

SURVEYORS BOARD OF THE NORTHERN TERRITORY

Guidelines for Supervising Surveyors and Graduate Surveyors

1. Overview

These guidelines are to inform Supervising Surveyors of their roles and responsibilities in the training of Graduate Surveyors under Professional Training Agreements (PTAs). They are to be read in conjunction with the 'Training Requirements for Graduate Surveyors under the Northern Territory Licensed Surveyors Act' at **Attachment A**.

PTAs are an important ingredient for developing the fundamental technical and professional skills of a Licensed Surveyor. The successful completion of a PTA is required by the Surveyors Board of the NT (the Board) before they conduct a final assessment of the Graduate Surveyor's cadastral or land boundary survey competency. The role of the Supervising Surveyor, during the life of a PTA, is to counsel, provide guidance and facilitate the learnings that will enable a Graduate Surveyor to obtain the level of knowledge, relevant competencies and the character necessary to become a professional Licensed Surveyor. The Supervising Surveyor will determine when a Graduate Surveyor has achieved the capabilities, and then endorse that the Graduate Surveyor is competent to take responsibility for surveys, thus ready for the final assessment by the Board.

The training or skills development of a Graduate Surveyor should be recognized by the Supervising Surveyor as an integral resource or asset, which underpins the success of survey projects / jobs and sustainability of their survey business. In other words, the Supervising Surveyor should incorporate, through business operations, the necessary tuition, guidance and opportunity to develop the Graduate Surveyor's competency.

In summary, a PTA provides cadastral survey training and skills development framework for the Supervising and Graduate Surveyor whilst fostering a professional relationship, as well as fulfilling their training obligations. It also demonstrates the need for a collaborative learning and supporting environment; and also, from a broader industry perspective, provides a pathway for on-going personal development for participants, as well as modernizing the skills of the surveying profession.

2. Definitions

In these guidelines the following expressions have the following meanings:

- "Board" means the Surveyors Board of the Northern Territory (SBNT) established under the Licensed Surveyors Act 1983.
- "Graduate Surveyor" or "Graduate" or "trainee" means a graduate in

surveying who is a party to a PTA. The Graduate Surveyor is required to have the educational qualifications acceptable to the Reciprocating Surveyors Boards of Australia and New Zealand.

- “Supervising Surveyor” or “Supervisor” means a Licensed Surveyor who has been registered in the Northern Territory for at least two (2) years), who has the appropriate operational experience, capacity and capabilities, and who agrees to supervise a Graduate under a PTA.

3. The Professional Training Agreement (PTA)

The purpose of the PTA is to provide the Graduate with a structured training program of education and development of attitudes and skills. The PTA should be structured so as to enable the Graduate to progress to the level of a competent professional surveyor in an efficient and effective manner. The PTA should take into account local conditions and specializations. It should be prepared by the Supervising Surveyor in consultation with the Graduate Surveyor.

An example PTA is at **Attachment B**. It is recommended that the topics in that example be considered for inclusion in a training agreement; however every agreement is unique so the example should not be used uncritically as a pro forma.

During the PTA, the Graduate Surveyor is required to complete a minimum of two (2) years (480 days) practical experience. Refer to **Attachment A** for more details. The practical experience shall include at least twelve (12) months (240 days) on cadastral surveys. The cadastral surveys should include a sufficient amount of work in the Northern Territory in both the rural and urban categories. In each category, the trainee is to carry out the survey in the role of a party leader. Arranging the variety of work is the responsibility of the Supervising and Graduate Surveyor. It is expected that the Graduate Surveyor will undertake at least five surveys in each category.

4. Competency Standards

The Council of Reciprocating Surveyors’ Boards of Australia and New Zealand (CRSBANZ), in conjunction with other professional land surveying bodies, developed a “National Competency Standards for Professional Surveyors” publication. While those standards (published in July 1996) do not specifically deal with cadastral surveys, these guidelines are based on those general standards. More specifically, the key competencies are described on pages 51 to 66 of the above mentioned publication. To view this reference material navigate to the Board’s website under Training and the *Professional Training Agreement* heading: <https://surveyorsboard.nt.gov.au/registration-and-training>.

Supervisors are to ensure that Graduates achieve the level of competency and professional development required by the Board as outlined herein and in the competency based standards for surveyors. Graduates should be exposed to a

variety of surveys and challenged by difficult and complex situations. Supervisors are to ensure that any deficiencies in the Graduate's skills are rectified.

The training to be provided and skills to be developed should be broadly based and at the knowledge level that enables the Graduate to have a sound foundation of cadastral competencies. The competencies (skills) to be learnt are detailed in section 5. Some require full competence while others only require an awareness and understanding at the Licensed Surveyor level, and others are individually optional.

5. Competencies (Skills) To Be Learnt

In transforming the generic competencies to the specific cadastral area, it is recommended that during the period of a PTA the following subjects be covered:

5.1 Work Health and Safety Practices

- Teaching of safe and healthy working practices; and must precede any other training.

5.2 Practical Field Skills

- Measurements using tape measures (includes steel chains / bands), electronic distance measuring instruments and GNSS equipment.
- Theodolite angle measurement.
- Levelling.
- Operational maintenance and testing of measuring devices.
- Electronic and manual methods of data recording.
- Placement and referencing of boundary and general survey marks.
- Independent checking of observations and error-elimination procedures.
- Use and maintenance of associated tools, equipment, and vehicles.

5.3 Rural/Urban Cadastral Re-Establishment of Alignments

- Location of original survey marks; occupations and improvements.
- Re-establishment of title boundaries through the analysis of available evidence.
- Determination of adoptions based on the principles associated with Crown boundaries, previous surveys, survey marks, and occupation.
- At least 5 surveys in both rural and urban localities to demonstrate competency.

5.4 Geodetic Survey Datums

- Field surveys based on the Geocentric Datum of Australian (GDA), the Map Grid of Australian (MGA), and the Australian Height Datum (AHD).
- Working knowledge of co-ordinates, geodetic calculations, and reference frames.

- General engineering and topographic surveys based on local grids and control traverses.
- The dependence of Global Navigation Satellite System (GNSS) surveys with respect to datums, transformations, and conversions.

5.5 Survey Accuracy

- The standards of accuracy required in field surveys.
- How to analyse survey observations / results, and achieve the necessary standard in each situation encountered.

5.6 Team Leadership

- Team responsibility, supervision and leadership in the office and field.
- Responsible use of vehicles and equipment.
- Bush craft, especially in remote areas.
- Work health and safety.
- Sound oral and written communication skills - to lead with influence, clarity and understanding; to work with various professionals, client and people with diverse backgrounds; to manage difficult situations

5.7 Survey Information and Records

- Searching and interpretation of title and survey information from the various sources, geospatial databases or systems (such as ILIS).
- The relevance, availability and use of analogue and digital information; includes familiarity with obtaining and manipulation of the information.

5.8 Survey Computations

- Computer hardware and software and their applications to surveying and a surveying practice in general.
- The application of general survey computations learned in the degree course or prior learnings.
- Calculation of re-establishment of cadastral alignments, including:
 - distribution of original errors into the most probably correct places;
 - achieving a best fit of boundaries to available original marks and dimensions;
 - rigorous adjustment of survey data; and
 - consideration of the impact to land title and possible legal implications.

5.9 Survey Examination and Plan Drafting

- Ability to undertake survey examinations in accordance with the Accredited Survey Examination regime and the Survey Practice Directions, standards, practices and guidelines that regulate the practice of surveying.
- Familiarity with the different requirements (regulations, standards, guidelines and conventions) for drafting plans under the various land tenure Acts; sufficient knowledge to instruct and oversee the drafting, not

necessarily enough to physically draft the plans personally.

5.10 Survey Documentation

- Preparation of the other survey and business documentation related to surveys. In particular the production of easement diagrams, lease plan, sketch plans, identification surveys, remarks, and associated reports and correspondence.

5.11 Calibration of Survey Equipment

- Understanding of the need for repeated calibration of survey equipment; competency in the calibration of all equipment and instruments used, as well as the associated preferred measurement practices or techniques.

5.12 Code of Practice (Ethics)

- Adherence to the Board's Code of Practice - that is the practice, conduct and ethics, as they apply to a professional Licensed Surveyor.

5.13 Client Instructions and Liaison.

- Including understanding of client and stakeholder needs and guiding their instructions to give them the best results. Informing them as to costs and time frame.
- Ongoing client / stakeholder relations.

5.14 Knowledge of Relevant Legislation

- Knowledge of the various Acts, regulations, directions, guidelines and manuals relevant to a survey practice. These are listed at **Attachment C** of this manual.
- Awareness of Common Law as it affects land tenure.
- Sound knowledge of the various regulations, directions, standards, and guidelines related to land boundary surveys or other authorized surveys; includes the practices and procedures of the various survey and land titling registering agencies.
- It is necessary to update knowledge and the practical application of legislation, as land survey legislation is periodically modernized.

5.15 Land Development Process and Tenure

- Experience with the subdivision process, including planning procedure, local government, servicing authorities, engineering and finance; as well as the surveyor's roles and responsibilities associated with registering tenure at the Land Titles Office.

5.16 Survey Office and Quality Procedures

- Survey office procedures with an emphasis on quality assurance,

minimization of errors, and the linkage with the Accredited Survey Examiners regime.

5.17 Unit Titles

- Working knowledge (survey components) of the Unit Titles Schemes Act (as well as Unit Titles Act); such as associated plans, surveys, scheme statements, entitlements, and role / responsibilities of a Licensed Surveyor.

5.18 Digital Survey Data

- Lodgment of survey data digitally with the registration authorities in the formats required by them.

5.19 Mining Surveys

- Surveys, plans and associated requirements for the registration of tenure under the Mining Act.

5.20 Engineering, Construction and Structural Surveys

- Experience in detail or topographic surveys, set-out or control for infrastructure, facilities, and structures, with respect to land boundaries (includes integration of land boundaries with digital data)

5.21 Global Navigation Satellite Systems (GNSS)

- With respect to cadastral surveys, experience and knowledge with – the use of GNSS and their application, the processing and analysis of related data, preferred GNSS measurement practices and techniques, and GNSS limitations.
- Understanding of various positioning technologies and GNSS techniques such as - static, differential, kinematic, real time kinematic, and absolute / relative positioning.

5.22 Riparian / Tidal Boundaries

- Definition and re-establishment of tidal and non-tidal riparian boundaries, the nature of those boundaries and the rights that are conferred.

6. Level of Supervision

The philosophy of the Board is that the:-

- Supervisor is solely responsible and accountable for surveys carried out under their supervision, and
- Supervisor should exercise a standard of supervision that will ensure the

survey reflects professional responsibilities and complies with relevant statutes.

The extent of supervision will vary according to the experience and skill and ethics of the Graduate. The recommended level of supervision is as follows:

- 6.1 The Supervisor should fully brief the Graduate on the purpose and details of the survey before the Graduate commences involvement in that survey.
- 6.2 The Supervisor should discuss all aspects of the survey with the Graduate at the completion of the work.
- 6.3 Early in the training period the Supervisor should always accompany the Graduate on site, until the Graduate demonstrates an ability to act as team leader for some parts of the survey. From that time onwards the frequency of onsite supervision can be reduced, but the Supervisor should -
 - be present on sufficient occasions during each survey to ensure that the Graduate's problems are solved expeditiously;
 - inspect the marking and physical aspects of the survey, and the field records, closes, re-establishment etc. on its completion; and
 - effect sufficient angular and linear checks of the surveys to be satisfied with the standard and accuracy of the Graduate's work.
- 6.4 Just before the successful completion of the training agreement it is acceptable for the supervision of the Graduate to be reduced for the specific purpose of the further professional development of the Graduate's work attitude and ethics.
- 6.5 The Supervisor will still be wholly responsible and accountable for the correctness of the surveys.
- 6.6 It is recommended that in the period of **off-site supervision**:
 - in the cases of simple survey projects / jobs, the Supervisor should inspect the field record of each survey project / job;
 - in other cases the Graduate should prepare a short survey report describing important aspects of each survey (particularly the re-establishment); and
 - that this record be retained by the Supervisor and forms part of the off-site supervision. These reports could form part of the documentation presented to the Board supporting the Graduate's application for registration as a Licensed Surveyor.
- 6.7 Acceptance of only off-site supervision is limited to the final period of a Graduate's training. It is never to be extended to a person who is not under a training agreement, no matter how extensive that person's experience.
- 6.8 Supervisors should act within the confines and the spirit of the certificate signed

on the survey plan (and field record) namely “under my supervision”, lodged during the period of a PTA. The fact that the Supervisor has signed the plan (and field record) indicates satisfaction as to the accuracy of the survey that the survey is in accordance with the regulations, and an acceptance of full responsibility for the survey.

7. Responsibilities of the Supervisor

The professional training of a Graduate is an important and demanding role, not one to be undertaken lightly or for the wrong reasons. The responsibilities of the Supervising Surveyor include:-

- 7.1 Not enter into PTAs with more than two (2) Graduates at any one time.
- 7.2 Provide the range of experience necessary for the Graduate’s development.
- 7.3 Provide the tuition and guidance necessary for the Graduate’s development (both technical and professional).
- 7.4 Wholly responsible for the correct performance of survey projects / jobs by the Graduate.
- 7.5 Encourage the Graduate’s participation in continuing professional development courses.
- 7.6 Responsible for effective feedback to the Graduate on every survey project / job.
- 7.7 Report to the Board on a regular basis on the progress of the Graduate’s training.
- 7.8 Responsible for the decision to put the Graduate forward for the Professional Assessment and licensing by the Board. The Board must rely on the Supervisor’s opinion as to the Graduate’s competency, capabilities and readiness.
- 7.9 The PTA should state the extent of the Supervisor’s responsibility for arranging or participating in training (of a stated nature) which is not available within the Supervisor’s capacity, resources or survey business. To clarify the extent or basis of the agreement it is beneficial for it to list the scope of work normally done by the Supervisor, and to list any necessary types of work which the Supervisor does not do.
- 7.10 It is recognized that the time taken to complete the training is dependent on the endeavours and self-motivation of the Graduate. The Supervisor, where possible, should counsel, support and assist the Graduate to successfully complete their professional training and development within the time schedule in the agreement.

8. Responsibilities of the Graduate

- 8.1 Fundamental and general educational matters (including familiarity with Acts, regulations, guidelines and manuals) should not be neglected by the Graduate.
- 8.2 The length of elapsed time before licensing is expected to be heavily dependent on the Graduate’s commitment, ability to self-motivate, and the amount of personal time that the Graduate is prepared to contribute during (and before)

the training agreement.

- 8.3 The Graduate is responsible for ensuring that sufficient time is spent on continuing professional development.
- 8.4 The Graduate is responsible for keeping records of the training received and for informing the Supervisor of any slippage of time.
- 8.5 To clarify the basis for the agreement (and to assist in preparing an achievable time schedule) it is beneficial for the agreement to include a realistic description of the Graduate's competencies, experience and knowledge before entering the agreement.

9. Training Reports

- 9.1 The following records should be maintained, to be submitted to the Board initially on a six (6) monthly basis. The maintenance of these records not only make the interim and final reports easier to prepare, but also more readily identify any deficiencies in the training program.

BY THE GRADUATE SURVEYOR:

- a work folder of completed training projects; and
- tables of practical experience, Form 3 (Appendix 1), lodged at six (6) month intervals recording the type of work experience and the accrual of training days.

BY THE SUPERVISING SURVEYOR:

- reports covering the level of skill and knowledge of the Graduate, such that the degree and complexity of work and responsibilities can be analyzed; and
- verification, comment and signing off of the Graduate's training projects and tables of practical experience.

Each entry in the records described above in this paragraph should specifically state which of the skills listed in this document have been developed during that survey project / job.

- 9.2 Each Supervisor who has undertaken in full or in part a component of a Graduate's training is required to document the categories of training and the period during which it was undertaken. A certificate to that effect is required to be signed after each period as set out in Form 3 (Appendix 1).
- 9.3 The period and categories of training must aggregate to at least the minimum requirement set out in the PTA approved by the Board.
- 9.4 The Supervising Surveyor shall provide reports to the Board on a six (6) monthly basis on the competencies and skills learnt by the Graduate Surveyor as per Form 4 (Appendix 2).

- 9.5 The Board will monitor the progress through the reports, and where necessary provide counselling and assistance to ensure appropriate training opportunities are provided to the Graduate Surveyor and support is available to the Supervising Surveyor.

10. Certificate of Professional Training

When the Graduate has completed the required amount of training and the Supervisor is satisfied that the Graduate is capable of undertaking land boundary surveys unsupervised, the Supervisor is to complete a Certificate of Professional Training. The Certificate of Professional Training is Form 5 (Appendix 3).

11. The Professional Assessment

11.1 Timing

The Supervising Surveyor decides when a Graduate Surveyor has the all-round skills, knowledge and competency to receive Certificate of Professional Training. This certification by the Supervising Surveyor also indicates the Graduate Surveyor is ready for the Board's Professional Assessment, and possible eligibility for a Certificate of Competency. There will always be personal and commercial pressures which may influence the timing of Supervisor's decision. The focus must however always be on the capability of the Graduate Surveyor to perform as a Licensed Surveyor in their own right. Based on current CRSBANZ PTA statistics it may take a Graduate Surveyor 4-5 years to become a Licensed Surveyor.

11.2 Project Work

The Graduate Surveyor is required to submit 5 projects to the Board as part of a PTA assessment. During the Professional Assessment the Graduate Surveyor will be questioned by the Board on cadastral or related matters in relation to these projects. Details of the type of projects and their requirements are at ***Attachment A***.

Project work must demonstrate the Graduate Surveyors capabilities and that they are competent to undertake cadastral surveys and the associated responsibilities. Although the project work must be the work of the Graduate, the Supervisor should check the work as correct, both technically and administratively. Note, based on the Board's experience quality work and / or sub-standard work often reflects on the supervision and the survey business operations and culture.

11.3 Resources and Allocation of Work

The Supervisor should ensure that the Graduate is offered the appropriate time, support and access to sufficient resources (includes equipment, personnel,

vehicles etc.) that will assist the successful completion of the PTA, as well as the Professional Assessment.

The Supervising Surveyor should consider allocating work which supports the PTA and also workloads or commitments immediately prior to the Professional Assessment by the Board so as to provide the Graduate Surveyor with adequate time and the opportunity to prepare.

12. Transfer Of An Agreement

If circumstances arise such that the Graduate's training cannot be optimally managed by the Supervising Surveyor, then the Supervising Surveyor should arrange transfer of the PTA, or in extreme cases its suspension or termination.

13. Dispute Resolution

If the aspirations and commitments of both parties are discussed during the shared preparation of the agreement, and if the Graduate's progress is discussed frequently during the period of the agreement, a dispute is unlikely.

If a dispute arises that cannot be readily resolved by the Supervisor and Graduate the Board will willingly provide a Board member to assist with negotiations or resolution. Such assistance will not infer blame.

14. Termination Of Agreement

It is prudent for both parties to include in the PTA a clause that outlines the circumstances and conditions relating to the termination of the agreement. The Board suggests that the provisions of paragraphs 12 & 13 above be fully considered before implementing such termination. The Board must be notified of the termination of an agreement. The notification should include evidence that both parties concur with the termination. The Board should be provided with a Certificate of Service for its records.

**Appendix 1 - Form 3
LICENSED SURVEYORS ACT 1983
PRACTICAL EXPERIENCE**

I,, a surveyor registered under the *Licensed Surveyors Act 1983* hereby certify that, a graduate surveyor:

- (1) has been professionally and continuously supervised by me in the practice of land surveying **for the period** to that is to say, **for a period of** months and days;
- (2) has, **during the said period**, gained the following practical experience:

Nature of Practical Experience Obtained by the Graduate Surveyor	Number of DAYS of Practical Experience Obtained by the Graduate Surveyor				
	Office Experience	Field Experience (General Assistant)	Field Experience (Instrument Operator)	Field Experience (Party Leader)	Total Experience for the period
Land Boundary Surveys: - in Urban Areas - in Rural Areas					
Engineering Surveys					
Topographical Surveys					
Mining Surveys					
Control Surveys					
Other Surveys: • Land administration • Town planning • Hydrography • Remote sensing (<i>LiDAR, UAV, photogrammetry etc</i>)					
Total Experience for the period					

Dated at this day of 20

.....
Licensed Surveyor

.....
Registration Number:

Appendix 2 - Form 4

**LICENSED SURVEYORS ACT 1983
PROGRESSIVE REPORT OF
PROFESSIONAL TRAINING PROGRAM**

Graduate Surveyor:

	Competency in:	Status	Date Achieved
5.1	Work Health and Safety Practices		
5.2	Practical Field skills		
5.3	Urban Cadastral Re-Establishment of Alignments (at least 5 surveys)		
5.3	Rural Cadastral Re-Establishment of Alignments (at least 5 surveys)		
5.4	Geodetic Survey Datums		
5.5	Survey Accuracy		
5.6	Team Leadership		
5.7	Survey Information and Records		
5.8	Survey Computations		
5.9	Survey Examination and Plan Drafting		
5.10	Survey Documentation		
5.11	Calibration of Survey Equipment		
5.12	Code of Practice (Ethics)		
5.13	Client Instructions and Liaison		
5.14	Knowledge of Relevant Legislation		
5.15	Land Development Process and Tenure		
5.16	Survey Office and Quality Procedures		
5.17	Unit Titles		
5.18	Digital Survey Data		
5.19	Mining Surveys		
5.20	Engineering, Construction and Structural Surveys		
5.21	Global Navigation Satellite Systems		
5.22	Riparian / Tidal Boundaries		

Comments -

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Notes –

- This form is to be completed by the current Supervising Surveyor and lodged with **Form 3** certificate of Practical Experience (the table of practical experience) at six (6) month intervals.
- For more information about each competency refer to “**Guidelines for Supervising Surveyors and Graduate Surveyors**”
- Competency status is either – **Developing or Achieved & Ongoing**;
- Once competency has been achieved, both the Graduate Surveyor and Supervising Surveyor must ensure competency is maintained throughout the Professional Training Agreement.

Dated at this day of 20.....

.....
Licensed Surveyor

.....
Registration Number:

Appendix 3 - Form 5

LICENSED SURVEYORS ACT 1983

CERTIFICATE OF PROFESSIONAL TRAINING

I,, a surveyor registered under the *Licensed Surveyors Act 1983* hereby certify that, a surveying graduate is fully competent to take responsibility for surveys effected.

Dated at this day of 20.....

.....
Licensed Surveyor

.....
Registration Number

ATTACHMENT A – TRAINING REQUIREMENTS FOR GRADUATE SURVEYORS UNDER LICENSED SURVEYORS ACT

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.

3 Practical Experience

- 3.1 The period of practical experience shall 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 classification.
- 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 of 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, a further period of training (or practical experience) may be required by the Graduate Surveyor.
- 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 six (6) months practical training in cadastral surveying in the Northern Territory, as notified in accordance with section 3.5, before lodging the results of projects 4.2.1, 4.2.2 and 4.2.4.

4.1.3 For projects 4.2.3 and 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 in excess of 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 guides 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 image of the survey plan, digital file of survey boundaries (i.e. ACS data), accredited survey examiners 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 with at least one (1) obstructed boundary; of reasonable re-establishment complexity; and 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 and subsequent or resulting adoptions 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.

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 is encouraged to consider discussing the following topics and others (where applicable) so as to demonstrate 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
- Aboriginal land tenure or Native Title matters
- 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

4.2.2 Rural Cadastral Survey

In role of party leader, the Graduate Surveyor must survey a rural allotment 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 3 substantial changes in bearings / directions.

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

In addition to the survey report items that are required in the Survey Practice Directions, the Graduate Surveyor is encouraged to consider discussing the following topics and others (where applicable) so as to demonstrate 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
- 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 could 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, 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. The Board would prefer the report is based on an actual development that the Graduate Surveyor was involved in, however the Board may consider a hypothetical development or alternative as a 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 of the 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 could also discuss in the report, but not limited to, are:

- Relevant Acts and Regulations
- Development Application / Permit
- Scheme Statements
- Disclosure Statements
- Unit By-Laws
- Exclusive Use By-Laws
- Data Allocation / Unit Addressing
- Survey – defining, marking, and dimensioning; 3D; structural elements
- UTS plan & lodgement requirements
- LTO requirements
- 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 spheroidal coordinates and MGA 94 / 2020 rectangular coordinates of at least four (4) survey control points containing an area in excess of 20 hectares. 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 so as to demonstrate competency in this discipline –

- A diagram / sketch of the survey control network
- All field notes and / or observations
- All relevant reductions and calculations.
- A report that details the project and discusses –
 - The geodetic survey techniques used, processing and 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 a local ties to existing GDA co-ordinated geodetic marks
 - Calibration of instruments used

4.3 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 of 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. If this timeframe lapses then the project may not result in a pass. Note, all changes or amendments to the project must be undertaken by the Graduate Surveyor, and then subsequently reviewed and endorsed by the Supervising Surveyor.

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) Graduates 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. In the event that 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.
- 5.4 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 general public. Considering this, the Board may discuss, seek the views, and 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 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
- 5.5 Should the Board, as a result 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.

ATTACHMENT B – Professional Training Agreement (example)

**SURVEYORS BOARD OF THE NORTHERN
TERRITORY**

PROFESSIONAL TRAINING AGREEMENT

BETWEEN

.....

SUPERVISING SURVEYOR LS

AND

.....

GRADUATE SURVEYOR

PROFESSIONAL TRAINING AGREEMENT

1. PURPOSE

This agreement records the training programme to be undertaken by the Graduate Surveyor (_____) under the guidance of the Supervising Surveyor (_____).

Except where stated otherwise, this agreement is intended to comply with the "Guidelines for Supervising Surveyors and Graduate Surveyors" and it should be read in conjunction with those guidelines. Successful completion of the training programme should enable the graduate to attain registration as a Licensed Surveyor. It is expected that the graduate will then practise in his/her own right but under the general guidance of a senior Licensed Surveyor for a period before practising autonomously.

2. THE SUPERVISING SURVEYOR

Describe the Supervising Surveyor by name, address and qualifications. Give brief record of experience and appointments. List professional associations.

3. THE GRADUATE SURVEYOR

Describe the Graduate by name, address and qualifications. Make reference to academic record and experience in surveying contained in attachments.

4. THE COMPANY

Describe the company by listing areas of operation and extent of involvement, principals and all types of work undertaken. More detail may be given under the following headings:

- *Quality Policy*
- *Objectives*
- *Organisational Structure*
- *Equipment Resources*
- *Strengths and Weaknesses*

5. ESSENCE OF AGREEMENT

The above named persons agree that:

- 5.1 The Graduate Surveyor agrees to undertake training from the Supervising Surveyor to learn the profession of a land surveyor for the term of two (2) years commencing on the * day of * month of * (202*) providing that, if the Surveyors Board so desires, the training period shall be varied to such period as the Board determines.
- 5.2 The Graduate Surveyor will attend such place or places as the Supervising Surveyor shall require for the purpose of training.
- 5.3 The Supervising Surveyor will instruct the survey graduate in the profession of land surveyor or shall cause the Graduate Surveyor to be so instructed.
- 5.4 The Supervising Surveyor will permit the Graduate Surveyor to attend such lectures and examinations as may be requisite or proper for their better instruction in the profession of land surveyor.
- 5.5 The period of training shall include at least twelve (12) months (240 days) on cadastral surveys. The cadastral surveys should include a sufficient amount of rural and urban work carried out by the Graduate Surveyor in the role of Party Leader. Arranging the variety of work 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 each classification.

6. THE GRADUATE SURVEYOR'S COMPETENCIES (INITIALLY)

Describe the competencies, experience and knowledge at the start of the training period here. If that is not practical, provide them on an attachment and refer to it at Item 3. This statement will assist the preparation of the training programme and its time schedule. Consider using Forms 3 to quantify initial experience and Form 4 to demonstrate current competencies.

7. SCOPE OF TRAINING

Describe the training using the subjects listed in the Guidelines for Supervising Surveyors and Graduate Surveyors.

8 LEVEL OF SUPERVISION

Describe the level of supervision to be provided; using the Board's Guidelines for Supervising Surveyors and Graduate Surveyors as a guide.

Please note, supervision should be relaxed as the Graduate Surveyor demonstrates ability to act as a Party Leader for surveys. The Graduate Surveyor's rate of progress depends heavily on a progressively reduced level of supervision.

9. EXCLUSIONS

Note, if the company does not carry out some types of work (or some components of work), or use some type of equipment, which are essential or desirable for the Graduate Surveyor's development, they should be itemised. The responsibility for attaining this excluded experience should be allocated and if it is to be included within this training agreement the solution should be described. If the excluded training is to be achieved through another Licensed Surveyor and company but within the ambit of this agreement, the responsibility of the Supervising Surveyor and the other Licensed Surveyor should be set out.

10 TIME SCHEDULE

It is recommended that the agreement include a table / matrix which shows the time schedule targeting dates for achievement of each of the competencies described in the Board's Guidelines for Supervising Surveyors and Graduate Surveyors, as well the practical projects. This will allow both parties to monitor progress of the training, correct any identified problems and to understand the magnitude of the task from the start. The Graduate Surveyor should participate in the preparation of the time schedule.

11 RESPONSIBILITIES OF THE SUPERVISOR

Describe the responsibilities of the Supervising Surveyor under this agreement; using the Board's Guidelines for Supervising Surveyors and Graduate Surveyors as a guide.

12. RESPONSIBILITIES OF THE GRADUATE SURVEYOR

Describe the responsibilities of the Graduate Surveyor under this agreement; using the Board's Guidelines for Supervising Surveyors and Graduate Surveyors as a guide

13 ACCOUNTABILITY

Describe who is going to be accountable and for what under this agreement.

Note – Accountability can refer to what happens only after a situation has occurred, whereas responsibility is usually ongoing. Being held accountable is personal and individual, meaning it cannot be shared and belongs to only one person. Conversely, responsibility can be shared and divided among team members, collectively working towards an outcome. Accountability can also mean taking ownership of the results that have been produced, where responsibility focuses on the defined roles of each team member and what value they can bring to the table because of their specific position. Where accountability is results-focused, responsibility is task or project-focused. Lastly, an explanation is expected (and maybe even owed) when being held accountable, but it is not expected for a responsibility.

14. TRAINING REPORTS

The Graduate and the Supervising Surveyor will maintain the records required by Board's Guidelines for Supervising Surveyors and Graduate Surveyors and will submit training reports to the Board as required by the same guideline.

15. CERTIFICATION

We the above named certify our acceptance of this professional training agreement.

Dated this * of *, month of * (20**).

Supervising Surveyor

Graduate Surveyor

Witness

Witness

Approved by the Surveyors Board of the Northern Territory

Chairperson

Secretary

Registered...../...../.....

ATTACHMENT C

The main NT Acts Relating to Licensed Surveyors:

Control of Roads
Crown Lands
Encroachment of Buildings
Fences
Land Title
Lands Acquisition
Law of Property
Licensed Surveyors
Local Government
Mining
Place Names
Planning
Real Property (Unit Titles)
Unit Titles
Unit Titles Schemes