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COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

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RECORDS 1955, N^o. 61

MAGNETIC SURVEY
OF
COMPASS SWINGING SITE,
R. A. A. F. AIRFIELD, CANBERRA, A. C. T.

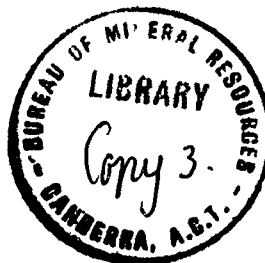


by
J. A. BROOKS

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2. Isogonic contours,
April 1955.

1. INTRODUCTION

A magnetic declination survey to locate a site suitable for "swinging" aircraft compasses was made at Canberra R.A.A.F. Station between 12th and 15th April, 1955

The survey was undertaken as a result of a request from the Department of Air in October, 1954. The compass swinging site located by McGregor in 1952 was no longer suitable, as buildings had since been erected nearby.

The Department of Air provided a plan of the airfield and suggested an alternative site.

2. INSTRUMENTS

The declinometer head of Askania Magnetometer No. 50813, together with horizontal circle and tripod of that instrument, was used to make the declination measurements.

In previous surveys of this type, a Cooke, Troughton and Sims theodolite with a compass attachment, or a Wingfield compass, had been used.

Askania Theodolite No. 5114651 was used to mark out a grid of observation stations.

3. PROCEDURE

Preliminary discussions to decide the most favourable location of the site were held with Sq. Leader Carr and his staff on 12th April.

The alternative site suggested was unsuitable, as it was being used for light aircraft operations, and was close to administration buildings. A site was therefore selected to the west of runway 170 - 350 (Plate 1).

A preliminary test on this site was made on 13th April, by measuring declination differences between points along two intersecting traverses, and proved satisfactory.

A 300-foot square grid of observation stations was surveyed, (traverses 1 to 11, stations A to K) and observations were commenced on 14th April. Stations were located at 30-foot intervals along the odd-numbered traverses, and occasional readings only were made on the even-numbered traverses. A local anomaly of about 0.4, caused by a small rubble heap, was discovered on traverse 3 (see Plate 2), and the grid was therefore extended to the north by the addition of traverses 12 to 15. In all, about 120 stations were occupied and observations were made at intervals of about 5 minutes.

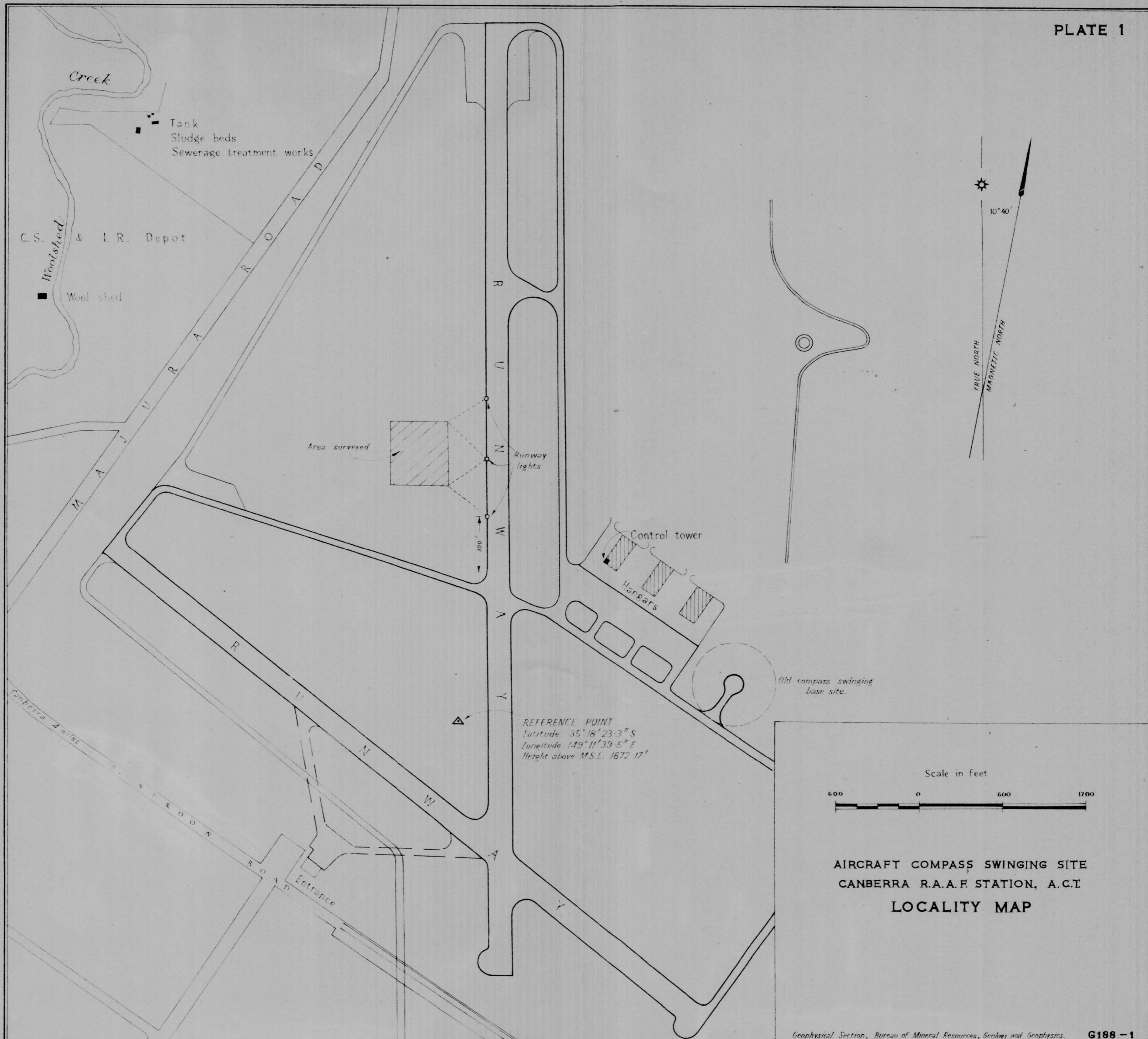
Measurements to fix the position of the area were taken from appropriate runway lights. Four corner pegs and the centre peg were left in position to mark the area. In addition, two pegs to mark the magnetic meridian through the centre of the area were placed along the northern and southern boundaries of the revised grid, i.e. along traverses 5 and 15. The positions of the marker pegs and the local anomaly were pointed out to Sq. Leaders Carr and Dallywater.

4. CONCLUSIONS

The area marked by the four boundary pegs (Plate 2) is satisfactory as a compass swinging site. The magnetic declination is uniform to well within 0.1° over the area surveyed.

The declinometer head used with the divided circle and tripod of the Askania Magnetometer proved ideal for the work. Accuracy of the readings was higher than that obtained with either the compass attachment of the Cooke, Troughton and Sims theodolite or the Wingfield compass.

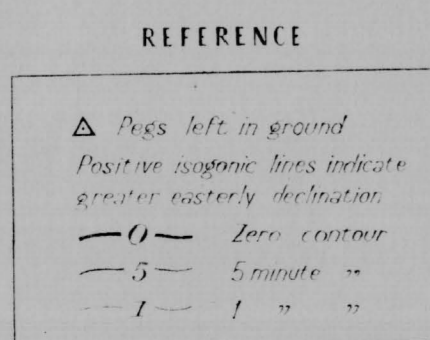
The magnetic declination was subsequently measured at this site during the regional magnetic survey of Australia. The declination measured was $10^{\circ}40'E$ (May 1955) and this is expected to increase at the rate of 5 minutes per year.



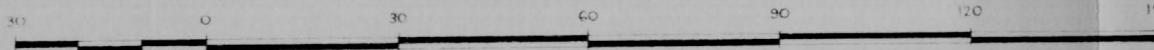
runway
from t

350 - 170

Runway light No. 3
from taxiway



Scale in feet



AIRCRAFT COMPASS SWINGING SITE, R.A.A.F. STATION, CANBERRA A.C.T.
ISOSONIC CONTOURS, APRIL 1955