MINISTRY OF INFRASTRUCTURE

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Number: 37201-1/2025-2430-59
Date: 25 May 2026

Unofficial translation

FINAL REPORT

ON THE INVESTIGATION OF A SERIOUS INCIDENT
Airprox between an Aircraft and a Helicopter within the LJMB Aerodrome Traffic Zone (CTR), 29 November 2024

Republic of Slovenia

» 2024 «

TABLE OF CONTENTS

INTRODUCTION

The final aircraft serious incident investigation report contains the facts, analysis, causes, and safety recommendations of the serious incident investigation commission based on the circumstances in which the accident occurred.

In accordance with point 3.1 of chapter 3 of Annex 13 to the Convention on International Civil Aviation (13th edition, July 2024), Article 1 of Regulation (EU) no. 996/2010 of the European Parliament and of the Council of 20 October 2010 on investigations and prevention of accidents and incidents in civil aviation (L 295/35), the second paragraph of Article 172 of the Aviation Act (Official Gazette of the Republic of Slovenia, No. 85/24-Zlet-1) and According to Article 2 of the Regulation on the Investigation of Air accidents, Serious Incidents and Incidents (Official Gazette of the RS, No. 72/03, 110/05 and 53/19), **the purpose of the final report on the investigation of an serious incident is not to establish guilt or responsibility.**

The final investigation report must undoubtedly benefit aviation safety.

It is important that the final investigation report be used to prevent aviation accidents or incidents. Using the final aircraft accident report for other purposes may lead to misinterpretation.

1 SUMMARY

Date and time of occurrence: 29 November 2024 at 11:57 (UTC)

Place of the incident: **LJMB Aerodrome Traffic Zone (CTR)**

Type of flight: A320 – Base training / AS350 – Aerial work

Aircraft:

- **Aircraft manufacturer:** Airbus Industrie / France, Germany, Spain, United Kingdom
- **Manufacturer's mark:** A320 / AS350
- **Aircraft registration:** D-AIUV / OE-XWF

Owner/Operator: Discover Airlines / Flycom Aviation

Crew and passenger information:

- **Crew:** pilot (**2/1**)
- **Number of passengers:** 0
- **Total number:** 3

Consequences:

- **Injuries:**

Injuries	*Crew*	*Passengers*	*Others*
Fatal	/	/	/
Major	/	/	/
Minor / None	2/1	/	

- **Aircraft and equipment:** N/A

2 FACTS

2.1 Flight Information

On 29 November 2024, the crew of an A320 operated by the airline was conducting base training flights within the Edvard Rusjan Maribor Airport (LJMB) CTR, performing touch-and-go landings on Runway 32. Following the second touch-and-go, during the climb to 2,400 ft, the Airbus crew observed on the TCAS a traffic target approaching the aerodrome from the direction of the city of Maribor, crossing from right to left at approximately 2,100 ft and climbing. The traffic was identified as an AS350 helicopter returning from an aerial filming mission. The helicopter had entered the Maribor CTR via the VFR reporting point ME2 and had received an ATC instruction to proceed towards the city of Maribor. Approximately 3 NM northwest of the threshold of Runway 32, an airprox occurred between the aircraft and the helicopter. At the closest point of approach, the horizontal separation was less than 1 NM and the vertical separation was approximately 270 ft.

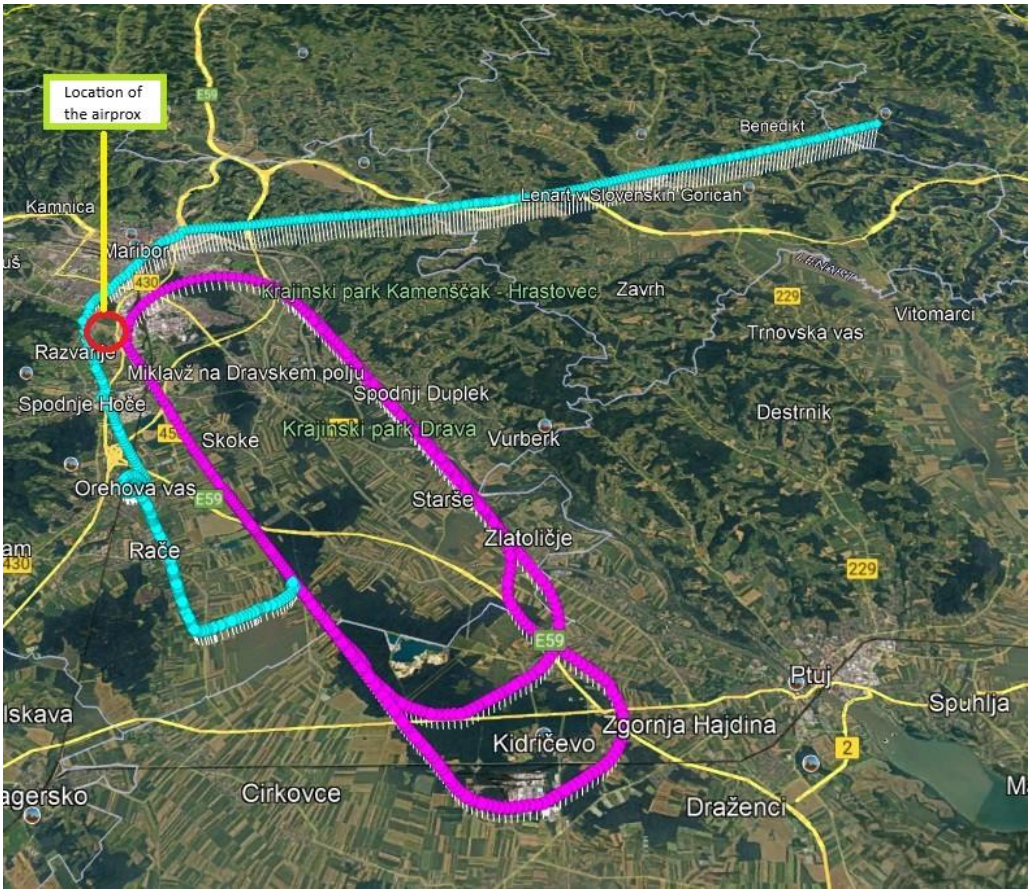


Figure 1: Location of the airprox and flight trajectories of the A320 and AS350[1]

[1] 00000000:AS350; 00000000:A320

2.1.1 Sequence of Events

At 11:42, the Airbus crew received taxi clearance from Aerodrome Control to the holding point for Runway 32.

At 11:44, the crew was cleared for backtrack and line-up on Runway 32.

During this time, the AS350 helicopter crew was returning from Murska Sobota, where it had conducted commercial aerial work operations, en route to Maribor.

At 11:45, the helicopter crew reported to Maribor Aerodrome Control their current position, next reporting point and intention to land at Maribor Airport. ATC instructed the helicopter to climb to 3,500 ft and to report passing ME2.

At 11:46, ATC cleared the Airbus for take-off from Runway 32 and instructed the crew to join right-hand traffic circuits not above 2,500 ft.

At 11:51, the Airbus crew reported their position 15 seconds prior to turning base. ATC instructed them to extend the downwind leg for 20 seconds and then report final for Runway 32. A few seconds later, the helicopter crew reported passing ME2 at 3,500 ft. ATC instructed the helicopter to continue towards the city of Maribor at 3,500 ft.

At 11:52:39, ATC provided the Airbus with traffic information regarding aircraft in the left downwind and over the threshold of Runway 32. The Airbus crew replied that they had the traffic on TCAS and were turning final for Runway 32 at a distance of 5 NM.

At 11:54:38, the Airbus crew reported 2 NM on final. ATC acknowledged and instructed them to continue.

At 11:54:50, ATC cleared the Airbus for touch-and-go on Runway 32 and provided wind information.

At 11:55:26, the helicopter crew reported overhead the city. ATC instructed the helicopter to proceed westbound at 3,500 ft and, when crossing the extended centreline of Runway 32, cleared it for a VFR approach, instructing it to join the left-hand traffic circuit for Runway 32 and report downwind.

The helicopter crew responded: “Crossing extended centreline and joining left-hand circuit for Runway 32, FL04.”

Figure 2: Radar display of traffic within the Maribor CTR at the time of the airprox between the aircraft (OCNI) and the helicopter (FL04)

At 11:57:14, the Airbus crew reported that they had just observed traffic on the TCAS approximately 200 ft below them and that they had received a Traffic Advisory (TA), but no Resolution Advisory (RA). They further reported that they were still climbing and were passing 2,300 ft.

ATC apologised for the situation and stated that the traffic should have been maintaining 3,500 ft. The Airbus crew subsequently reported that the unidentified traffic was crossing the extended centreline at 2,100 ft.

At 11:58:22, ATC instructed the helicopter to orbit right abeam the control tower.

At 11:58:50, the Airbus crew requested the callsign of the aircraft at 2,200 ft. ATC replied that it was FL04 (Flycom 04).

2.2 Personnel Information

2.2.1 A320

PIC

Licence: ATPL(A)

Ratings:

- A320 PIC IR – valid until 30 November 2025
- A320 TRI – valid until 31 March 2025

Flight Experience (at the time of the occurrence):

- Total: 11,771:34 hours (11,207:59 hours A/C – 563:35 hours FFS)
- FO B737: 3,993:45 hours
- PIC: 7,214:14 hours
- Airbus A320 FAM: 7,214:14 hours
- A320 FAM Instructor: 2,998:21 hours
- Last 90 days: 130 hours on A320

Medical Certificate:

Class 1/2/LAPL – valid until 31 August 2025

FO

Licence: CPL(A)

Ratings:

- A320 – valid until 30 November 2025

Flight Experience (at the time of the occurrence):

- Total: 359:59 hours (154:20 hours simulator – 205:39 hours aircraft)
- PIC: 110:08 hours
- Last 90 days: 84:00 hours simulator (A320 type rating)

2.2.2 AS350

PIC

Licence: CPL(H)

Ratings:

- AS350, EC130 – valid until 31 March 2025
- EC120 – valid until 31 March 2025

Flight Experience (at the time of the occurrence):

- Total helicopter: 2,619:40 hours
- Total aeroplane: 4,721:08 hours
- Last 90 days: 81:06 hours, of which 53:51 hours on type AS350

Medical Certificate:

Class 1/2/LAPL – valid until 10 January 2026

2.2.3 Maribor ATC Unit (LKZP MB)

Instructor

Licence: Air Traffic Controller Licence

Ratings/Endorsements:

- LJCE ADI/TWR – valid until 19 December 2026
- LJCE APP – valid until 19 December 2026
- LJMB ADI/TWR – valid until 14 January 2027
- LJMB APP – valid until 14 January 2027

Medical Certificate:

Class 3 – valid until 16 January 2025

Trainee

Licence: Student Air Traffic Controller Licence

Ratings:

- ADI – first issued 17 May 2024
- APP – first issued 28 June 2024

Rating Endorsement:

- TWR – first issued 17 May 2024

Medical Certificate:

Class 3 – valid until 25 October 2025

2.3 Aircraft Information

2.3.1 Airbus A320

The A320 is a narrow-body, low-wing, medium-range passenger aircraft equipped with two underwing turbofan engines.

Technical Data:

- **Type:** Medium- and short-range passenger aircraft
- **Manufacturer:** Airbus Industrie / France, Germany, Spain, United Kingdom
- **Crew:** 2
- **Passenger Capacity:** 150 in two-class configuration (12 + 138) or 164 to 179 in single-class configuration
- **Cargo:** 7 LD3 containers, 38.8 m³ cargo volume
- **Powerplant:** Two underwing turbofan engines, each rated at 111 to 120 kN thrust
- **Engine Types:** CFM International CFM56-5B4/P; International Aero Engines (IAE) V2500-A1, V2527-A5, V2527E-A5
- **Operating Empty Weight:** 42,600 kg
- **Maximum Zero Fuel Weight (MZFW):** 62,500 kg
- **Maximum Take-off Weight (MTOW):** 78,000 kg
- **Maximum Landing Weight (MLW):** 66,000 kg

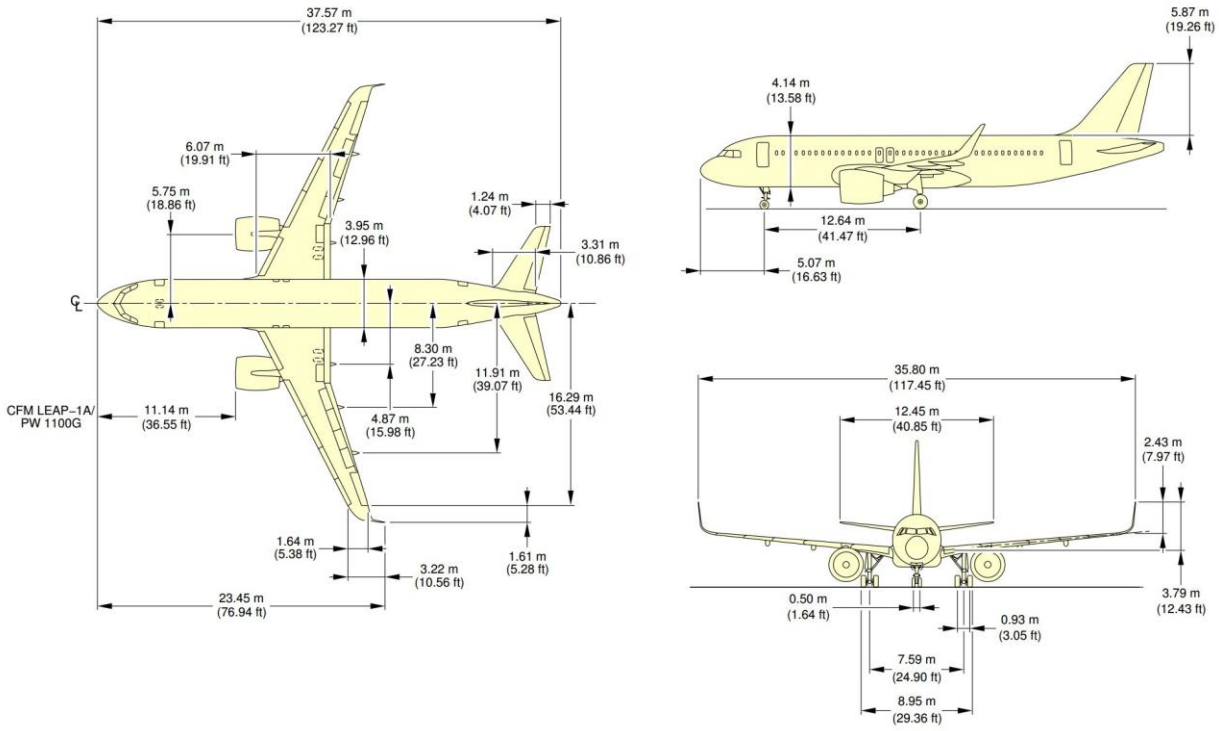


Figure 3: A320 aircraft dimensions

2.3.2 Aérospatiale AS350 B2 (Airbus Helicopters)

The AS350 B2 is a light, single-engine, multi-purpose helicopter developed by the French company Aérospatiale. Aérospatiale later merged into Eurocopter, which was subsequently rebranded as Airbus Helicopters.

Figure 4: Aérospatiale AS350 B2

Technical Data:

- **Crew:** 1
- **Passengers:** 4
- **Maximum Take-off Weight (MTOW):** 2,250 kg (4,960 lb)
- **Engine:** 1 × Turbomeca Arriel 1D1, 546 kW
- **Range:** 312 NM
- **Service Ceiling:** 4,600 m (15,100 ft)
- **Rate of Climb:** 1,750 ft/min
- **Maximum Speed:** 133 kts

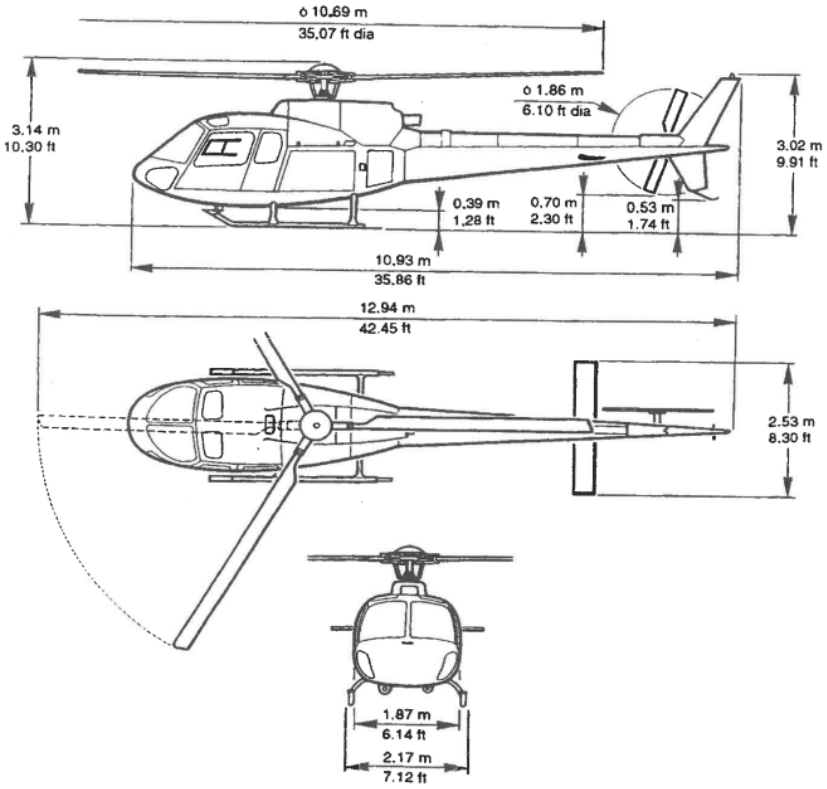


Figure 5: AS350 helicopter dimensions

2.4 Meteorological Information

At LJMB, meteorological measurements are conducted by the ARSO automatic weather station, which is part of the national meteorological network, as well as through aerodrome observations at LJMB. The METAR reports for LJMB are provided below:

METAR LJMB 291130Z 07005KT 020V100 CAVOK 08/02 Q1026=
METAR LJMB 291200Z VRB02KT CAVOK 08/01 Q1026=

Figure 6 shows a camera image from LJMB in the direction of the runway (towards the southeast) taken on 29 November 2024 at 12:00 UTC, where stratocumulus cloud cover is visible.

Figure 6: Camera image at LJMB on 29 November 2024 ar 12:00 UTC, facing southeast

The cloud base measuring device at LJMB recorded, between 11:30 and 12:00 UTC, the base of the lowest cloud layer at 7,000 ft AGL with a cloud amount of BKN (5/8 to 7/8 coverage).

Based on measurements and observations, ARSO assessed that between 11:30 and 12:00 UTC on 29 November 2024 at LJMB:

- Stratocumulus cloud was present with a cloud base at 7,000 ft AGL;
- Cloud amount was BKN (5/8 to 7/8);
- Winds were light;
- No significant weather phenomena were observed.

2.5 Aids to Navigation

The aerodrome is equipped with navigation aids for both precision and non-precision approaches.

The precision approach is provided by an ILS for Runway 32. Non-precision approaches include a LOC approach for Runway 32, RNP approaches for Runway 32, and an LCTR approach for Runway 32. Ground-based navigation aids did not contribute to the serious incident.

2.6 Communications

At Maribor Airport, air traffic control services are provided by two units: Maribor Tower (TWR) and Maribor APP (Aerodrome and Approach Control). In practice, both functions are performed from a single controller working position consisting of an executive controller and a planning controller.

Two frequencies are available for communication with aircraft: 119.205 MHz (primary frequency) and 134.305 MHz.

2.7 Aerodrome Information (LJMB)

Edvard Rusjan Maribor Airport is located 9 km south of the city of Maribor. The aerodrome accommodates commercial and general aviation operations. It is equipped with one asphalt runway, oriented 14/32, with a length of 2,500 m and a width of 45 m.

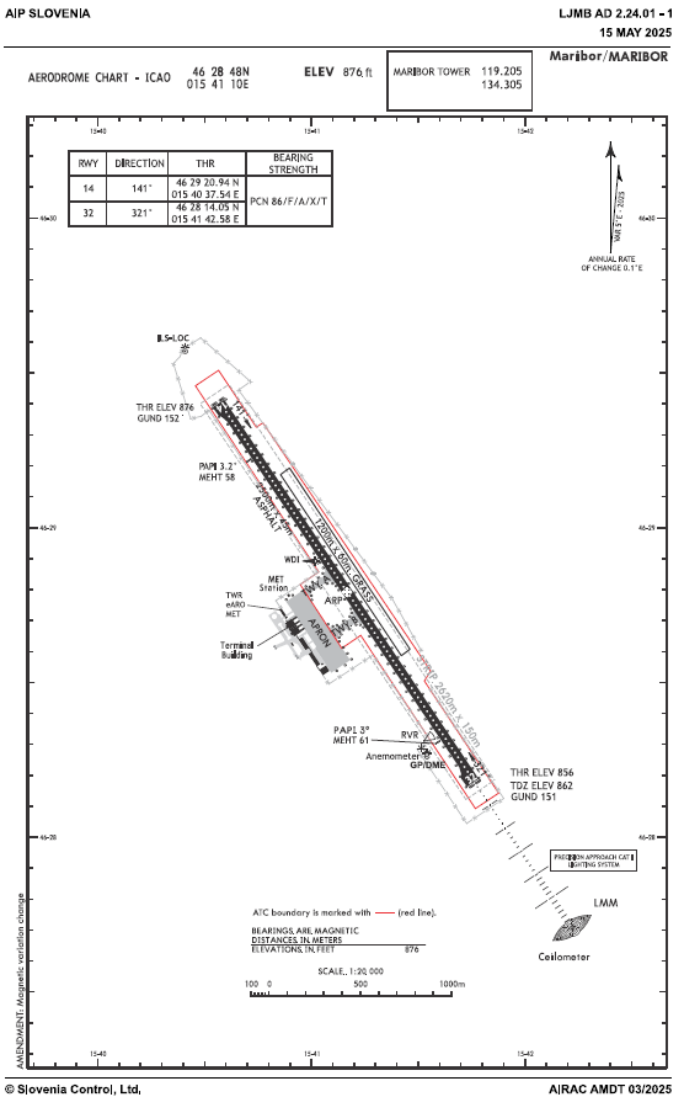


Figure 7: Runway dimensions

2.8 Additional Information

2.8.1 Classification of Slovenian Airspace

The airspace above the Republic of Slovenia is divided into Classes C, D, E and G.

- Lower CTA Ljubljana extends from ground level (GND) up to FL 245;
- Upper CTA Ljubljana extends from FL 245 to FL 660.

The Lower CTA contains airspace Classes C, D, E and G, while the Upper CTA consists solely of Class C airspace. Both airspaces cover the entire territory of the State.

Table 1: Classification of Slovenian Airspace for VFR Flights

Razred *Class*	Tip leta *Type of flight*	Zagotovljeno razdvajanje *Separation provided*	Zagotovljena storitev *Service provided*	Omejitev hitrosti (*) *Speed limitation (*)*	Zahteva za zmožnost radijske komunikacije *Radio communication capability requirement*	Zahtevana neprekinjena dvosmerna komunikacija zrak-zemlja *Continuous two-way air-ground voice communication required*	Potrebno dovoljenje ATC *Subject to an ATC clearance*
C	VFR	VFR od IFR	1. Storitev kontrole zračnega prometa za razdvajanje od IFR 2. Prometne informacije VFR/VFR (in na zahtevo nasveti za izogibanje prometu)	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Da	Da	Da
	VFR from IFR	*1. Air traffic control service for separation from IFR* *2. VFR/VFR traffic information (and traffic avoidance advice on request)*	*250 kts IAS below 3 050 m (10 000 ft) AMSL*	*Yes*	*Yes*	*Yes*
D	VFR	Brez	Prometne informacije IFR/VFR in VFR/VFR (in na zahtevo nasveti za izogibanje prometu).	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Da	Da	Da
	Nil	*IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)*	*250 kts IAS below 3 050 m (10 000 ft) AMSL*	*Yes*	*Yes*	*Yes*
E	VFR	Brez	Po možnosti prometne informacije	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Ne (**)	Ne (**)	Ne
	Nil	*Traffic information as far as practical*	*250 kts IAS below 3 050 m (10 000 ft) AMSL*	*No (**)*	*No (**)*	*No*
G	VFR	Brez	Na zahtevo letalske informacije	250 vozlov IAS pod 3 050 m (10 000 čevljev) AMSL	Ne (***)	Ne (***)	Ne
	Nil	*Flight information service if requested*	*250 kts IAS below 3 050 m (10 000 ft) AMSL*	*No (***)*	*No (***)*	*No*

(*) Če je nivo absolutne višine prehoda nižji od 3 050 m (10 000 čevljev) AMSL, je treba uporabiti FL 100 namesto 10 000 čevljev. Pristojni organ lahko izvzame tipe zrakoplovov, ki zaradi tehničnih ali varnostnih razlogov ne morejo vzdrževati te hitrosti.
(**) Piloti vzdržujejo neprekinjeno zvočno komunikacijo zrak-zemlja in po potrebi vzpostavijo dvosmerno komunikacijo na ustreznem komunikacijskem kanalu v območju RMZ.
(***) Zvočna komunikacija zrak-zemlja je obvezna za lete, vključene v svetovanje. Piloti vzdržujejo neprekinjeno zvočno komunikacijo zrak-zemlja in po potrebi vzpostavijo dvosmerno komunikacijo na ustreznem komunikacijskem kanalu v območju RMZ.

Services Provided and Requirements in Class D Airspace:

- IFR and VFR flights are permitted.
- IFR flights are separated from other IFR flights.
- IFR flights are provided with traffic information on VFR flights.
- VFR flights are provided with traffic information on all other traffic.
- The crew is required to obtain clearance to enter Class D airspace at least 5 minutes prior to entry.
- Applied to controlled zones (CTR) at aerodromes.
- Mandatory use of transponder.

2.8.2 Classification of Airspace Above and in the Vicinity of Maribor Airport

The airspace above and in the vicinity of the aerodrome is divided into TMA and CTR.

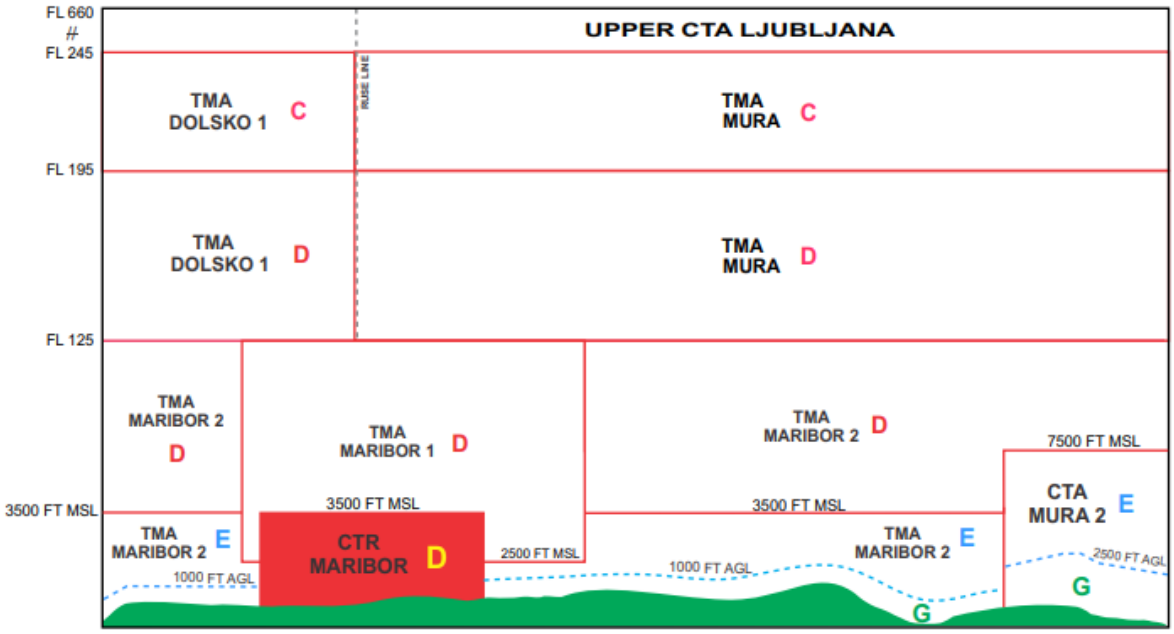


Figure 8: Airspace structure above Maribor Airport

2.8.3 Traffic Information

In Class D airspace, the timely and continuous provision of traffic information is essential. The definition is provided in ICAO Annex 2 and ICAO Doc 4444:

TRAFFIC INFORMATION:

"Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot to avoid a collision."

2.8.4 Notification of Altitude Changes to Air Traffic Control

It is the pilot's responsibility to notify air traffic control of any change in altitude as soon as circumstances permit, including in an emergency situation.

ICAO Annex 2 – Rules of the Air: 3.6.2.1 Except as provided for in 3.6.2.4, an aircraft shall adhere to the current flight plan or the applicable portion of a current flight plan for a controlled flight within the tolerances defined in paragraphs 3.6.2.1.1 to 3.6.2.2 unless a request for a change has been made and clearance obtained from the appropriate air traffic control unit, or unless an emergency situation arises which necessitates immediate action by the aircraft, in which event as soon as circumstances permit, after such emergency authority is exercised, the

appropriate air traffic services unit shall be notified of the action taken and that this action has been taken under emergency authority.

2.8.5 Base Training

Base training is a phase of pilot training conducted between the completion of simulator training and line training. If required by the aviation authority or the licensing authority, it is carried out after completion of the type rating course, with the objective of enabling the candidate to demonstrate the ability to operate the aircraft in critical phases of flight – take-off and landing. It consists of flights performed with an empty aircraft under the supervision of a type rating instructor. Base training may only commence after the candidate has successfully completed the licence skill test at the end of the type rating course.

2.8.6 »See and Avoid«

Air traffic, particularly in uncontrolled airspace, is based on the principle of "see and avoid." Although this principle originates from the early days of aviation, it remains valid today. As the term implies, collision avoidance in flight relies fundamentally on the ability to visually detect other traffic and to remain visible to it.

3 ANALYSIS

3.1 Analysis of the Actions of the Aircraft Crew, Helicopter Crew and Air Traffic Control

Discover Airlines occasionally conducts base training at Maribor Airport, consisting of traffic circuit operations with touch-and-go landings. Base training represents a phase of training for the issuance of a type rating for transport category aircraft. It is normally conducted after completion of simulator training. During these flights, candidates are required to demonstrate aircraft handling skills, particularly in the critical phases of flight – take-off and landing – in an empty aircraft under the supervision of a type rating instructor. On the day of the serious incident, the A320 was crewed by a TRE (type rating examiner) in the left seat, a trainee in the right seat, a safety pilot acting as TRI (type rating instructor), and an additional candidate scheduled for training. The aircraft departed Maribor Airport at 11:46:05 from Runway 32 for the purpose of conducting base training. ATC cleared the crew to join the right-hand traffic circuit not above 2,500 ft.

At 11:51:38, the AS350 helicopter crew reported on frequency at reporting point ME2, the designated VFR entry point to the Maribor CTR. The helicopter crew, consisting of one pilot and three operators, was returning from a commercial aerial filming operation in the Prekmurje region with the intention of making a technical landing at Maribor Airport.

At Maribor ATC (Lkzp MB), on-the-job training (OJT) was in progress at the executive controller (EC) position. The working position was occupied by the trainee controller and the OJTI (instructor). No planning controller (PC) was present at the time of the event. In accordance with the approved operations manual, the duty shift supervisor calls the planning controller (PC) to the position in the event of increased traffic. The usual traffic management practice during base training operations is that other aircraft within the CTR are maintained at 3,500 ft or above, while the training aircraft remains at a maximum altitude of 2,500 ft, typically in right-hand circuits for Runway 32.

The controller instructed the helicopter crew to continue towards the city of Maribor at 3,500 ft. At this stage, neither the A320 nor the AS350 received traffic information from ATC regarding each other. At 11:54:38, the A320 reported 2 NM final for Runway 32. At 11:54:50, ATC cleared the A320 for touch-and-go. Thirty-six seconds later, the AS350 reported overhead the city of Maribor. ATC instructed the helicopter to proceed westbound at 3,500 ft and, upon crossing the extended centreline of Runway 32, cleared it for a VFR approach, instructing it to join the left-hand circuit for Runway 32 and report downwind. The helicopter crew read back the instruction to join the downwind for Runway 32 after crossing the extended centreline; however, they did not repeat the part of the clearance referring to the VFR approach. The controller did not request a full readback of the clearance.

At 11:56, the helicopter pilot initiated a descent from 3,500 ft to 2,100 ft without informing air traffic control. In his subsequent statement, the helicopter pilot indicated that he commenced the descent after visually observing the Airbus and assessing that, if he maintained 3,500 ft, a hazardous proximity or even a collision with the Airbus could occur. At that moment, the helicopter pilot did not have information regarding the altitude to which the Airbus was climbing. The Commission considers that, as the pilot was under an ATC instruction to maintain 3,500 ft at that time, he should have notified ATC of his intention to descend. The pilot acted in accordance with the “see and avoid” principle.

A potential conflict between the A320 and the AS350 had been developing for some time;

however, neither aircraft had received traffic information. The controller did not detect the initiation of the helicopter's descent.

At 11:57:14, the A320 crew reported that they had just observed traffic approximately 200 ft below them. The TCAS generated a Traffic Advisory (TA), but no Resolution Advisory (RA). The controller, who until that moment had not been aware of the situation, apologised and stated that the traffic should have been maintaining 3,500 ft. The Airbus pilot reported that the traffic was now at 2,100 ft and crossing the extended runway centreline, and requested the aircraft registration, which ATC subsequently provided.

Based on the classification of airspace (Table 1) and the requirements applicable to operations in Class D airspace, it is evident that air traffic control in Class D provides traffic management through the application of procedures and the provision of traffic information. Therefore, the timely and continuous issuance of traffic information by ATC is essential for the safe conduct of air traffic in Class D airspace.

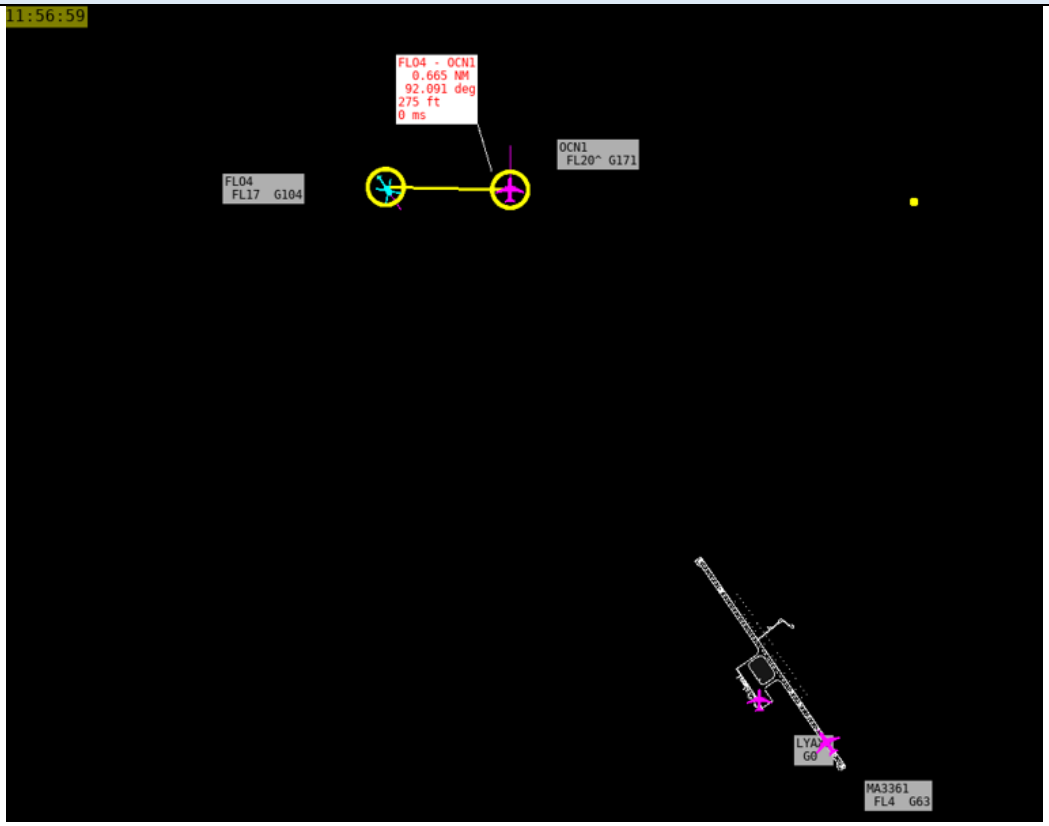


Figure 9: Point of minimum horizontal and vertical separation between the aircraft (altitude displayed as FL[2]). Data obtained from Slovenia Control surveillance systems (WAM – Wide Area Multilateration, Mode S Radar, ADS-B)

[2] **FL (Flight Level):** altitude reference based on the standard atmospheric pressure of 1013.25 hPa.

3.2 Weather Analysis

Weather conditions did not contribute to the serious incident.

4 CONCLUSIONS

4.1 Findings

- The aircraft crews and the air traffic controller held all required licences and valid authorisations at the time of the incident;
- Both aircraft were airworthy and technically serviceable;
- Weather conditions were suitable for VFR operations;
- Based on radar data and recorded R/T communications, the Commission determined that ATC was operating under conditions of increased traffic density in the vicinity of the aerodrome, resulting in high frequency occupancy and increased communication workload;
- On-the-job training (OJT) of an executive controller was in progress at the EC position under the supervision of an OJTI;
- No planning controller (PC) was present at the position at the time of the event;
- The trainee controller and the OJTI did not detect the helicopter's descent, which led to the conflict with the Airbus;
- Following the safety event, increased stress was noticeable in the trainee's voice (the instructor should have immediately taken over the R/T communications but did not do so);
- Under conditions of high traffic density, complexity and workload, the trainee was at times unable to issue timely and/or appropriate instructions independently and transmitted instructions dictated by the instructor;
- The instructor intervened several times (transmitting on the working frequency), but did not fully assume control of R/T communications;

- In cases of base training, Lkzp MB applies a procedure that is not formally documented in its internal regulations;

- In Class D airspace, Lkzp MB applies vertical separation between VFR flights, although such separation is not prescribed for this class of airspace (ICAO Annex 2 and Doc 4444);

- ATC did not provide traffic information to the A320 and AS350 crews, which the Commission considers essential for traffic management in Class D airspace;

- Even if vertical separation was applied in this case as an additional safety measure, it cannot substitute the requirement to provide traffic information;

- The helicopter and the Airbus in the traffic circuit passed at approximately 275 ft vertical and 0.6 NM lateral separation. The Airbus pilot reported the conflict on frequency ("TCAS Traffic"). TCAS RA is inhibited at such altitudes, as the system cannot generate a descent advisory; therefore, the crew received only a TA ("TRAFFIC, TRAFFIC");

- The Commission considers that, had appropriate traffic information been provided, the helicopter pilot, who was maintaining 3,500 ft, would most likely not have initiated an avoidance manoeuvre and would have maintained the assigned altitude, thereby preventing the hazardous proximity;

- The AS350 pilot did not inform ATC of the decision to descend;

- During the touch-and-go, the A320 crew did not visually acquire the helicopter and detected it only via TCAS.

4.2 Cause of the Serious Incident

4.2.1 Direct Cause

The direct cause of the hazardous proximity, in the opinion of the Commission, was the failure of ATC to provide traffic information to the aircraft involved in the serious incident.

4.2.2 Contributing Factors

Contributing to the serious incident were the high controller workload due to traffic complexity and the relatively increased number of aircraft on frequency.

A further contributing factor was the action of the AS350 pilot, which was not in accordance with ICAO Annex 2 provisions concerning collision avoidance rules.

5 SAFETY RECOMMENDATIONS

SI-SR001-2026

Slovenia Control is recommended to organise a coordination meeting with the Head and instructors of LKZP Maribor in order to harmonise air traffic management rules and procedures. The working procedures applicable during base training operations in the traffic circuit should be reviewed and formally defined.

SI-SR002-2026

During the conduct of OJT, a planning controller (PC) should be present at the planning controller position.

SI-SR003-2026

Slovenia Control should issue instructions and establish clear criteria for the conduct of OJT. Specific conditions under which the instructor must assume control from the trainee (e.g. excessive workload, safety event, hazardous situation, etc.) should be explicitly defined.

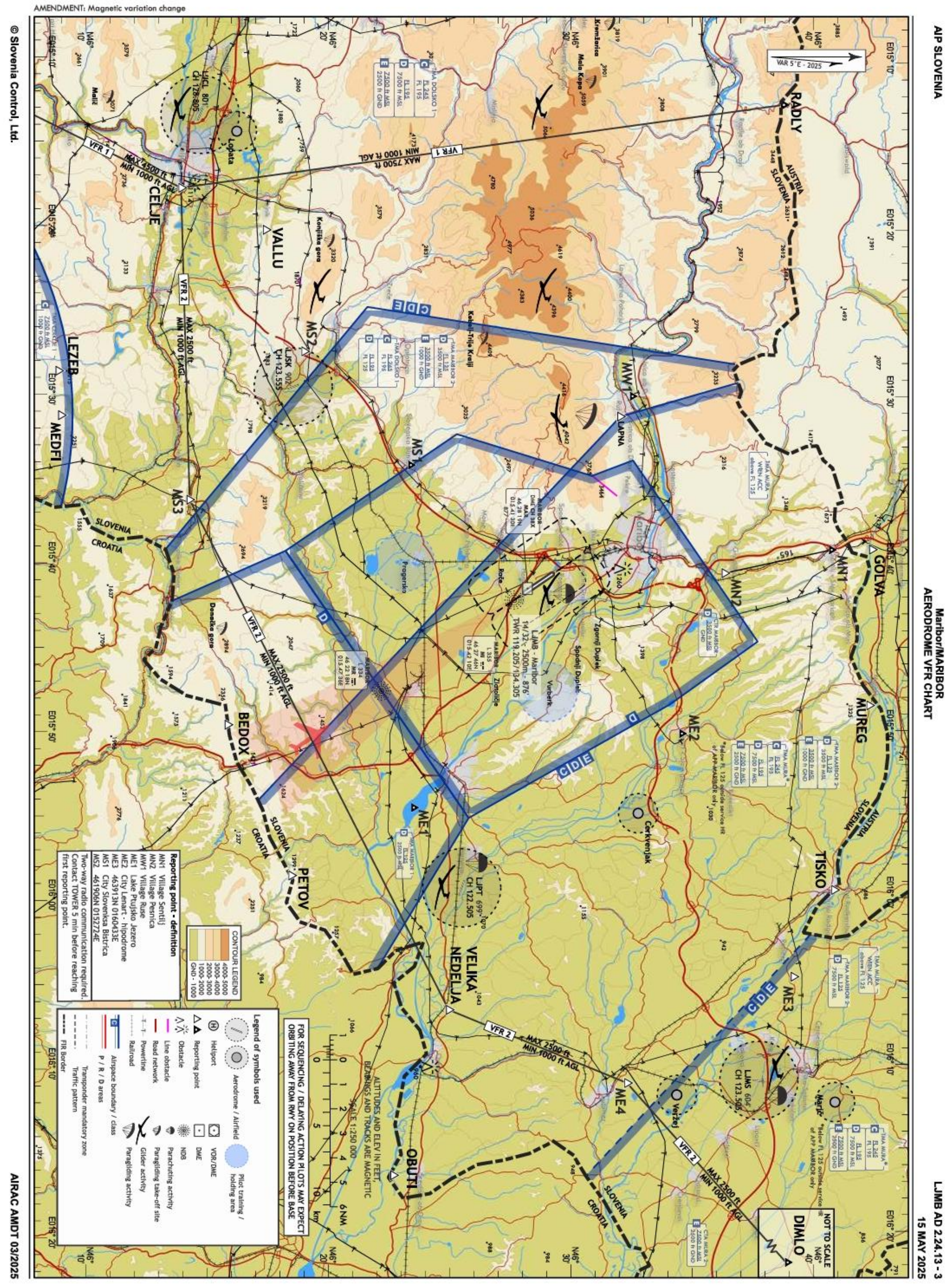
Ljubljana, 25 May 2026

Marko Cvek

Chief Investigator

ANNEXES

ANNEX 1: VFR Chart of LJMB Aerodrome


AIP SLOVENIA
Maribor/MARIBOR
AERODROME VFR CHART
LJMB AD 2.24.13 - 3
15 MAY 2025
AMENDMENT: Magnetic variation change
© Slovenia Control, Ltd.
AIRAC AMDT 03/2025
VAR 5° E - 2025
RADLY
GOLYA
MUREG
TISKO
DIMLO
OBUTI
PETOV
BEDOX
VALLU
LEZER
MEDFI
CELJE
LAPNA
VELIKA NEDELJA
AUSTRIA
SLOVENIA
CROATIA
VFR 1
VFR 2
MAX 7500 ft
MIN 1000 ft AGL
MAX 2500 ft
MIN 1000 ft AGL
MW1
MN1
MN2
ME1
ME2
ME3
ME4
MS1
MS2
MS3
LJMB - Maribor
14/32 - 2500m - 876'
TWR 119.205/134.305
LJLS 902'
CH 123.555
LJCL 801'
CH 128.805
LJPT 699'
CH 122.505
LJMS 604'
CH 123.505
NOT TO SCALE
Reporting point - definition
MN1 Village Šentilj
MN2 Village Pesnica
MW1 Village Ruše
ME1 Lake Ptujsko Jezero
ME2 City Lenart - hipodrome
ME3 463913N 0160433E
MS1 City Slovenska Bistrica
MS2 461906N 0152724E
Two-way radio communication required.
Contact TOWER 5 min before reaching first reporting point.
CONTOUR LEGEND
4000-5000
3000-4000
2000-3000
1000-2000
GND - 1000
Legend of symbols used
Aerodrome / Airfield
Heliport
Reporting point
Obstacle
Line obstacle
Road network
Powerline
Railroad
Airspace boundary / class
P / R / D areas
Transponder mandatory zone
Traffic pattern
FIR Border
Pilot training / holding area
VOR/DME
DME
NDB
Parachuting activity
Paragliding take-off site
Glider activity
Paragliding activity
FOR SEQUENCING / DELAYING ACTION PILOTS MAY EXPECT ORBITING AWAY FROM RWY ON POSITION BEFORE BASE.
ALTITUDES AND ELEV IN FEET.
BEARINGS AND TRACKS ARE MAGNETIC
SCALE 1:250 000