

Remake of the Surveying and Spatial Information Regulation: Progress Update

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ABSTRACT

The legislative processes of New South Wales require a review of each regulation every 5 years. This is governed by section 10 of the Subordinate Legislation Act 1989 and ensures that the requirements of each regulation remain up to date and future focused. The remake of the Surveying and Spatial Information Regulation 2017 was postponed during 2022 and is scheduled to be replaced on or before 1 September 2023. The review process has required a substantial amount of time and input from many sectors. An online survey was distributed to the industry in 2021, and there have been many presentations and industry consultation throughout the process. The Parliamentary Counsel's Office has used a modern approach to redraft the regulation that has re-structured and changed all section numbers of the old regulation. This paper provides an overview of the proposed changes that are intended to be made to the Surveying and Spatial Information Regulation for release in 2023.

KEYWORDS: Regulation, legislation, surveying, standards.

1 INTRODUCTION

Under the Subordinate Legislation Act 1989 (NSW Legislation, 2023a), all statutory rules, i.e. regulations, must be remade every 5 years to ensure they remain relevant to government, community and industry needs. The Surveying and Spatial Information Regulation 2017 (NSW Legislation, 2023b) was due for repeal on 1 September 2022. However, a 12-month extension has been granted. An online questionnaire was distributed to the industry in early 2021 for comment, and a workshop with industry associations and industry leaders to obtain additional feedback and comment was conducted in September 2021. This paper briefly provides an update of the issues, amendments and reforms that are proposed to ensure the surveying industry is enabled and capable to provide modern surveying services. The reforms and amendments outlined in this document are generally minor in nature and do not make significant changes to survey practice in New South Wales.

2 PROCESS

The review process began in March 2021 by outlining possible and probable changes to the regulation (Gardner, 2021), followed by a corresponding series of presentations to the surveying industry. An online questionnaire was conducted from March to May 2021 to obtain views, comments and suggestions for improvement from the surveying industry. The results were used to refine the final submission to the Parliamentary Counsel's Office to prepare the new draft regulation that will be circulated to all surveyors, users of surveying services,

government agencies and relevant industry associations in a final draft exposure regulation. The remake of the regulation has been postponed 12 months until 1 September 2023, due to work commitments for new bills, reformatting styles and standards, and other reforms.

A Regulatory Impact Statement will accompany a draft exposure version of the proposed regulation this year to gain final industry, government and community comments in order to ensure that all alternatives, options, cost and benefits have been considered and determined for the final regulation.

3 SUMMARY OF PROPOSED CHANGES TO DATE

A summary of the proposed changes from the Surveying and Spatial Information Regulation 2017 to the proposed Surveying and Spatial Information Regulation 2023 is outlined in Table 1. The sequence of numbers in the table are based upon the proposed section numbers of the proposed regulation. The proposed regulation has been completely re-structured, and all ‘clause’ numbers will change to new ‘section’ numbers.

Table 1: Summary of proposed changes to the Surveying and Spatial Information Regulation 2017. If a cell is blank, either no change or very minor changes are proposed.

Proposed Regulation	Proposed Change	Reason for Change
Part 1: Preliminary		
1 Name of Regulation		
2 Commencement		
3 Application of Regulation – The Act, s 4 & 5		
4 Mining surveys – the Act, s 36	Update reference to the current “Survey & Drafting Directions for Mine Surveyors 2020 (NSW-Mines)”.	Updated references.
5 Definitions		
<i>Accurate MGA orientation</i>	Add “positional uncertainty of 0.1m or less” to the existing survey Class of “D” or better.	Enable more flexibility and correct definition when determining accurate MGA orientation.
<i>Established survey mark</i>	Means a survey mark as approved. (By Surveyor-General, in SGD.)	Enable more flexibility.
<i>Recognised Professional Training Agreement</i>	Remove definition.	Recognised Professional Training Agreement is not used by the industry.
<i>Validation</i>	Means an approved rigorous method that assesses an instrument or method of measurement against a verified instrument or approved network.	A holistic scientific rigorous test performed once a year. For instruments or methods that do not carry their certification.
<i>Verification</i>	Means an approved rigorous method that assesses an instrument against the National Measurement Standard or the State Primary Standard.	In terms of instrument testing, a scientific rigorous test against a reference standard for instruments that can carry their certification.

Proposed Regulation	Proposed Change	Reason for Change
6 Reference to high-water mark and tidal and non-tidal waters in previous survey plans		
7 Urban and rural land surveys		
8 Conduct of surveys – the Act, s 36		
Part 2: Equipment and methods – the Act, s 36(2)(a)		
9 Measurement methods	Greater use of SGDs to prescribe measurement methods.	Clearer instructions.
10 Verification of electronic distance measuring equipment	Standardise the use of the term “verification” and “verified”. Verification is a rigorous annual assessment of the capabilities of the EDM. Verification to be stored by the surveyor. Verification to be supplied for an audit or investigation.	Clearer breakdown of process required to ensure accuracy of equipment.
11 Verification of metal tapes and bands	Steel bands have been replaced with an option to verify a metal tape every 2 years.	Clearer breakdown of process required to ensure accuracy of equipment.
12 Validation of measurement methods	Surveyor to validate all non-verified methods. Includes GNSS and remote surveying methods.	Clearer breakdown of process required to ensure accuracy of equipment.
Part 3: Accuracy and measurement – the Act, s 36(2)(a)		
13 Tolerance of angular measurements		
14 Checking angular measurements		
15 Tolerance of length measurements		
16 Checking length measurements	Surveyor to ‘check’ measurements. Independent checks. Use independent method to make check. GNSS not to check GNSS.	This is to clarify the requirement and be more rigorous.
17 Tolerance of relative positions		
18 Other tolerances		
19 Checking accuracy of measurements and calculations	Use the word “check”. Combine the outcome for age of partial survey and terrain details of lot into single mm+ppm for each partial lot. Add mm+ppm to survey certificate.	Simplify the outcome and enable E-plan digital compliance.
20 Calculation of areas of land	Areas of land to be calculated using commercial software. Approved method – Surveyor-General’s Directions.	Refer to the SGDs and commercial software as suitable methods of determining area of land. Any commercially available survey software.
21 Compliance with Standards and Practices for Control Surveys		

Proposed Regulation	Proposed Change	Reason for Change
Part 4: Datum lines - the Act, s 36(2)(a)		
22 Horizontal datum line and orientation	MGA for <u>all</u> surveys. No magnetic meridian as datum (unless compiled plan). 3 survey marks for <u>all</u> surveys. Use established SCIMS coordinates for all 3 marks <u>or</u> use an approved GNSS method for all 3 marks. All marks must be within 1500m of the site. Approved GNSS coordinates must have a PU of 0.1m or less.	Simplifies the datum requirements and makes all plans have the same requirements. 80% of surveyors (from Survey Monkey results) agree that all plans should be on MGA. 2.5% of plans of survey currently use a magnetic meridian (MM) orientation.
23 Vertical datum	“Confirm”, not “verify” the results. Add that only good SCIMS marks can be used, the same as clause 12.	
Part 5: Boundaries – the Act, s 36(2)(a) and (b)		
24 Re-survey of boundaries	Ensure that the surveyor either forms a common boundary with the adjoining parcel or provides a report to justify the discrepancy between the location of the boundary.	A re-survey is to place the boundary in the same position as it was located prior. Thus, forming a common boundary if all the plans are in agreement, or justifying the location of the boundary with extra survey if there is a discrepancy in the plans.
25 Monuments of original survey missing		
26 Measurement of boundaries		
27 Finding existing corner peg and reference mark		
28 Difference between measured and recorded boundary lengths		
29 Confirming terminals where only part of land to be surveyed		
30 Survey where boundary includes crooked fence		
31 Stratum surveys		
32 Surveys for affecting interests	Clarifies that this clause applies to surveys for affecting interests that extend beyond the main surveyed or subdivided area.	Clarifies the application of the clause.
33 First surveys for redefinition or subdivision of certain land	First definition will require consent of adjoining owner.	Ensure correct boundary is defined.
34 Changes in non-tidal and tidal waters or other natural feature boundaries	If present waterline is different to adopted MHW or bank, then both are shown. Was in clause 47.	Increases the integrity of cadastral plans.

Proposed Regulation	Proposed Change	Reason for Change
35 Density of permanent survey marks		
36 Connection to permanent survey marks	Simplify the requirements for placing PSMs. Reduce the number of PSM placed. Use 250m of road frontage as the basis for network propagation. Amend subclause 42(2) to be consistent with subclause 41(1). Connections are limited to 250m (urban) and 1000m (rural). All PSMs must be shown in a closed connection.	The current formula is based on the number of parcels and the lot size is reducing, hence there is oversupply of PSMs in some areas. The new methodology is based on the distance of road frontage. This ensures that only close PSMs are used and direct connections between PSMs are shown. PSMs are not more the 250m apart along the length of any road.
37 Differences between measured and recorded lengths		
38 Surveys for identification or re-marking	Title and/or report to indicate intent of survey. Update sections that apply. New survey certificate.	Better understanding of requirements.
39 Surveys not requiring strict accuracy	The “agreement” between the client & surveyor for the survey not requiring strict accuracy is to be in writing. Review & update the clauses that apply. Refer to “classifications” of survey rather than “Class” of survey. Plan to report the “agreed” accuracy. Update the survey certificate.	When a Clause 9 survey is undertaken, there is no documented agreement of what was to occur or to what accuracy. Class has a specific meaning in surveying. The survey plan must convey the accuracy agreed.
Part 6: Marking – the Act, s 36(2)(f)		
40 Forms and styles of survey marks		
41 Boundary marks		
42 Marking of natural feature boundaries		
43 Marking boundaries of Crown managed land		
44 Reference marks generally	A second reference mark (RM) must be placed at any corner referenced by a ‘Reference Tree’ (as described in Schedule 3) that is found, that does not already have a second reference mark for that corner. If a specific point is used as RM, then an additional RM must be placed in the road.	Enable the preservation of basic cadastral infrastructure. Enable preservation of survey marks to ensue integrity of cadastre.
45 Reference marks for boundaries	Urban survey that creates or redefines a boundary that intersects with a water boundary, place a RM for that intersection. Rural survey that creates or redefines a boundary that intersects with a water boundary, place a RM for that intersection. No 500m limit. Allow double referencing if existing RM is within 30m.	Intersections with roads and rivers are treated the same Intersections with roads and rivers are treated the same. Allow efficient use of survey marks.

Proposed Regulation	Proposed Change	Reason for Change
46 Reference marks for roads	Delete clause 31(3)(d), this will be dealt with elsewhere. Show connections across road intersections and where width varies.	Improve understanding of Reg. Connections across intersections & where variable enables the road to be crossed mathematically without assumptions.
47 Reference marks for affecting interests		
48 Permanent survey marks	New requirement to ensure there is a diversity of PSM types placed. ¼ of PSMs to be PMs.	In order to improve survey marks preservation and greater survey integrity, it is proposed that a variety of survey marks are placed.
49 Use of broad arrows		
Part 7: Field notes		
50 Recording observations	Change title of clause to “Method of recording angles & bearing”. All distances, coordinates and heights must be recorded in metres.	Simplify the requirement of the Reg.
51 Surveyor to make field notes	Field notes must include all measurement methods used. All dates in field notes must be correct.	Simplify the requirement of the Reg.
52 Surveyor to sign and date field notes		
53 Field notes for surveys carried out by the Surveyor-General or public authorities		
Part 8: Survey plans – the Act, s 36(2)(b)		
54 Method of showing bearings and distances		
55 Requirements for survey plans	Use the correct name (if any) assigned by the Geographical Names Board for any water feature shown on the plan. For partial surveys, the misclose vector tolerance for each parcel in accordance with section 19(3) to be shown. A complete description of all land affected on the first sheet for any acquisition or road plan.	The correct names must be used on survey plans. This is particularly important for survey plans as they are often the point where change is proposed. The misclose vector tolerance for each lot of a partial survey (mm+ppm). To ensure to correct indexing and searching is applied, the current Lot/DP reference must be shown.
56 Recording datum line	MGA for <u>all</u> surveys. No magnetic meridian as datum (unless compiled plan). 3 survey marks for <u>all</u> surveys. Use established SCIMS coordinates for all 3 marks <u>or</u> use an approved GNSS method for all 3 marks. The datum line statement must be shown as approved. The datum must be shown adjacent to the North Point.	Simplifies the datum requirements and makes all plans have the same requirements. 80% of surveyors (from Survey Monkey results) agree that all plans should be on MGA. Datum line must be shown as approved to assist understanding of the survey. It is important to maintain consistent language: the confirmation line is confirming the orientation.

Proposed Regulation	Proposed Change	Reason for Change
	The orientation must be confirmed to a 3 rd mark and shown on the plan. The orientation and datum marks must be shown in a single loop with sequential lines.	The orientation marks must be shown in a closed loop with direct connections.
57 Showing boundaries on survey plans	Use “●” obstructed boundary symbol at corners that cannot be marked and no need for exemption. Remove requirement for clearing and blazing of rural un-fenced boundaries. Use 3” x 2” pegs as line marks (rural). Complete dimensions to include bearings, distances & area. Every road created must be a complete parcel. Connections across intersections, terminals and at variable with. Include details of any improvements, retaining walls, slip rails, jetties, etc. near water boundary.	Where it is physically impossible to place a survey mark (when the boundary corner lies within the material of a structure that does not have an accessible surface), use ●. Avoid conflict with environmental legislation to prevent or limit clearing. Enable appropriate marking. Better compression of the plan and ensure complete and accurate lot/road dimensions. Ensure all interests are recorded on survey plan.
58 Showing road boundaries on survey plans		
59 Showing affecting interests on survey plans		
60 Showing landward boundaries on survey plans	Update reference to Crown Lands Management Act 2016.	Be consistent with other legislation.
61 Showing natural feature boundaries on survey plans		
62 Survey plan to show coordinate schedule	Due to changes in clause 12, surveyor can adopt MGA orientation from established survey marks or approved GNSS. If approved GNSS method, hz Positional Uncertainty (PU) must be $\leq 0.1\text{m}$. If stratum survey only (limited in height and/or depth), hz $\text{PU} \leq 3\text{m}$.	All survey plans adopt MGA and the surveyor has more flexibility as to what survey method is adopted. New PU requirement of marks surveyed accurately. New PU requirement for stratum survey.
63 Survey plan to show height schedule		
64 Survey plan to show height difference schedule		
65 Nature and position of survey marks	If RM found deeper than 300mm, not plan. List the state of all survey marks.	All surveyors will dig 150mm without special instructions.
66 Doubts, discrepancies and difficulties in survey plan	Surveyor needs to ensure that there is appropriate land available for the surrounding titles & roads and any excess or shortage is dealt with appropriately. Amend difference tolerance to: 40mm + 175ppm.	The surveyor needs to survey enough land to justify that the proposed survey does not cause any issues or problems with the adjoining parcels and roads. Minor change to be in accordance with datum line tolerance.
67 Comparison of angular checks		

Proposed Regulation	Proposed Change	Reason for Change
68 Surveyor to provide survey certificate	Expand when a survey certificate is required. New certificate for clause 9 (not strict accuracy), 10 (remark) & 11 (identification). Delete reference to Deferred Survey Marks.	Ensure reports and survey plans carry an appropriate survey certificate. New survey certificates.
Part 9: Reporting		
69 Records of verification and validation		
70 Position of permanent survey marks		
71 New permanent survey marks must be shown in sketch plans	Remove reference to GNSS techniques. Locality Sketch Plans must be lodged before the plan is lodged or within 2 months.	The lodgment of a sketch plan is the trigger that creates a PSM in the Survey Control Information Management System (SCIMS). The plan once lodged is assessed against the SCIMS database. Without the sketch plan, it causes delays in the creation of the mark within the SCIMS database and significant cost in following up un-lodged sketch plans.
72 Doubts, discrepancies and difficulties in accompanying comprehensive report		
73 Determinations of boundaries for non-tidal waters and other natural features	All water boundaries require comprehensive report.	Enable efficient approvals process.
74 Approval of public authority	MHWM boundary consent will be required after 20 years, or if no approval or erroneous plan is basis of the current title.	The clause is clarified so that the surveyor is required to refer to a survey plan on public record prepared prior to the change in position of MHWM.
Part 10: Registration of surveyors		
75 Application of Part		
76 Qualifications for registration – the Act, s 36(2)(c)		
77 Required practical experience		
78 Information about applicants		
79 Continuing professional development – the Act, s 36(2)(h)		
80 Conditions of registration as mining surveyor		

Proposed Regulation	Proposed Change	Reason for Change
81 Register of surveyors – the Act, s 15(3)		
82 Certificates of meritorious service		
Part 11: Board of Surveying and Spatial Information		
83 Constitution of Board—the Act, s 27	Update the name “Institution of Surveyors NSW Ltd”, not incorporated. Add the “Association of Consulting Surveyors NSW (ACS NSW)” as one of the professional associations under section 27(2)(c) of the Act.	Allow greater input to the Board from more industry groups.
84 Committees to assist Board—the Act, s 30(3)		
85 Board determinations	Delete reference to “recognized professional training agreement”.	No candidates are using this pathway to become registered.
86 Complaints against registered surveyors – the Act, s 36(2)(i)		
Part 12: Miscellaneous		
87 Students of surveying and surveyor’s assistants		
88 Fees and deposits		
89 Notice of proposed entry to land		
90 Certificate of authority		
91 Authorisation to remove survey marks		
92 Exemptions by Surveyor-General		
93 Repeal and savings		
Schedule 1 Fees and deposits		
Schedule 2 Forms		
Schedule 3 Dictionary	To be consist with the Crown Lands Management Act 2016: bank, bed, lake and river. Remove the definition of stream. Use the term ‘non-tidal’ instead of the description of “lake and stream” to define a non-tidal water boundary.	To enable greater consistency of specific terms, the Crown Lands Management Act 2016 will be the source of all definitions. The use of the term ‘non-tidal’ to describe a water feature that does not have tidal influence is explicitly clear as to what is the defining factor that separates tidal and non-tidal water boundaries.

Proposed Regulation	Proposed Change	Reason for Change
Schedule 1 Bench marks	Re-order into preference of use. Bench mark token has full description. All bolts, nails or spikes combined.	Minor reforms.
Schedule 2 Boundary marks	Line Pegs 3' x 3'. All bolts, nails or spikes combined. Boundary mark token has full description.	Minor reforms.
Schedule 3 Reference marks	Reference mark token has full description. Nail & wing added.	Minor reforms.
Schedule 4 Permanent survey marks	Most diagrams will have small enhancements. Recess SSM to stop "topping". Ensure gap between cover box & pin/picket to stop "topping".	Minor reforms.
Schedule 6 Form 1 Survey certificate	Amendment to survey certificate. Only one date of completion.	Minor reforms.
Schedule 6 Form 2 Survey certificate not requiring strict accuracy	Amendment to survey certificate. Only one date of completion.	Minor reforms.
Schedule 6 Form 5 Land survey & ident certificate	Amendment to survey certificate. Only one date of completion.	Minor reforms.
Schedule 6 Form 6 Consent certificate	New form. Enable approvals and consents to be obtained simultaneously before final plan of survey in finalised.	Enable approvals and consents to be obtained simultaneously in a new digital lodgement/workflow before final plan of survey in finalised.

4 CONCLUDING REMARKS

The current Surveying and Spatial Information Regulation 2017 is due to cease operation on 31 August 2023, and a new Regulation is proposed to commence on 1 September 2023. However, due to high priority for new bills, reformatting of the Regulation to satisfy new drafting styles and standards, the Regulation may be deferred another 12 months, meaning that a maximum extension until 31 August 2024 may be provided.

This paper has provided an overview of the proposed changes and the new structure being considered at this time. Considerable liaison, presentations and communication with industry groups, associations and government agencies and utilities are proposed over the next year or two to obtain comments and ideas for the new Regulation. In addition, it is planned to ensure that new documentation, e.g. updated Surveyor-General's Directions and updated Registrar General's Guidelines, new plan forms and certificates, along with updated communication and education programs are provided to inform surveyors of the proposed changes before and after the new Regulation commences.

REFERENCES

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