

BEARINGS ON PLANS AND SURVEYS UNDER THE LAND TITLES ACT
THE CERTIFICATION OF TITLES ACT, AND THE BOUNDARIES ACT

Editor's Note: The following article was received from Mr. C.D. Hadfield, Director of Legal Surveys. By way of explanation Mr. Hadfield advises "Enclosed is a Precedent I prepared recently for Mr. Smith's signature. It was created to resolve and explain a difference on bearing requirements within our own administration.

It occurs to me that such an explanation may be of interest to practising surveyors and that you may wish to publish it in the quarterly 'Ontario Land Surveyor'."

The primary purpose of requiring bearings on plans approved by the Examiner of Surveys and his staff, is to ensure that the angular relationship of the lines joining monuments on the plans is known. Having regard to the circumstances and costs involved, bearings should be referred to either adjoining networks of previously planted monuments of record, or failing this, be referred to a meridian oriented by direct observation on the sun or stars, or by other more sophisticated technical means. In understanding the need for bearings, it must be remembered that our primary concern is to be able to reposition the monumented lines on the plans accepted. In this regard, the least effective and last used method of retracement would be utilization of bearings. Our need for bearings must be tempered therefore, with an understanding of their primary use and the relative costs of obtaining various accuracies and origins.

Bearings can be of two distinct types. They may refer to the geographic poles of the earth, or the magnetic poles of the earth. These may be thought of as two families of bearings and within each family there may be various standards of accuracy. The important point is that naming the family or class of bearing required, has nothing to do with accuracy.

Many years ago it was found by experience, that magnetically determined bearings were as a class basically unreliable, due to the continuing movement of the magnetic north pole and the attraction effect that metals, hidden ore bodies and various electrical fields have on compass needles. Traditionally, this class of bearings has been prohibited for use on accurate survey plans and all bearings under the Acts we administer are required to belong to the astronomic class. This principle appears in O. Reg. 77/63, Section 11, as: "Bearings shall be Astronomic".

Unfortunately, this call for a class of bearings has apparently been confused with a requirement of accuracy or method. That is, the words, "Bearings shall be Astronomic", have been given an unintended colloquial meaning which it is suggested requires every plan to be directly connected to Astronomic bearings by actual field observation on the sun or a star, at the time of the current survey. This is not correct. The words, "Bearings shall be Astronomic", mean in effect that only this class of bearings will be accepted; that magnetic type bearings are prohibited. It means that bearings must be referred to the geographic poles of the earth, not the magnetic poles. The technique of referencing, the method and accuracy required, is a separate matter dealt with in O. Reg. 77/63, Sections 16 and 17.

In summary then, we state that the existing Regulation 77/63 with regard to bearings requires in effect the following:

1. Bearings must be Astronomic in type.
 - Bearings may not be magnetic in type.
 - Bearings must refer to the geographic poles of the earth.
2. All bearings must be obtained by one of the following methods:

- (a) By direct observation on the sun, a star or a predictable satellite.
- (b) By actually connecting to official monuments within the Ontario Co-ordinate System.
- (c) By physically connecting to undisturbed evidence of an official survey plan previously registered or recorded, which contains bearings that are not stated on the plan to be magnetic.

The foregoing rules are not intended to force the acceptance of bearings which are known to be in error, regardless of the class or method of derivation. Neither are they intended to interfere with special circumstances that may, on occasion, in order to appear sensible or reasonable, require methods that differ in particular but not principle from the Regulations. i.e. The discretionary Section 7 of O. Reg. 77/63.

October 12th, 1967

S. Smith
Director of Titles

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THE CONFERENCE ON SURVEY EDUCATION

Few instances, in our recollection as an O.L.S., equal the dedication to their profession, indicated by Ken McConnell and his associates, the speakers and the participants, at the recent Conference on Education held at the University of Toronto.

We are sure that many of us there had our eyes opened to the urgency of the needs of our profession if we are going to stay viable and justify our existence as a professional association to the public, to corporate bodies and to the governing authorities.

It now remains to Council to be astute enough to recognize these needs, resolute enough to take the necessary courageous action and provide the leadership to our members for effective implementation.

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