

Training requirements for Graduate Surveyors under the Northern Territory *Licensed Surveyors Act 1983*



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1. Overview of training requirements

- 1.1 Before a Graduate Surveyor is eligible for registration as a Licensed Surveyor in the Northern Territory (NT), the Graduate must meet the requirements of the Surveyors Board of the NT (the Board) which are –
 - (a) Completion of a Professional Training Agreement (PTA) which comprises of
 - A minimum of two (2) years (480 days) practical experience, of which 12 months (240 days) must include cadastral surveys
 - Achieving competency in specified skills and capabilities
 - Undertaking suitable practical projects
 - (b) Attainment of a Certificate of Professional Training from the Supervising Surveyor, who certifies that the Graduate Surveyors is fully competent to take responsibility for cadastral surveys;
 - (c) Passing of the Professional Assessment;
 - (d) Payment of the appropriate registration fees; and
 - (e) Satisfactory completion of any other requirements as determined by the Board. Note, the Supervising Surveyor is a Licensed Surveyor who has entered into a PTA, approved by the Board, with the Graduate Surveyor.

2. Qualifications of the Graduate Surveyor and Supervising Surveyor

- 2.1 A Graduate Surveyor is required to have the educational qualifications acceptable to the Council of Reciprocating Surveyors Boards of Australia or New Zealand (CRSBANZ) before they can enter into a Professional Training Agreement (PTA) with a Licensed Surveyor.
- 2.2 The educational qualification that is presently considered acceptable is a 4 year Australian or New Zealand Bachelor degree in Surveying (or equivalent).
- 2.3 For a PTA, the Supervising Surveyor must have been registered as a Licensed Surveyor in the NT for a minimum of two (2) years. Also, a Supervising Surveyor shall not have entered into PTAs with more than two (2) Graduate Surveyors at any one time.
- 2.4 Both Graduate Surveyor and Supervising Surveyor must also meet and/ or comply with relevant Board policies.

3. Practical Experience

- 3.1 The period of practical experience shall be comprised of a minimum of 2 years (24 months or 480 days). This includes at least twelve (12) months (240 days) on cadastral surveys. The cadastral surveys should comprise of not less than 90 days rural work and or not less than 90 days urban work in the Northern Territory. The arranging of the work, as well as its composition and variety, is the responsibility of the Supervising Surveyor and the Graduate Surveyor. It is expected that the Graduate Surveyor will undertake at least five surveys in both the urban and rural classifications.
- 3.2 An exemption of up to twelve (12) months out of the twenty-four (24) months required may be granted for practical experience gained under the supervision of a Licensed Surveyor outside the Territory; provided the Graduate Surveyor lodges with the Board a report (as per Form 3) and the experience is obtained in Australia / New Zealand within the last 3 years.

- 3.3 The Board may accept training and experience gained by the Graduate Surveyor during vacation periods whilst undertaking a course of study to obtain the necessary bachelor degree (or equivalent) qualifications. The Board may not require the Graduate Surveyor to enter into a PTA for this circumstance, however the total period of such training and experience that may be deemed acceptable shall:
- 3.3.1 not exceed six (6) months,
 - 3.3.2 have been gained under a Licensed Surveyor engaged in land boundary definition during that period and
 - 3.3.3 be covered by a certificate, from the Licensed Surveyor, satisfactory to the Board.
 - 3.3.4 be obtained in Australia / New Zealand within the last 3 years.
- 3.4 A PTA must be provided by the Graduate Surveyor and lodged with the Board within two (2) months of the commencement of the Agreement, unless otherwise determined by the Board.
- 3.5 At intervals of not more than six (6) months, two reports signed by the Supervising Surveyor must be lodged with the Board. The reports are to detail the:
- (a) practical experience gained by the Graduate Surveyor (as per Form 3); and the
 - (b) competencies and skills learnt by the Graduate Surveyor (as per Form 4). Failure to do so may result in the Board not accepting part or all the practical experience claimed in a late report.
- 3.6 Upon completion of the period of practical experience, the Supervising Surveyor shall evaluate if the Graduate Surveyor is capable of undertaking land boundary surveys unsupervised. If the Supervising Surveyor determines the Graduate is competent to perform and take responsibility for a cadastral survey, then the Supervisor shall lodge, with the Board a certified statement as per Form 5.
- 3.7 Where the Board is of the opinion that the experience gained or instruction given is not adequate, the Graduate Surveyor may require a further period of training (or practical experience).
- 3.8 The Board will notify the Graduate Surveyor that they are eligible for the Professional Assessment on the proviso that the:
- (a) Graduate has obtained a sufficient period of practical experience;
 - (b) Graduate's practical projects have been assessed to meet the specifications; and the
 - (c) Supervising Surveyor has lodged a certified Form 5.

Refer to section 5 for more information regarding the Professional Assessment

4. Practical projects

- 4.1 During their practical training, the Graduate Surveyor is required to carry out the projects listed at 4.2.1, 4.2.2, 4.2.3, 4.2.4 and 4.2.5, and lodge the plans, field observations / records (where necessary) and reports with the Board for its approval. The plans, field observations / records, calculations and reports shall all be certified by the Graduate Surveyor as being their own work.
- All project submissions must contain a *statement from the Supervising Surveyor detailing the extent of their involvement in the Graduate Surveyor's project*, including (but not limited to) the amount and level of supervision provided to the candidate.
- 4.1.1 Prior to commencing a project, a proposal is to be submitted to the Board for approval to ensure the project has reasonable complexity to comply with the guidelines. The **Supervising Surveyor must review and endorse the project proposal** before it is submitted to the Board.

- 4.1.2 The Graduate Surveyor is required to have completed **at least twelve (12) months practical training in cadastral surveying** in the Northern Territory, unless approved otherwise by the Board, and notified in accordance with section 3.5, before lodging the results of projects 4.2.1, 4.2.2, 4.2.3 and 4.2.4.
- 4.1.3 For project 4.2.5, once the project proposal has been approved the results of project may be submitted to the Board for assessment at any time following registration of a PTA.
- 4.1.4 The Board may consider granting an exemption from a project on the following basis:
- (a) the learnt competencies and appropriateness of a comparable project are deemed equivalent by the Board;
 - (b) the equivalent project is completed under a PTA (or similar training framework) and endorsed by a Board from the CRSBANZ; and
 - (c) the application to the Board for exemption is made within three (3) years of completion of the project or if more than three (3) years, as approved by the Board.
- 4.1.5 The Graduate Surveyor must ensure the survey project, and associated project documentation:
- (a) comply with the current Survey Practice Directions, Plan Drawing Standards, standards, practices and guidelines as issued by the Board;
 - (b) where applicable, satisfy the land survey requirements in other NT legislation relating to land use planning, land development or land titling and registration matters; and
 - (c) adhere to the specifications required for the lodgement / approval of survey plan and information by the Surveyor-General. For example – surveyor's report, PDF 5 image of the survey plan, digital file of survey boundaries (i.e. ACS data or other prescribed formats), accredited survey examiner's report and plans, survey calculations, survey control information (i.e. NTGESS data) etc.

4.2 The practical projects shall be –

4.2.1 Urban Cadastral Survey

In the role as party leader, the Graduate Surveyor must survey an urban allotment that –

- Comprises of at least one (1) obstructed boundary, meaning the boundary line (or corners) cannot be physically occupied or directly measured or observed, that is the line of sight for measurements along or near the boundary cannot be achieved;
- Is of reasonable re-establishment complexity; and
- Is in an area where there are few or no recent surveys and a lack of original survey marks.

The survey must demonstrate the Graduate Surveyor's capability to manage conflicting or challenging multiple boundary alignments. It must include subsequent or resulting adoptions differing between the previous surveys and/or with the project survey, as well as the dimensions that define the subject or related land title(s) and any other registered interests. Should the Graduate Surveyor's field survey not disclose the expected differences, the Board shall be consulted for further instructions.

If an obstructed boundary is defined by a party wall the Graduate should survey / measure the relationship of both sides of that party wall to the adopted boundary for width, length and height restrictions where applicable.

In addition to the survey report items that are required in the Survey Practice Directions, the Graduate Surveyor shall discuss the following topics and others even if the topic is not relevant to the actual project, to demonstrate urban cadastral survey competency:

- the justification of survey technique, re-establishment, adoptions, distribution
- variations or dispensations to the Survey Practice Directions
- survey challenges / problems encountered and how they were resolved
- impacts of GNSS on an urban cadastral survey
- use of original, measured and calculated dimensions in the context of allowable limits (accuracy) and land titles
- use of occupations / improvements
- quality assurance and accredited survey examination regime
- 3D data for cadastral surveys
- any relevant land development, planning and / or tenure / titling matters influencing the subject survey
- new measurement technologies or techniques that may be suitable for cadastral surveys
- supplementary matters such as work safety, risk management, professional indemnity

4.2.2 Rural Cadastral Survey

In role of party leader, the Graduate Surveyor must survey a rural allotment that is -

- Of reasonable re-establishment complexity;
- At least forty (40) hectares in area; at least two (2) boundaries are to be re-established from previous surveys; and
- at least one (1) other boundary is a natural feature, such as a water course or a non-straight road formation that has at least three (3) substantial changes in bearings / directions.

The Graduate Surveyor must ensure that the survey methodology used to define / survey the natural feature includes appropriate independent checks or redundancies.

In addition to the survey report items that are required in the Survey Practice Directions, the Graduate Surveyor shall discuss the following topics and others even if the topic is not relevant to the actual project, to demonstrate rural cadastral survey competency:

- the justification of survey technique, re-establishment, adoptions, distribution
- variations or dispensations with respect to the Survey Practice Directions, survey challenges / problems encountered and how they were resolved
- impacts of GNSS on a rural cadastral survey
- use of original, measured and calculated dimensions in the context of allowable limits (accuracy) and land titles
- quality assurance and accredited survey examination regime
- 3D data for cadastral surveys
- Aboriginal land tenure or Native Title matters
- any relevant land development, planning and / or tenure / titling matters influencing the subject survey

- riparian or water course boundary measurement, definition or concerns
- new measurement technologies or techniques that maybe suitable for cadastral surveys
- supplementary matters such as work safety, risk management, professional indemnity

4.2.3 Subdivision Development

The Graduate Surveyor must prepare an application for development consent under the Northern Territory Planning Act to subdivide a parcel of land into not less than ten (10) lots. At least one (1) new access road is to be incorporated into the subdivision. The site may be either urban or rural but should be taken from within a locality that is subject to a control plan (scheme) under the Planning Act.

The Graduate Surveyor will be required to lodge all forms, plans and documents (in digital format) required to accompany the application.

The Graduate Surveyor is to prepare a report that will demonstrate competency in preparing and consideration of the various land use matters associated with a development application (subdivision); as well as the roles and responsibilities of a Licensed Surveyor in the process.

The project report must also detail the land development approval process, key stages and land survey actions that apply to the granting of a Development Permit (DP) to subdivide the project land under the Planning Act, the actual subdivision, and the issuing of a Certificate of Compliance.

The additional topics that the Graduate Surveyor must also discuss in the report (from a Licensed Surveyors perspective), but not limited to, are:

The difference between zones, permitted use and prohibited use, and what is involved to vary land use

- When is a development application not required on a project
- Minimum lot sizes, why are they created, how it may impact a project
- Environmental impact statement, when is it required, what are the main issues that need to be addressed and why
- Other pertinent land development applications, permits, actions or procedures, which may impact a project, survey plans, or land titling and / or registration of tenure.

4.2.4 Units Development

The Graduate Surveyor is required to submit a report that details the land survey processes, from a Licensed Surveyor's perspective of providing advice to a client, for a unit development. The unit development must comprise of at least 4 units and common property, and the unit boundaries must define structures / buildings that have at least 2 storeys or floor levels where at least one unit is located on the first floor.

The Board would prefer the report be based on an actual unit development that the Graduate Surveyor was involved in, however with respect to this preference the Board may consider alternative parameters or conditions for this project.

The Graduate Surveyor's report will need to demonstrate competency of the unit titling processes, and the involvement of Licensed Surveyors in the various stages and land survey actions that apply to a unit development such as – proposal (development application / permit), building construction, survey, statutory approvals, and the registration of the unit titles.

The report is to include completed application forms, survey plan, and other related documents as required under the Unit Title Schemes Act.

The additional topics that the Graduate Surveyor shall discuss in the report, but not limited to, are:

- Relevant Acts and Regulations
- Development Application and relevant matters to be addressed with reference to the Planning Scheme
- Role of a Licensed Surveyor in unit development set out
- Unit development survey requirements with respect to SPDs and PDS for defining, marking and dimensioning 3D structural elements
- Unit development survey plan lodgement requirements, statutory approval process, and accredited examiner regime
- The role of the Licensed Surveyor in the Part V process; LTO compliance and registration of land under the Land Title Act
- Scheme Statements including the purpose and what is to be included
- Unit development street addressing
- Disclosure Statements
- Unit By-Laws and Exclusive Use By-Laws
- Unit Titles Re-Subdivision process

4.2.5 Geodetic Survey

The Graduate Surveyor, in the role as party leader, is required to undertake a geodetic survey for the determination of GDA 94 / 2020 ellipsoidal coordinates and MGA 94 / 2020 rectangular coordinates of at least four (4) survey control points within a perimeter containing an area more than 20 hectares. Note, co-ordinates must include determination of orthometric and ellipsoidal heights.

The survey control points must not have been previously surveyed to determine GDA 94 / 2020 spheroidal coordinates and MGA 94 / 2020 rectangular coordinates.

The survey must comply with the survey control directions, standards, practices and guides issued by the Board, as well as (where applicable) those specified in the Standards and Practices for Control Surveys issued by the Intergovernmental Committee for Surveying and Mapping (ICSM Publication SP1 version 2.2).

For this project, the Graduate Surveyor is required to submit the following information to demonstrate competency in this discipline, and application of the knowledge:

- A diagram / sketch of the survey control network
- Field notes and RINEX observation data.
- Relevant reductions and calculations.
- CRM locality diagrams
- A report that details the project and discusses:
 - The geodetic survey technique used, the reasons / principles supporting the technique, processing of measurements, and analysis of the results.
 - Any issues encountered during the survey and how they were resolved.
 - The adjustment process and propagation of uncertainty and how the specific accuracy was achieved.

- The minimisation of field / observational errors.
 - The connection or transformation to the geodetic datum.
 - The derivation of ground distances / true mid bearings between survey control (CRMs) as per the Survey Practice Directions.
 - Spheroidal height determination of survey control from the use of AusGeoid (and /or GNSS heighting), and comparison with AHD values.
 - Alternative positioning techniques or service used (such as AUSPOS) instead of local ties to existing GDA co-ordinated geodetic marks.
 - Calibration of instruments used.
 - Compliance with Standards & Guidelines for the Use of GNSS on Control Surveys within the NT.
 - Compliance with clause 38 of the *Survey Practice Directions 2014 – Surveys Outside Coordinated Survey Areas*; or with clause 27 of the *Survey Practice Directions 2003 – Surveys Within Coordinated Survey Areas*.
- 4.2.6 Upon receipt of a completed project, the Board will assess the project and notify the Graduate of the resulting evaluation. In the event the Board is not satisfied with a project, a notification outlining areas of where improvement is required will be sent to the Graduate Surveyor and Supervising Surveyor.

In this circumstance the Graduate Surveyor is provided the option to rectify project issues and re-submit part or all the project deliverables.

If the Graduate Surveyor determines to rectify and resubmit, then this must be completed within three (3) months of the receipt of notification. All changes or amendments to the project must be undertaken by the Graduate Surveyor, and then subsequently reviewed and endorsed by the Supervising Surveyor. If the 3 months' timeframe lapses, then the project may not result in a pass.

Note, the Board will often nominate an industry Licensed Surveyor, Surveyor or land professional who is a specialist in the subject project discipline, to independently assess the Graduate Surveyor's project.

5. Professional assessment

- 5.1 As previously mentioned, the Board will notify the Graduate Surveyor that they are eligible for the Professional Assessment on the proviso that the:
- (a) Graduate has obtained a sufficient period of practical experience, which must include 240 days of cadastral surveys.
 - (b) Graduate's practical projects, which is normally 5, have been assessed to meet the specifications; and the
 - (c) Supervising Surveyor has lodged a certified Form 5.
- 5.2 The Board will allocate an appropriate time, date and location for the Professional Assessment and advise the Graduate Surveyor.
- 5.3 Upon receipt of notification the Graduate Surveyor must undertake the Professional Assessment within one (1) year. If there is a delay of more than one (1) year, the Board may require additional evidence of recent experience, and / or consider an extension of this period upon application from the Graduate Surveyor.
- 5.4 The Professional Assessment is generally a verbal discussion, consideration and analysis between the Graduate Surveyor and the Board on relevant legislation, directions, standards, practices and

guides pertaining to land administration and development; surveying; the Graduate's practical experience; and the practical projects submitted.

5.5 The Professional Assessment enables the Board to determine the Graduate Surveyor's competency, and capabilities in land boundary surveying. It is also another opportunity for the Graduate Surveyor to further demonstrate their industry ethics and professionalism, as well as their obligations to the public. Considering this, the Board may discuss, seek the views, request a presentation on, and / or question the Graduate Surveyor to gauge or evaluate their level of understanding of the role, responsibilities, and expectations of a Licensed Surveyor with respect to:

- the cadastre, client and broader community
- the Surveyors Board of NT
- employer and employee responsibilities
- professional work behaviours and ethics
- professional training agreements
- fellow peers and other professionals / technicians
- contribution to the surveying profession and /or membership of professional bodies
- continuing professional development
- new technology and techniques
- modernisation of land surveying – digital lodgement, digital twins, visualising / representing 3D cadastres

5.6 Should the Board, because of the Professional Assessment, consider that a Graduate Surveyor does not have the appropriate level of competency, experience and/or professional attitude required for registration as a Licensed Surveyor, the Board may ask the Graduate Surveyor to undertake additional training and / or development.

This supplementary training and / or development may require the Graduate to perform a task or undertake an activity that is directed at a specific set of skills or competencies. The Board will advise the Graduate Surveyor of what capabilities need to be enhanced, how and when they must be achieved (timeframe), and in what manner they will be evaluated.

The Board, upon completion of this process, will notify the Graduate Surveyor of the additional professional assessment result, and any subsequent action required by the Graduate Surveyor.