



WOLFS FANG RUNWAY DESCRIPTION FOR AIRCRAFT OPERATORS

1. Runway Overview

The runway is sited approximately 130 km (70 Nm) South West of the Schirmacher Oasis which is home to White Desert's Whichaway Camp, and permanent stations belonging to the both the Russian and Indian national Antarctic programmes. It is 2.5km West of Henrickson Nunatak a highly visible feature rising some 197m (646') above the runway.

The runway is sited on natural blue glacial ice. Due to the dynamic nature of glacial ice, ongoing maintenance activities are required to keep the Wolfs Fang Runway in operation. Unlike a conventional runway which is generally always available for use, the Wolfs Fang Runway is generally unserviceable due to surface conditions and is only opened for brief flight windows during periods of good weather. Additionally, the runway moves northwards at approximately 24m per year. The runway will therefore require repositioning every year.

Wolfs Fang Runway is only manned and operated during the summer operating period between October and February.

2. Runway Description

The Wolfs Fang Runway is 3000 m (9840') long and 60 m (196') wide. Note that the runway edge markers are actually 70m apart (35m from the centre line). Any snow accumulations or berms are pushed at least 40m beyond the edge markers giving a minimum strip width of 150m.

The runway is aligned into the slope of the local terrain at 175° True. The runway has an overall longitudinal slope of 0.89%, rising to the South.

Declared distances are:

Runway 17T

TORA & LDA:	3000 m (9840')
TODA & ASDA:	3000 m (9840')

The runway is constructed on exposed glacial blue ice, estimated to be several hundred meters thick. The runway is located within a cleared runway strip, 150m (492') wide. The site is inspected before each flight and it is free of any crevassing or surface anomalies. Additionally, ice cores from the site have shown that the area is free of sub-surface melting. The confined bearing strength of the ice is well in excess of the aircraft tire pressures and the combined gang loads of the landing gear of any jet aircraft.

Surface friction coefficients vary between 0.2 and 0.4 depending upon ice temperature, solar radiation, wind polishing and the level of any snow cover.

As the runway is located on glacial ice it is subject to constant, generally uniform movement estimated to be 24 m per year. Threshold coordinates and declared distances will therefore be reestablished annually. Runway thresholds for the 2022-23 season were measured using single channel GPS receivers on 26 October 2022. These are:

Northern Threshold, (ITRF2014)

S 71° 31' 34.2"

E 008° 47' 56.44"

Elevation 1108 m (3635') AMSL

Azimuth 175° True

End of Runway (South),

S 71° 33' 10.8"

E 8° 48' 20.8"

Elevation 1136 m (3727') AMSL

During the 2022 season, a non-precision LNAV approach and departure procedure were produced for runway 17T. The basis for this approach is the October 2022 threshold coordinates listed above. The runway will be positioned back to these coordinates annually with an absolute accuracy of <3m.

Runway markers are canvas rectangles mounted on two bamboo or polycarbonate poles approximately 1.4m high. Runway edge markers are placed on both sides of the runway shoulders at 100m (328') intervals. Markers are fluorescent red or pink in colour. Several black markers are used to indicate the runway Aiming Point which is 300m from the Northern threshold.

A lighting system is in operation comprising extended approach lights, threshold lights, runway end lights, and limited edge lighting. This lighting is daylight visible and can be remotely dimmed. The layout and photometric performance of these lights is based on ICAO standards but has some modifications due to the practical limitations of the operating environment. All lights are directional, facing North, and are only visible when lined up on runway 17T.

A drawing showing the layout of visual aids is at Annex B.

A windsock is located on the left side of the runway, 250m from the threshold of runway 17T.

An apron, 200m by 150m (656' by 492'), is provided at the northern end of the runway, on the Eastern side, for aircraft parking and loading. All support services, ground staff and vehicles will be located to the East of the apron.

A map of the region depicting the Wolfs Fang Runway in relation to regional features is at Annex F.

3. Communications

TIBA procedures on 129.7 are mandatory when south of latitude 60S in accordance with the Antarctic Flight Information Manual (AFIM), Appendix 5. The local custom with the Norwegian, German and Russian programs that operate in the region is to conduct the TIBA broadcast on 123.45. It is therefore recommended that broadcasts are also made on 123.45 and a listening watch maintained on both frequencies.

The Wolfs Fang Runway call sign is "Wolfs Fang Runway".

Air-ground communications will be conducted 123.45 MHz. An alternative frequency is 129.7 MHz (AM) or Intl Marine VHF Channel 10 (the ground working frequency).

HF communications are also available.

Iridium numbers for Wolf's Fang Runway are:

Primary- **+44 2080 6829**

Alternate A- +8816 7775 0957

Alternate B- +8816 5241 3958

Email contact is via Rwycomms@white-desert.com

Alternate messaging is via inreach440@garminreach.co.uk

4. Navigation Aids

No ground based navigation aids are provided.

5. Weather Service

A forecasting service is provided by Africaweather / Weatherzone. This is coordinated through the White Desert office in Cape Town.

Forecasting and observation services are tailored to support planned flying operations and a daily briefing service is available for pilots departing Cape Town.

METARs are available through “Wolfs Fang Runway” on request. METAR reports will also include surface and horizon definitions in line with the standard Antarctic format.

Observations are made manually from the runway at 30 minute intervals during flying operations. Real time observations can be obtained during the descent/approach by contacting “Wolfs Fang Runway” on VHF.

Additional automated weather stations are being deployed during the 2023 season. These additions will include a lidar at WFR to report cloud height and a remote AWS located 40 km to the East to provide advanced warning of changing conditions.

6. Rescue and Firefighting Equipment

A first response crash rescue vehicle is available at the runway during any flying operations. This is manned by two trained attendants. The vehicle is equipped with:

- 250kg of dry powder extinguishing agent (Purple K), providing 180 seconds of fire suppression;
- mechanical crash entry tools and cutting equipment;
- a triage tent, insulated ground coverings, and sleeping bags; and
- a comprehensive trauma medical kit including resuscitation equipment.

During the 2023 season a second crash response trailer will be provided. This will be capable of discharging 250kg of DCP extinguishing agent and will also carry exposure protection equipment. This capability will provide a two appliance response at WFR.

A doctor is located at the runway for all intercontinental flights. Additional medical support, including a second doctor is available at Whichaway Camp.

Fixed wing, ski equipped aircraft based at the runway or the nearby Whichaway Skiway can effect evacuations to nearby intercontinental runway at Novo or Troll station. Evacuations to Cape Town can be facilitated by aircraft operated by White Desert or chartered aircraft from South Africa.

Emergency accommodation and survival equipment suitable for several days of severe weather is available at the Wolfs Fang Runway.

7. Procedures

The Wolfs Fang Runway is a private facility that is opened in preparation for each planned flight. Runway markers and infrastructure are removed outside of planned flight windows.

The Wolfs Fang Runway Manager will complete an inspection of the runway prior to opening the runway. A copy of this report will be sent to the aircrew prior to

their departure from Cape Town. An example of a serviceability checklist and Runway Condition Report is at Annex C. An additional RCR is provided 40 minutes before planned landings (approximately at top of descent).

Runway surface friction will be measured using the brake meter/decelerometer method and recorded as a coefficient of friction or Mu. Runway friction will be measured at least three times in each 500m section of the runway. The average will be provided to the aircrew. If any asymmetric friction is measured or if section average varies by more than 0.03 from the runway average then additional friction data will be passed to the aircrew.

All azimuth information provided in procedural documents will be in reference to True North.

Ground Services

GSE on the apron includes:

- stairs suitable for a B767 and an A340,
- cargo sledge,
- belt loader, and
- a cargo loading platform to support the loading of larger items.

Aircraft are not intended to overnight on the ground at the runway. Anchors for aircraft tie downs will not be provided but can be manufactured in the event of an incident resulting in an overnighting of an aircraft.

Refueling and defueling equipment is available on the apron. Both over wing and pressure refueling is supported at 200 lpm (53 gpm). Jet A1 is supplied from sealed 1500 l IBCs. Fuel samples will be collected at the start of each season and returned to Cape Town for analysis to monitor fuel quality and ensure it remains within the Jet A1 specification. All equipment at the runway will run on Jet A1 to minimize contamination risks.

Ground power, at 250V AC, or 12 or 24V DC, is available if required.

A portable airstart unit, capable of 130 lb/min, is available if required. This unit is capable of starting engines on large business jets such as the G550.

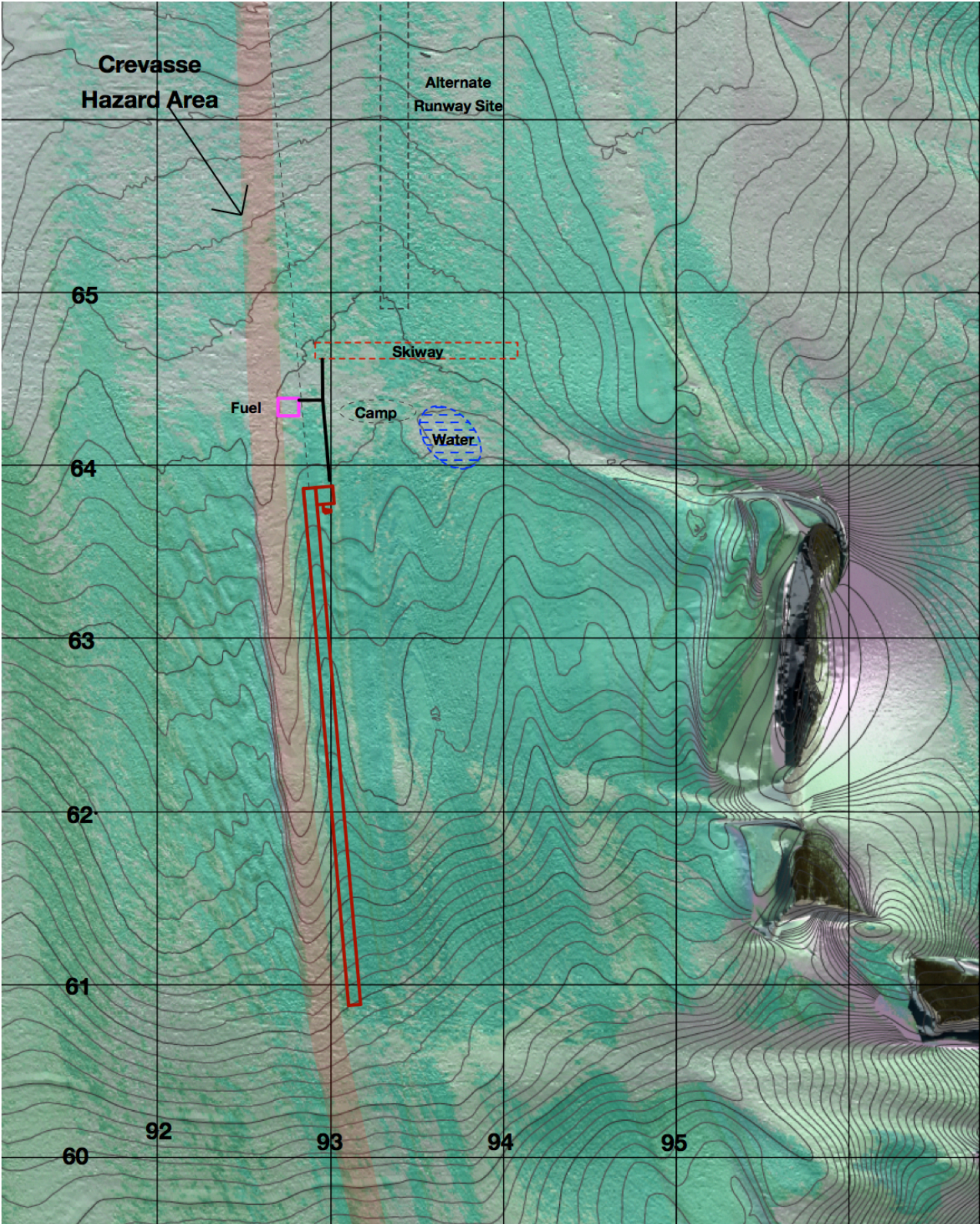
Small portable heaters are available for engine deicing. Only manual wing deicing is available. Due to the very dry atmosphere, ground icing does not occur during flying conditions.

Annex:

- A. Aerodrome site arrangement.

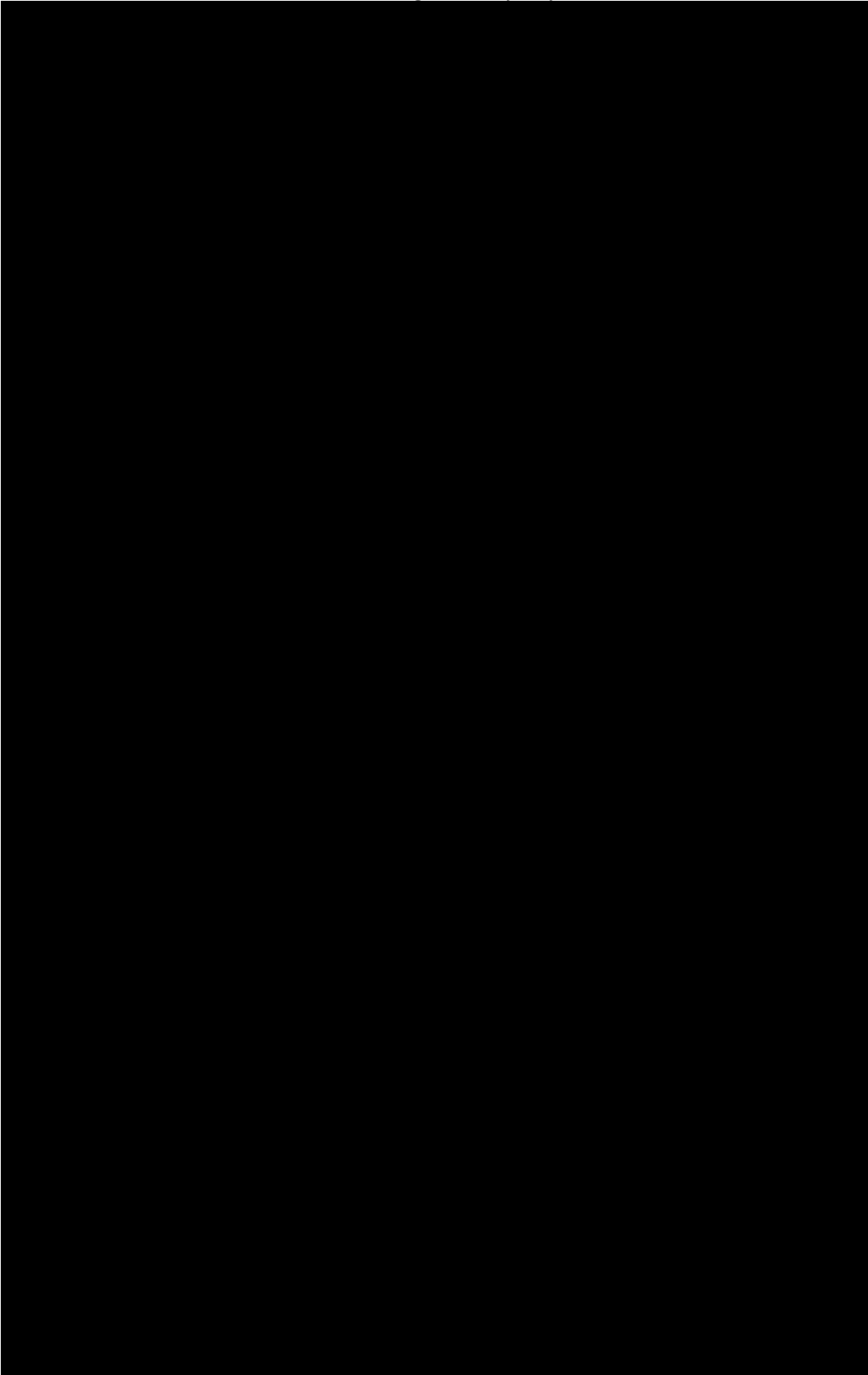
- B. Layout of Wolfs Fang Runway visual aids
- C. Turning Bay Layout
- D. Aiming Point layout
- E. Apron layout
- F. Wolfs Fang Runway regional map
- G. Example runway serviceability checklist and condition report
- H. Images of the Wolf's Fang Runway
- I. Indicative Runway Profile.

Aerodrome Site Arrangement
(2m contour interval, 1000m grid)

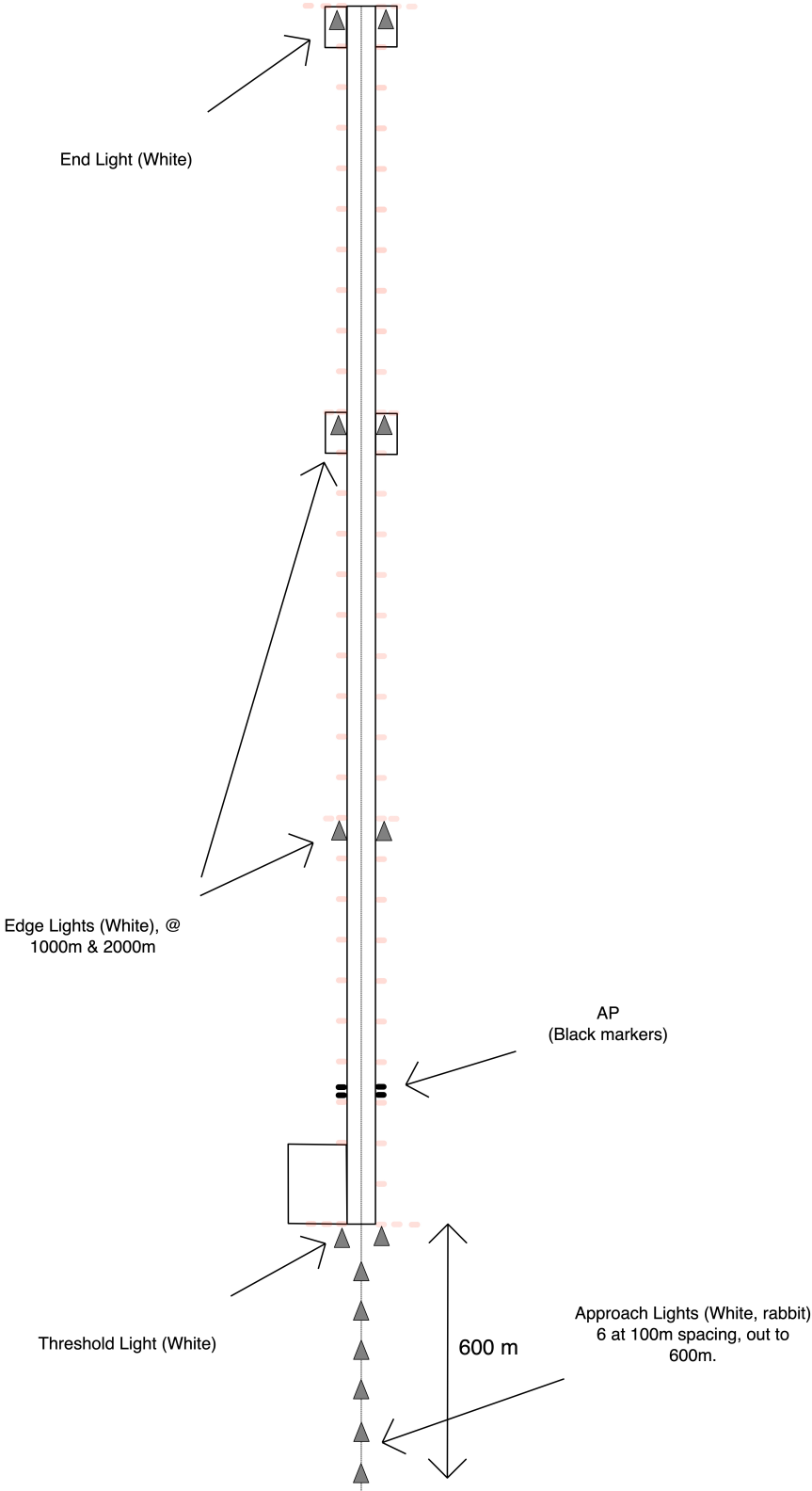


Annex B

Wolfs Fang Runway Layout

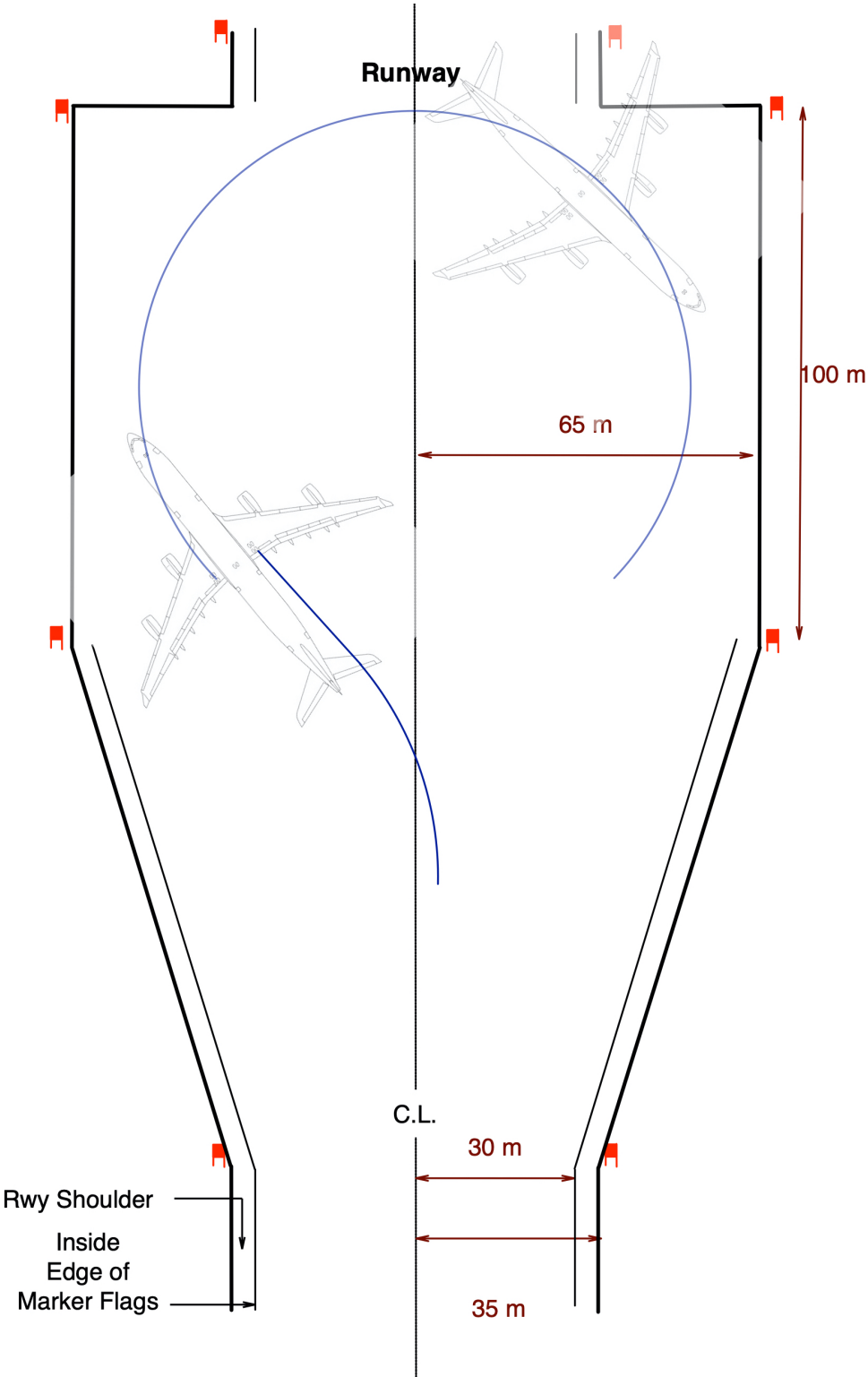


Wolf's Fang Runway Lighting Arrangement

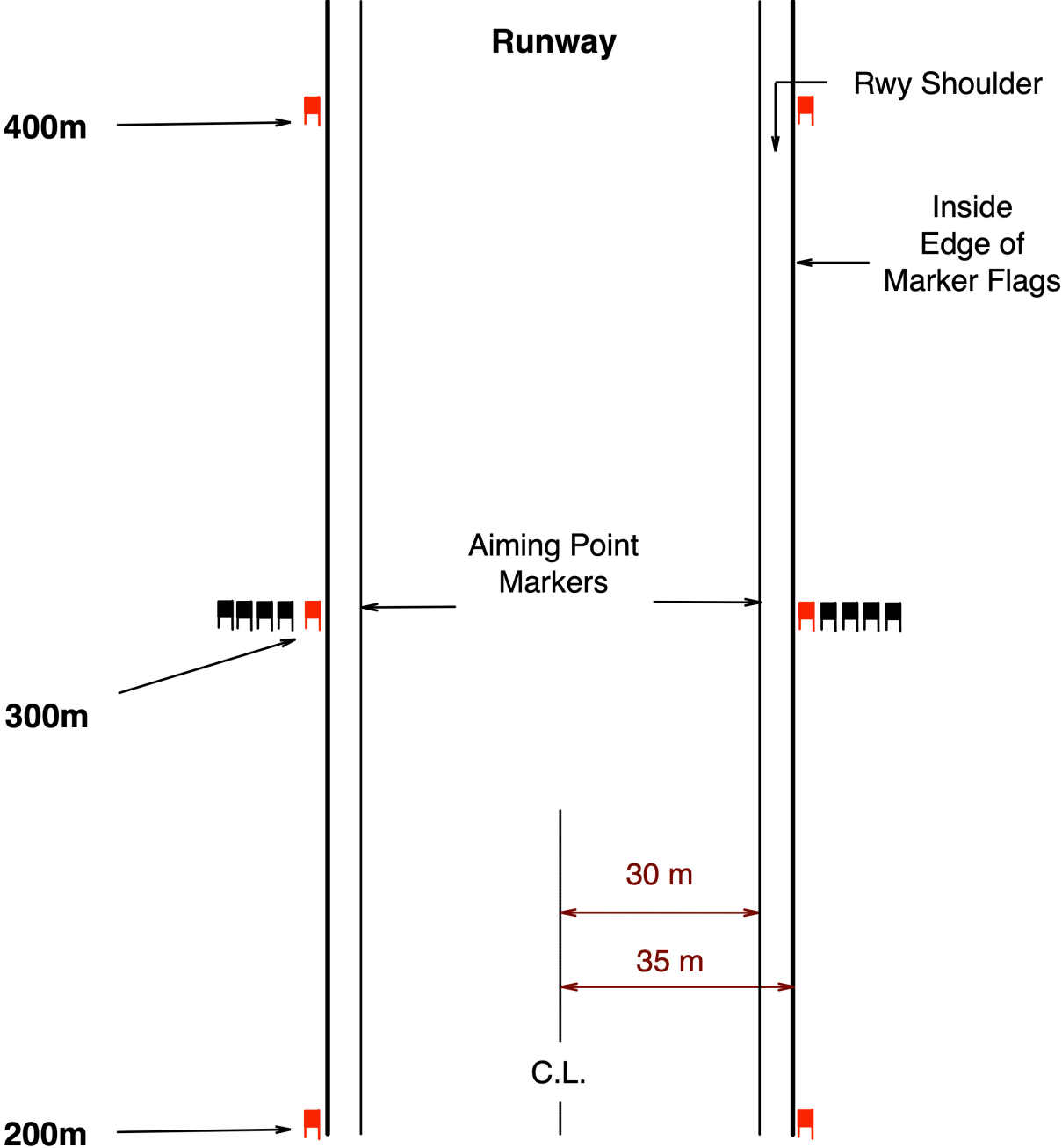


Annex C

Wolf's Fang Runway Turning Bay
(A340-300 shown using 30° nosewheel steering)

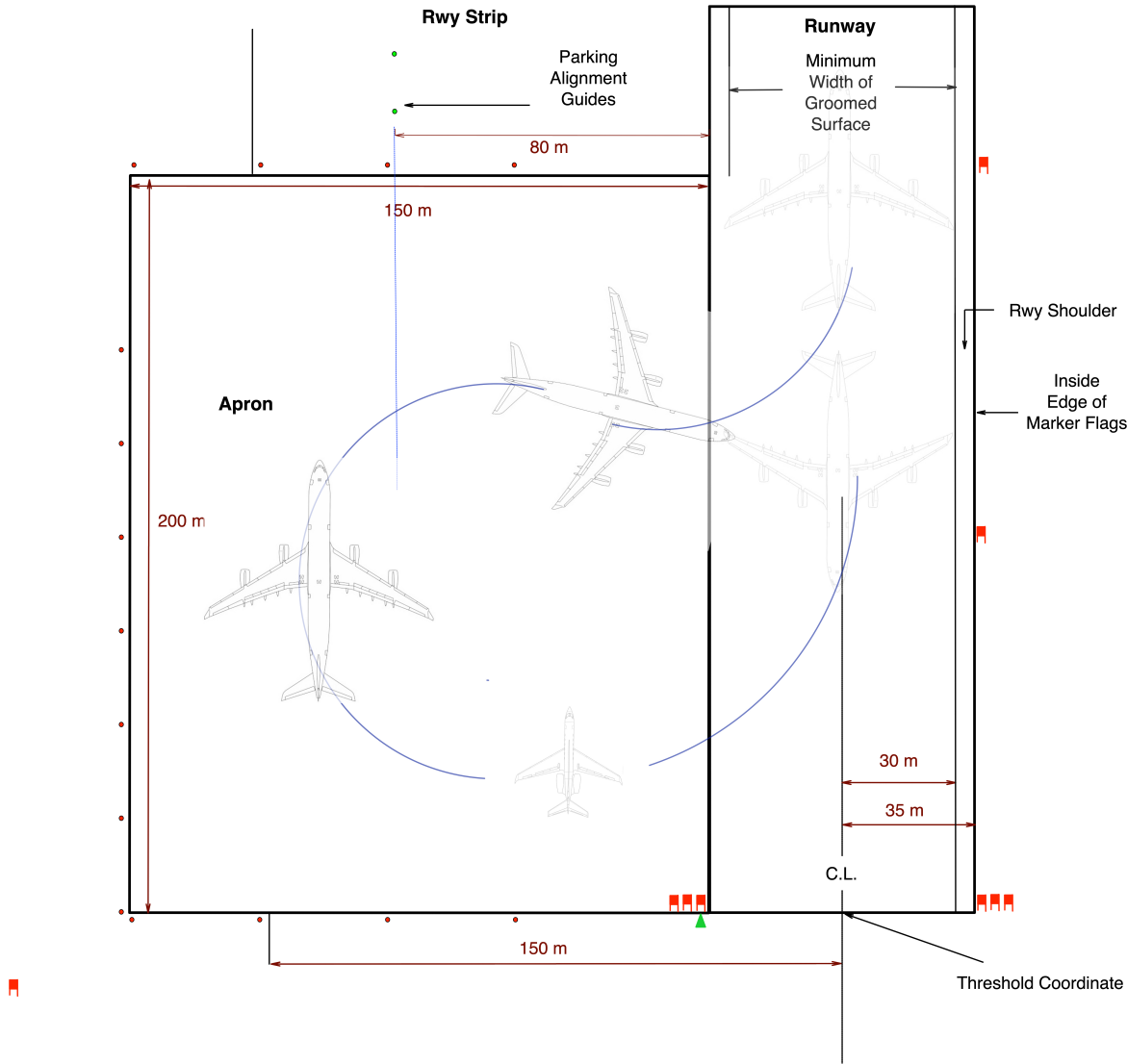


Aiming Point Layout

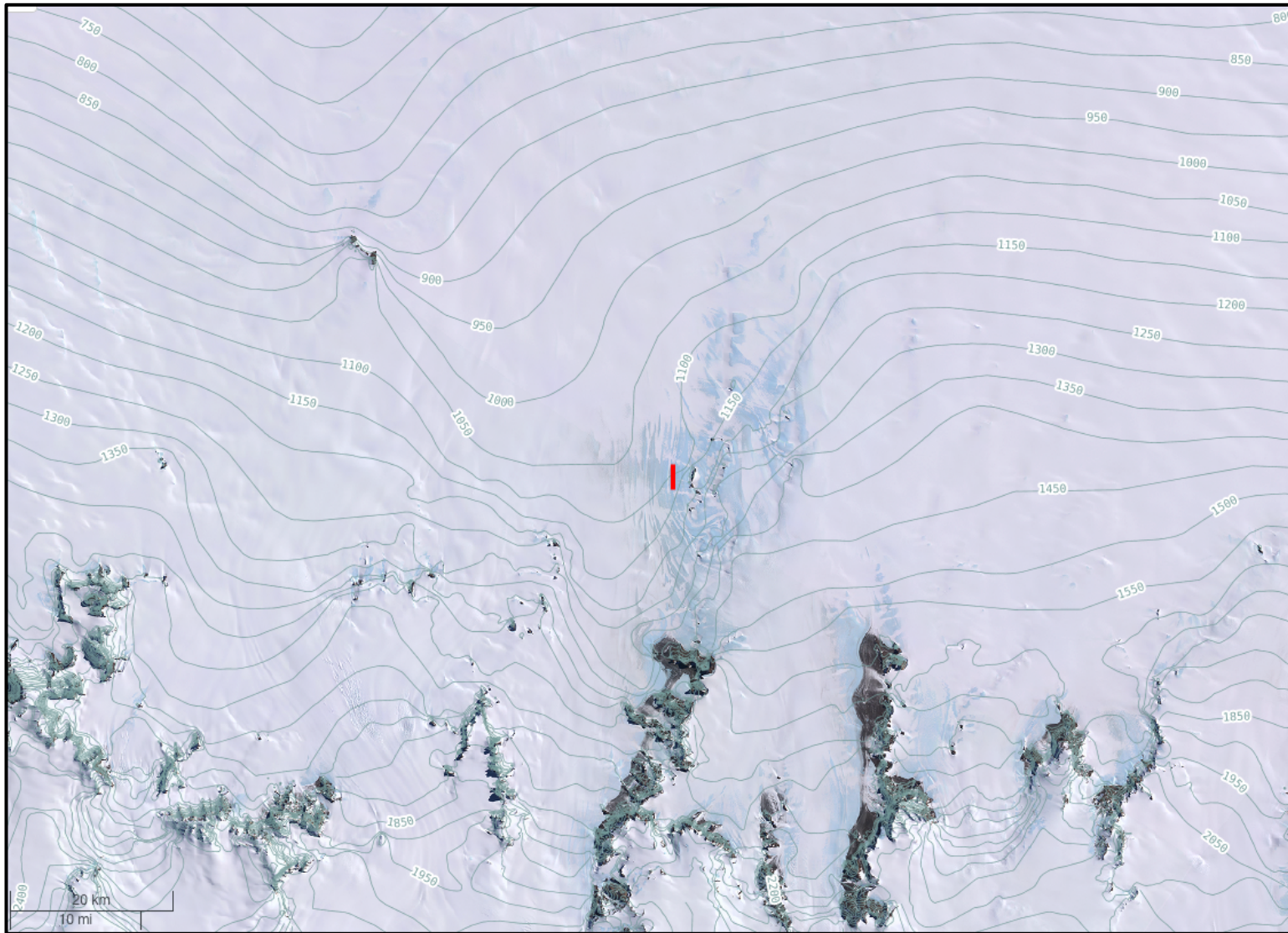


Annex E

Wolfs Fang Runway Apron Layout
(A340-300 shown using 30° nosewheel steering.
G550 parking also shown. Note G550 arrival after A340)



Wolfs Fang Runway Regional Map



Annex G

Runway Serviceability Checklist and Condition Report

Wolfs Fang Runway Serviceability Checklist

Date	/ /
Runway	17T
Confirm and date threshold coordinates.	
Date and nature of last grooming activity.	
Confirm full runway available.	
What is the extent pavement cover over runway?	
What is the maximum thickness of the pavement?	
Check and report curtain cracks, size, location, and orientation.	
Confirm strip is clear or snow accumulation out to 150m width.	
Are berms or spoil at runway edge less than 1:8 gradient?	
Obstacles	
Area free of visible wildlife?	
Strip clear of equipment, vehicles and people?	
Obstructions within OLS identified and reported ?	
Upwind and movements area is free of debris/FOD ?	
Infrastructure and procedures	
WDIs- serviceable	
Runway makers- all present, correct position, visible, serviceable?	
Threshold and Stopway lights serviceable ?	
Comms equipment serviceable ?	
Emergency Response Equipment present and serviceable?	
Ground support equipment, including ASU, serviceable?	
All staff familiar with all procedures?	
Pax briefed on arrival /departure procedure?	
Ground support equipment serviceable?	
Reporting Officer initial	

Note: Anomalies must be included in Runway Condition Report.

Runway Condition Report, Wolfs Fang 17T			Date:
Threshold Coordinates (WGS84)	S 71° 31' 35.1" E 8° 47' 56.46"		Time of Completion:
Rwy Heading (True)	175° True		
Surface friction (vehicle and meter type)			Name of Reporting Officer:
0m-500m Mean Mu			
500m-1000m Mean Mu		Time of Obs	
1000m-1500m Mean Mu		Surface Wind	°T, av kts, max kts
1500m-2000m Mean Mu		Visibility	m
2000m-2500m Mean Mu		Definition	Sfc ; hzn
2500m-3000m Mean Mu		Present Wx	
Lowest Mu in TH- 2500m		Cloud	Octas /type/height of cloud base
		Temp & DP	
0m -3000m Mean Mu		QNH	
		Supplementary Info	
Reported Anomalies:			

Annex H
Wolf's Fang Runway Images



December 2017, WFR from 2600m looking North.



Jan 2019, WFR Approach from Basler (Right of CL).



December 2017, WFR rom 1100m looking South.



December 2017, G550 aircraft backtracking North after landing on WFR.

<https://vimeo.com/259123910>

December 2017, video of G550 landing at WFR.

Annex I.
Wolfs Fang Runway, centre line profile

