



# THE SURVEYORS BOARD of the NORTHERN TERRITORY

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## NT SURVEYORS BOARD DIRECTION SURVEY REQUIREMENTS FOR ISOLATED PARCELS (AUGUST 2016)

### 1. BACKGROUND

In order to minimise the cost and effort of fixing the boundaries of isolated land parcels in remote areas such as pearling leases on Crown land and Telstra sites on Aboriginal land or pastoral leases the following requirements are to apply where a plan is to be approved by the Surveyor-General or Delegate under the *Licensed Surveyors Act*.

Where a Section 19 or 19A lease, under the *Aboriginal Land Rights (Northern Territory) Act 1976*, is to be issued over Aboriginal lands for the purpose of community housing or associated infrastructure then Directive 2015/xx - 'Survey Requirements and Guidelines for the issue of Section 19 and 19A (ALRA) Headleases and Subleases for Aboriginal Communities' is to be used.

### 2. DEFINITIONS

In this document, unless the contrary intention appears-

“CRM” means a co-ordinated reference mark

“Surveyor” means a surveyor Licensed under the *Licensed Surveyors Act NT*.

“survey” means any survey that results in the requirement for approval of a Survey Plan by the Surveyor-General under the *Licensed Surveyors Act*.

### 3. GENERIC PLAN PROCESS

The generic plan process for these types of survey is no different from the process for normal survey plans of subdivision or for leases. The process is as follows:

- Client engages a Surveyor to undertake the work and prepare a survey plan.
- Surveyor obtains relevant statutory consent for the proposal.
- Via proposal, the Surveyor requests from the Surveyor-General data allocation, survey and plan requirements. This request will include:
  - i. evidence that the development has the relevant statutory consent; and

- ii. any requests for approval to deviate from the *Survey Practice Directions*.
- Surveyor undertakes survey work.
  - Surveyor lodges the survey plan and information (with the appropriate documentation) with the Surveyor-General.
  - Surveyor-General processes and registers the survey data and then checks the plan for compliance with relevant legislation and/or requirements.
  - Surveyor-General approves plan once all statutory requirements have been satisfied.
  - Surveyor or Client then lodges the relevant documentation with the Registrar General (Land Titles Office) to facilitate the registering and issuing of a lease or title.

#### **4. DATA ALLOCATION**

Each isolated parcel survey is to be submitted to the Surveyor-General's Office for the allocation of data (plan and parcel numbers, plan heading), approval of survey methodology, survey requirements (including boundary marking, Co-ordinated Reference Mark (CRM) requirements) and survey plan requirements. Proposed variations to the *Survey Practice Directions* or these Directions must be requested in writing at this time.

The proposal shall include:

- a. a diagram of proposed boundaries
- b. method of proposed survey
- c. all variations being sought in respect of the *Survey Practice Directions*
- d. description of disposal action or proposed tenure
- e. documentation that validates the authenticity of the proposed survey
- f. other documentation to assist with the determination of survey requirements. For example, access, service easements or protection of other interests.

#### **5. GENERAL SURVEY PRACTICE**

All surveys must be in accordance with the *Licensed Surveyors Act*, *Survey Practice Directions* and *Plan Drawing Standards* unless varied by this Direction or the Surveyor-General, after written application.

##### **5.1 Isolated Parcel Surveys**

For the purpose of this section, an isolated parcel is one which neither abuts nor encroaches another boundary. Abuttals and encroachments are most likely to occur with undefined roads that have been excluded from Aboriginal land grants or pastoral leases or ambulatory boundaries such as 'low water'. Such instances should be referred to the Surveyor-General for clarification of the survey requirements.

All isolated parcels are to be fixed in relation to at least one CRM or other approved permanent reference object. The number and location of CRMs must be done in conjunction with the Surveyor-General's Office as part of the data allocation process. The plan is to show the bearings and distances of parcel boundaries and connections to the CRMs.

Variations to the marking requirements and normal survey methods for isolated surveys may be granted by the Surveyor-General upon application.

## 5.2 Co-ordinated Reference Marks (CRM)

CRMs are to be established, in the vicinity of the positions requested by the Surveyor-General's Office, and in accordance with the *Survey Practice Directions 2014 – Surveys Outside Coordinated Survey Areas*.

Please note, the allocated CRM number must be stamped or affixed permanently to the CRM, and be used in all information lodged. Also, recovery marks for each CRM, as per the Survey Practice Directions, will still be required. CRM plaques and identification tags can be obtained from the Surveyor-General's Office.

CRM diagrams are required for each CRM, to enable easy location. They are to show abuttal information (such as parcel, road) and survey connections to obvious road furniture and physical features, such as power poles, SEPs, building corners, fences etc. These connections are to be recorded to 0.1 m and 30 min of arc magnetic bearing. The CRM diagrams shall be submitted in A4 hardcopy and TIF format - Group 4 compressed stripped data segmentation, at 300 dpi resolution (not reverse bit). Refer to attached examples – Attachment 1a.

In remote areas it may be necessary to include a locality diagram. Refer to examples at Attachment 1b and 1c.

The CRMs are to be surveyed by **STATIC Global Navigation Satellite Systems (GNSS)** observations or by a **method approved by the Surveyor-General**. Note (a) approval to use GNSS observations or other techniques must be sought from the Surveyor-General prior to the commencement of the field survey and (b) Static means GNSS observations with a dual frequency code and carrier phase tracking receiver / antenna securely mounted onto a high quality tripod with tribrach and optical plummet.

Field observations and analysis, for the use of static GNSS for survey applications, are to comply with the survey requirements and quality as specified in the *Intergovernmental Committee on Surveying & Mapping (ICSM) Standard for the Australian Survey Control Network (SP1), Version 2.1* including the *Guideline for Control Surveys by GNSS* and the *Guideline for the Adjustment and Evaluation of Survey Control*.

Results of the GNSS CRM survey need to comply with clause 38 of the *Survey Practice Directions 2014 – Surveys Within Coordinated Survey Areas*. Note – in previous terminology this survey accuracy equates to Class B and Order 2.

The GNSS survey is to also include connections to local (GDA94) survey control marks however if it is not practical to connect to such marks or there are insufficient survey control marks then observations are to be performed to collect RINEX data at several CRMs to enable processing by the online service AUSPOS. Refer to *ICSM SP1 - Guideline for Control Surveys by GNSS* for observation technique and requirements. Also this RINEX data will need to be lodged so that Departmental staff can verify the co-ordination and create a survey control dataset. The Surveyor-General's Office is available to discuss these requirements with the Surveyor prior to the survey and its completion.

The web location for the ICSM SP1 Standard and Guidelines is - <http://www.icsm.gov.au/geodesy/sp1.html>

The following is required to be lodged:

- A GNSS Report that addresses - observation technique, adjustment methodology, ambiguity resolution, connection to datum, network diagram, final coordinates and Survey Uncertainty/Accuracy (tabulated), least squares adjustment, and certification/proof of instrument standardisation.
- GNSS Log field sheets; refer to attached example – Attachment 2;
- Observational data - raw (RINEX) and / or reduced baselines with VCV, Note if RINEX then please include the navigational file along with the observation file AND/OR AusPOS Report (with final ephemeris data “final orbits”)
- Co-ordinate Listing - a schedule of the adjusted GDA 94 co-ordinates (including ellipsoidal height) of the CRMs surveyed;
- CRM diagrams; and
- NTGESS Spreadsheet.

## 6. SURVEY PLAN

The survey plans for these surveys will be drawn in accordance with the *Plan Drawing Standards*, as approved by the Surveyors Board of the NT. The lodged plan is to be a normal survey plan including:

- g. Subject parcel to be fixed in relation to the boundaries of the parent or underlying parcel.
- h. Survey connections from lease boundaries to CRMs are to be shown.
- i. CRM recovery marks and their survey connections are to be shown.
- j. Occupation within 1 metre of any boundary will be shown.
- k. Survey plan to be examined by an Accredited Survey Plan Examiner.
- l. Provision of a digital survey plan in the format prescribed by the Surveyor General
- m. If required, annotation on plan stipulating GNSS used in for this survey or datum determination

## 7. MISCELLANEOUS

### Easements

The Surveyor will need to make provisions and undertake investigations for the registration or carrying forward or extinguishment or protection of service infrastructure/facilities or rights of registered interests such as easements. Consequently, it is recommended that the Surveyor discuss potential easement issues with the Client or their representative during their engagement/survey briefing, and LTO registration issues with the Registrar General, Land Titles Office (LTO). The Surveyor-General's Office will clarify the survey aspects of easement issues during the Data Allocation phase of the survey.

### Access

As per 'Easements', the Surveyor will need to investigate with their Client or representative the allocation of access corridors or roads for these surveys and their location and dimensions. Once again we advise that the Surveyor

discuss LTO registration issues with the Registrar General (LTO) if these access corridors need to be registered, and Surveyor-General's Office will clarify the survey aspects of access issues during the Data Allocation phase of the survey.

### **Existing Interests**

Existing registered interests that are affected by the survey must be appropriately dealt with. The Surveyor must discuss with the Registrar General (LTO) and Client or their representative the registration and administrative process to achieve the desired outcome. The Surveyor-General's Office will clarify the survey aspects of existing interests during the Data Allocation phase of the survey.

## **8. SURVEYOR-GENERAL CONTACT**

All requests for survey requirements for isolated parcels should be addressed to the Surveyor-General, Department of Lands, Planning and the Environment, GPO Box 1680, Darwin, 0801.

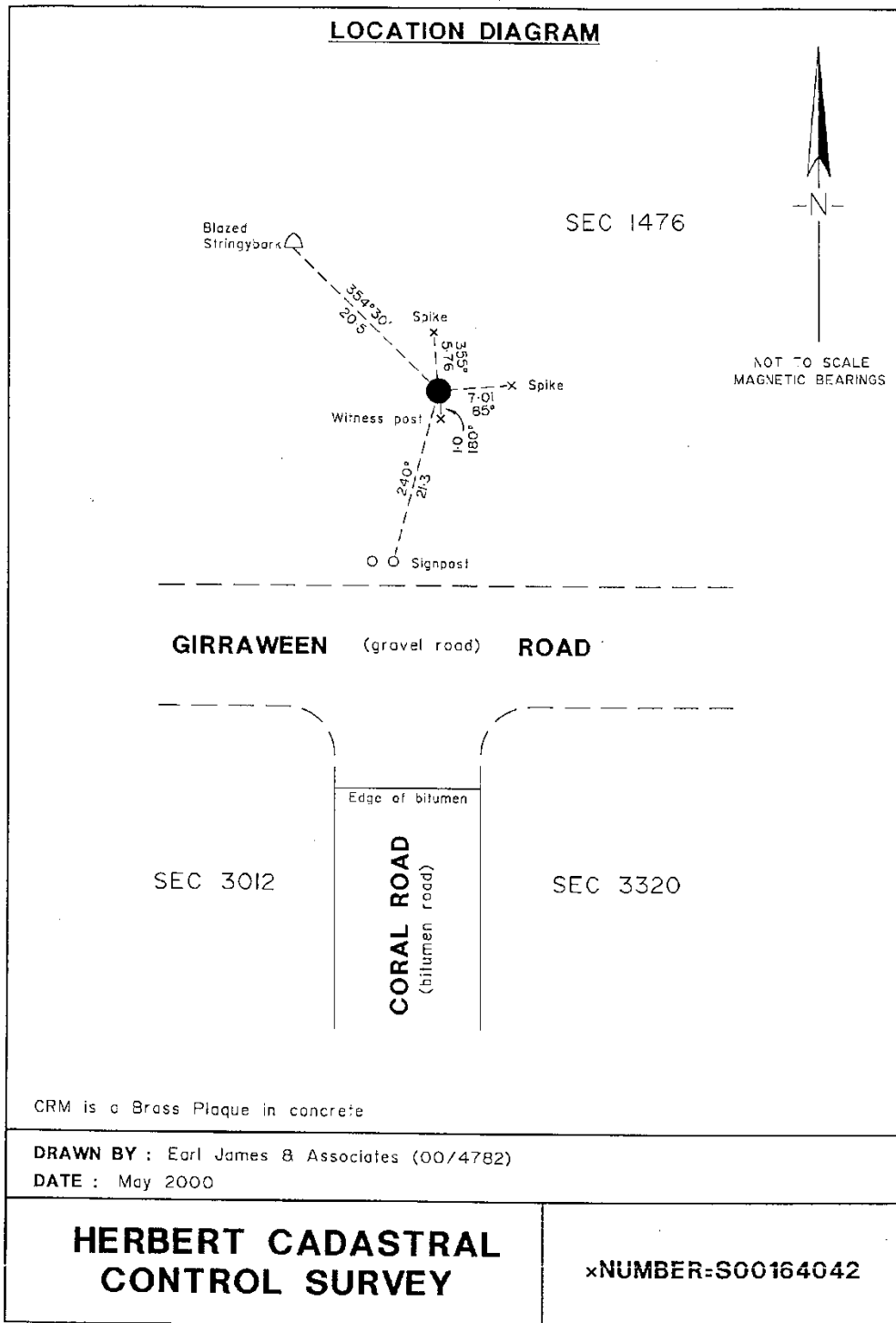
General enquiries can be directed to the following:

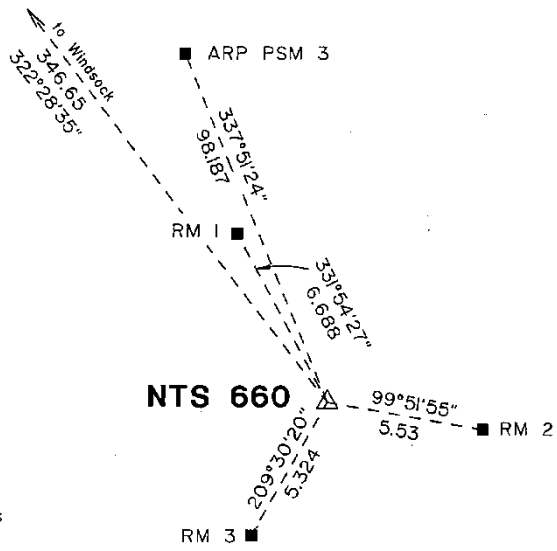
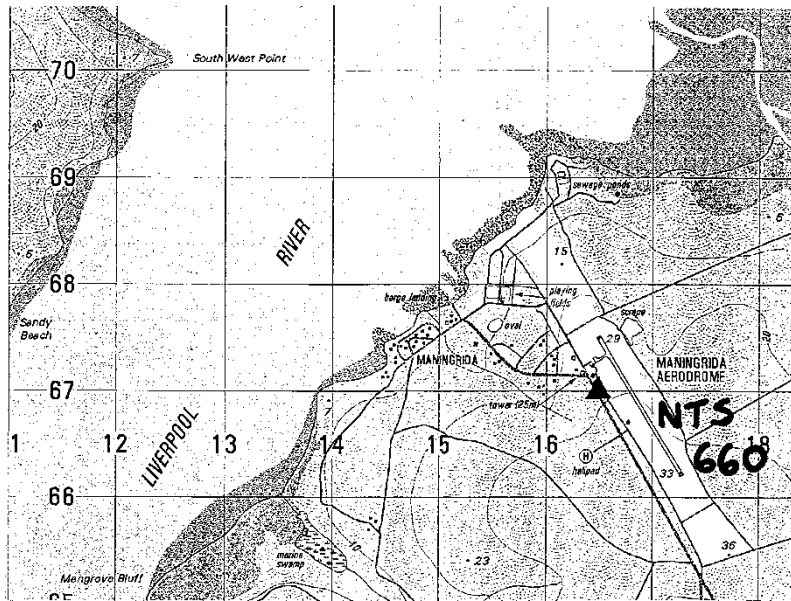
### **Darwin**

Client Services	8995 5359
Survey Land Records	8995 5362

### **Alice Springs**

Survey Services	8951 9251
	8951 9232





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T denotes True Bearings  
M denotes Magnetic Bearings  
Distances in metres  
Diagram Not to Scale

INFORMATION SERVICES DIVISION, SURVEY BRANCH	
DEPARTMENT OF INFRASTRUCTURE, PLANNING AND ENVIRONMENT	
SURVEY CONTROL MARK LOCALITY	PRIMARY NAME
<b>MANINGRIDA - MANINGRIDA AIRFIELD</b>	<b>NTS 660</b>

