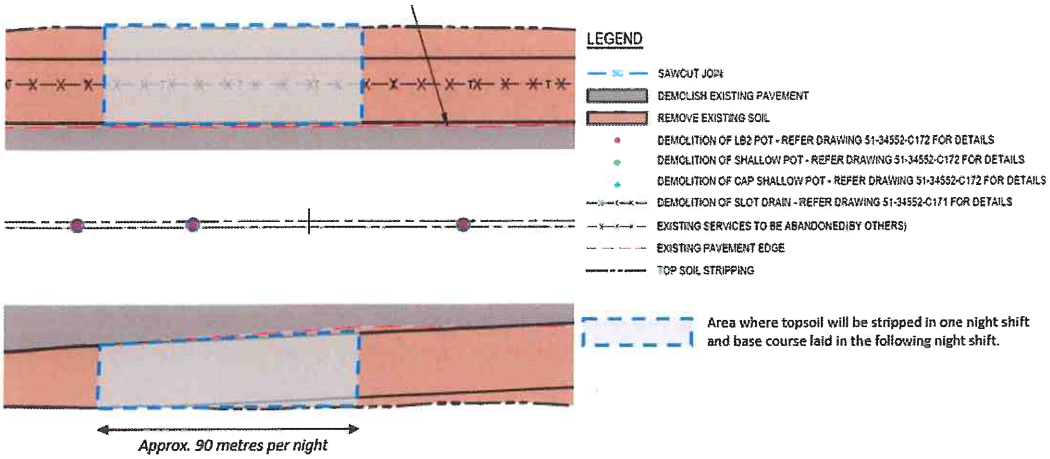
Milling and strengthening outer 2.5m shoulder



- The outer 2.5 m shoulder of existing TWY-A surface will be milled by approximately 50-100mm to remove the top layer of pavement, to enable strengthening of this area by laying asphalt concrete.
- This work will be undertaken in lengths of 180m each night and the surface fully reinstated at the end of each shift.
- There will be no exposed soil during this works.

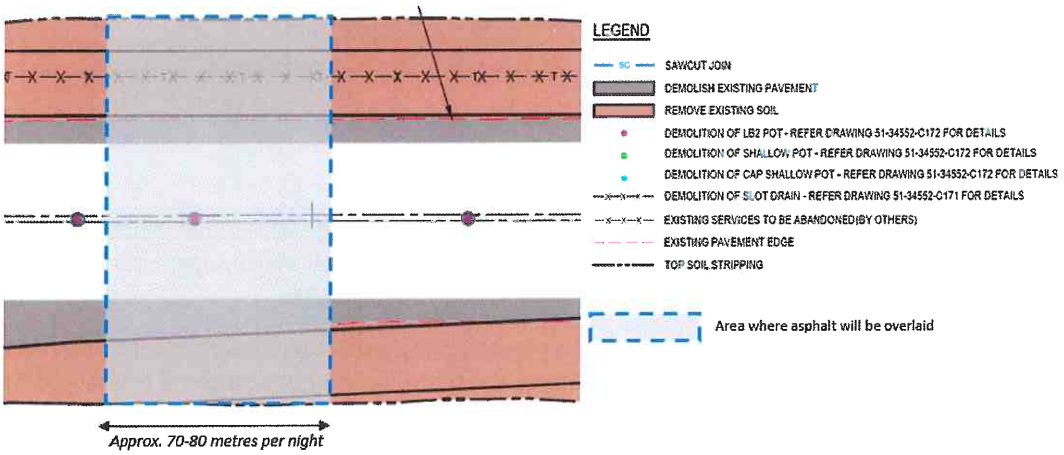
[1] These drawings are indicative only, representing a typical areas of works. They are not to scale.

Widening TWY-A by 7.5m



- Striping of topsoil soem night of base course being laid. This will be undertaken in lengths of 90m -150m per night. Following each night shift the finished compacted basecourse surface area coated with an emulsion to prevent any sediment runoff.

Overlay of Taxiway Alfa



- Asphalt will be laid across the full width of the taxiway, in lengths of 70-80m per night working from the north to the south.

2.3 Sequence of works

To summarise, the sequence of works will be as follows:

1. The works to widen and overlay TWY-A will begin with the milling and strengthening the outer 2.5m shoulder of the existing surface.
2. Four nights after this strengthening works commence, the widening works will being by stripping the topsoil adjacent to TXY-A. This topsoil will be carted to the laydown area where it will be stockpiled. Only the area required to widen the taxiway will be disturbed. At the end of the shift this area will be filled with compacted compacted basecourse and stabilised with emulsion. There will be no exposed areas of soil following pavement construction at the end of each shift.
3. The basecourse will be insitu sabilsised with cement and covered in emulsion.

4. Asphalt will be overlaid across the full width of the widened taxiway, once the works described above have been undertaken.

Following each work shift, the new and old pavement areas and the drainage network will be married into each other, as detailed in Figure 4 of the consent application. All machinery and equipment will be removed from the site and returned to the laydown area. An inspection will be undertaken to ensure that the site is clear and presents no hazards.

3.0 Erosion and Sediment Control Methodology

Work will be undertaken in night shifts, between 21:30 and 5:45. This will ensure that Taxiway Alfa will be fully operational during the day. In order to achieve this, work will be undertaken in small increments, referred to as work sites, with a work site being completely stabilised following each night shift.

4.0 Risk Mitigation

The key environmental risk during the works is that sediment-laden stormwater be discharged to the coastal environment, via the stormwater network (mapped in Appendix A). The mitigation measures which form part of the above methodology are detailed below. The areas of the site where sediment needs to be managed are:

- Check forecast.Only continue construction work in favourable weather.
- The route along which material will be carted between the laydown area and work site; and
- The active works area, being the open work site during each night shift.
- The stockpile area at Fulton Hogan's laydown area on Kingsford Smith Street.Contained concrete area

4.1 Cartage route

Vehicles will be checked for sediment before entering the airport and specific access routes will be used by all vehicles in order to minimise sediment tracking. This route will avoid airport infrastructure (e.g. lighting, slot drains), as far as is practical, primarily to prevent damage.

During the night shift, FOD management procedures including the use of suction trucks to minimise FOD build up will be used. A vacuum sweeper will be used to sweep the cartage route at the end of each shift.

Vehicle movements will also be managed as part of the Noise Management Plan.

4.2 Active works area

4.2.1 The area of exposed works will be limited

A typical stage of works will vary between 70m to 180m, soil will not be exposed as shoulder widening dig out sections will be backfilled with basecourse each shift. No soil will be exposed in the areas where there is existing pavement as it will be backfilled with AC each shift.

4.2.2 Work will be undertaken in dry conditions

Work will not take place in wet weather conditions, or if rain is forecast during the night shift. Prior to each work shift, the conditions will be evaluated and works called off if the weather conditions are poor or rain appears likely.

Of the 149 shifts in the work programme, there is an allowance of 38 no-work shifts (equivalent to approximately 7 weeks) to account for interruptions caused by the weather. This allowance has been determined based on local knowledge and historic weather records.

The works to widen and overlay TWY-A are scheduled to begin in November 2016 and be completed by May 2018. This timing of the works, largely throughout summer, means that conditions will generally be drier and the likelihood of rain events is lower.

Undertaking works in dry conditions is important from an operation and quality control perspective during surfacing, however will also avoid the generation of sediment-laden stormwater runoff, as far as practical. The main risk is associated with an unexpected weather event occurring during the night shift. In this circumstance, the following actions will be undertaken:

- The site will be stabilised as much as possible.
- A sediment filter sock will be installed over stormwater ingress points within and adjacent to the works area. These filter socks will remain in place until the site is dry enough to commence work again.

Before work recommences on-site:

- If there is ponded water that is not sediment laden (i.e on a base course surface) submersible pumps will be used to pump this water to the nearest stormwater system (which will have sediment filter socks installed) or if the surface is stable, channels will be cut into the berm to direct water to the stormwater network.

4.2.2 Management of FOD

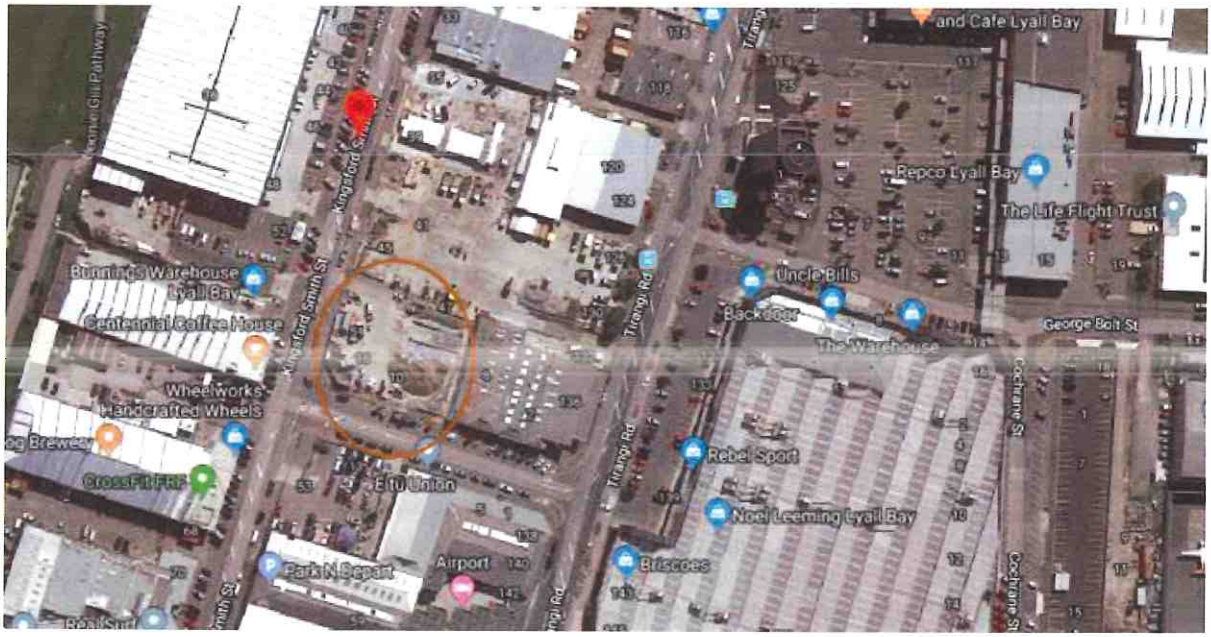
The management of FOD is an important consideration from an operational safety perspective. As such, strict procedures will be in place to ensure that all sediment, debris and other loose material is managed on the site, including:

- Using suction trucks during the work shift will minimise FOD build up.
- Sealing the work site (i.e. ensure that the works area is stabilised with emulsion or surfaced at the completion of a shift and using a primer coat on the pavement following the completion of works).
- Leaving the site 'clean' following each work shift.

4.3 Stockpile area

Topsoil from the site and imported base course will be stockpiled in the Contractors laydown area. The stockpile area is concreted and the stockpiled material will be contained in bins. This will prevent contamination of the material and also ensure that during any wet weather the material can be protected and sediment run-off prevented.

The location of the laydown area is shown in the map below.



5.0 Site audits

In accordance with Condition 15 of WGN170364, site audits will be undertaken monthly or following a rain event during the works and provided to GWRC (notifications@gw.govt.nz). This site audit will include a photographic record of the area of works, comments about the site conditions, sediment control measures and run off control (if relevant) and any other relevant considerations.

6.0 Review procedures

This document will form part of Fulton Hogan's contract management plans and will be reviewed and amended if there is any substantive changes to the sequencing of the work or the construction methodology.

7.0 Summary of the approach to erosion and sediment control

The risk of sediment-laden stormwater entering the stormwater network is largely mitigated through the existing proposed methodology. This methodology is required to meet the WIAL's operational constraints for FOD management but has the added benefit of ensuring the sediment will be managed effectively throughout the works.