

**EXTRAORDINARY  
GOVERNMENT OF FIJI GAZETTE SUPPLEMENT**

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SURVEYORS ACT 1969

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## **Surveyors Regulations 2021**

REGULATION

### PART 1—PRELIMINARY

1. Short title and commencement
2. Interpretation

### PART 2—SURVEYS

3. Surveys
4. Survey plans
5. Lodgement of survey plans
6. Requirements for lodgement
7. Survey plans the property of the State
8. Examination of survey plans

### PART 3—GENERAL PRACTICE AND PROCEDURE

9. Duties of surveyor
10. Compliance with good survey practice
11. Compliance with Surveyor-General's requisition
12. General requisition
13. Field notes
14. Distance
15. Bearings
16. Origin of coordination and bearings
17. Check bearings
18. Angular and linear errors
19. GNSS cadastral surveys
20. Traverse computations and closures
21. Elimination of misclose
22. Traverse sheets
23. Boundaries to be marked
24. Measurements to natural boundaries
25. Irregular boundaries
26. Boundary marks
27. Curved boundaries

28. Connections to marks indicating iTaukei tribal boundaries
29. Traverse and witness marks
30. Permanent reference marks
31. Hanging traverse
32. Computation of angles and azimuths
33. Computation of areas
34. Drawing of survey plans
35. Survey equipment calibration
36. Measurements
37. Mining plans
38. Redefinition surveys
39. Roads
40. Trigonometrical station reserves

PART 4—MISCELLANEOUS

41. Minister may amend schedules
42. Revocation and transitional

SCHEDULE 1—PROVISIONS APPLYING FOR THE USE OF GNSS  
CADASTRAL SURVEY

SCHEDULE 2—SURVEY PLANS

IN exercise of the powers conferred on me by section 22 of the Surveyors Act 1969, I hereby make these Regulations—

## PART 1—PRELIMINARY

### *Short title and commencement*

- 1.—(1) These Regulations may be cited as the Surveyors Regulations 2021.
- (2) These Regulations come into force on the date of publication in the Gazette.

### *Interpretation*

2. In these Regulations, unless the context otherwise requires—

“authorised technician” means a person qualified to carry out a survey and who is authorised by the Surveyor-General to carry out such survey works under regulation 3;

“cadastral survey” means any process of determining the boundaries of land by the measurement of distances and angles, including measurement by means of an electronic device;

“class A survey” means a survey that is—

- (a) situated in an urban area or in an area likely to become urban as a result of a subdivision effected by the survey; or
- (b) used or intended to be used primarily for commercial, industrial or residential purposes;

“class B survey” means a survey that is situated in an area other than those under a class A survey;

“compiled plan” means a plan prepared from approved survey plans and records;

“easy to hilly country” means land which is level or which has an average surface slope of not more than 15 degrees;

“EDM” means Electronic Distance Measurement;

“FMG” means Fiji Map Grid;

“general requisition” means the referral of a plan to a surveyor under regulation 12;

“GNSS” means Global Navigation Satellite System which is a satellite based system used to determine the ground position of an object;

“inspecting surveyor” means a surveyor authorised under regulation 6(3);

“interference” in relation to a survey mark means to disturb, damage, remove or destroy the survey mark;

“plan” means any survey plan or compiled plan made in accordance with the Act and these Regulations;

“proforma” means a form approved by the Surveyor-General and is used to verify compliance of a survey plan with the requirements of these Regulations;

“record” means—

- (a) a documentary record;
- (b) a record made by a photographic or an electronic, electro-magnetic or optical process; or
- (c) any other kind of record;

“rough country” means land which has an average surface slope of more than 15 degrees;

“supervision” means the direct personal oversight by the responsible surveyor of the planning and execution of a survey, including the method of measurement and placement of a survey mark, the preparation of the survey plan and the examination of evidence of the limits of ownership relied on in fixation of an existing boundary;

“survey” means a measurement or delineation of land authorised or required under any written law relating to or affecting title to land whether the title is in fee simple or any lesser interest;

“surveyor” means a person registered as a surveyor in accordance with this Act;

“survey plan” means a plan, survey system information or tenure system information, or a combination of any of those things, created for the purposes of or pursuant to an enactment relating to or affecting title to or interests in land, whether State land, iTaukei land, Rotuman land, Banaban land, land held in fee simple or land held under some other tenure;

“survey system information” means information derived from or in relation to survey observations in cadastral surveys; and

“tenure system information” means the information necessary to enable the creation or transfer of interests under a tenure system.

## PART 2—SURVEYS

### *Surveys*

3.—(1) A survey must be executed by—

- (a) a surveyor; or
- (b) an authorised technician under the direction of a surveyor.

(2) A surveyor under whose direction a survey is executed must not employ a technician to execute a survey without prior authorisation of the Surveyor-General.

(3) A survey must be carried out with equipment and by methods that will readily attain the standards of accuracy prescribed by these Regulations or any directions issued by the Surveyor-General.

### *Survey plans*

4.—(1) A survey plan must bear the printed name and signature of the surveyor executing a survey or under whose direction a survey is executed.

(2) The surveyor whose signature appears on the survey plan is responsible for and must supervise the conduct of the survey.

*Lodgement of survey plans*

5.—(1) Upon completion of a survey, the responsible surveyor must lodge a survey plan made by him or her or under his or her direction with the Registrar of Titles or Surveyor-General within 6 months from the date of completion of the survey for the purpose of assessment and approval.

(2) Notwithstanding subregulation (1), a surveyor may lodge a survey plan with the Registrar of Titles or the Surveyor-General, as the case may be, after 6 months from the date of completion of a survey in exceptional circumstances provided prior notification is given to the Surveyor-General and the Surveyor-General has given approval upon consideration of the particular circumstance.

(3) If a survey plan is not intended to be registered, it must be lodged with the Surveyor-General within 6 months from the date of completion of the survey for survey information only.

(4) When lodging a survey plan with the Surveyor-General, the responsible surveyor must submit the survey plan together with a proforma, signed and declared by the surveyor attesting that all necessary checks required under the proforma have been completed.

(5) The Surveyor-General may reject a survey plan if it is not lodged with the declaration signed by the responsible surveyor concerning proforma checks or if the requirements in the proforma are not complied with.

*Requirements for lodgement*

6.—(1) When lodging a survey plan with the Surveyor-General, the responsible surveyor must submit the survey plan together with a proforma, signed and declared by the surveyor attesting that all necessary checks required under the proforma have been completed.

(2) The Surveyor-General may reject a survey plan if it is not lodged with the declaration signed by the responsible surveyor concerning proforma checks or if the requirements in the proforma are not complied with.

(3) The Surveyor-General may appoint an inspecting surveyor who must be an experienced surveyor to check any approved or yet to be approved survey plan to ensure compliance with the Act and these Regulations.

(4) If a compliance check requires a correction or amendment to be made to a survey plan to bring the survey plan into compliance with these Regulations, the responsible surveyor must incur the full cost of the inspection, including the cost of any correction or amendment to be made on the survey plan.

(5) A survey plan must not be accepted as an official record of a survey unless the survey plan has been approved by the Surveyor-General.

(6) The Surveyor-General must lay down on general maps of the various islands of Fiji the position and boundaries of the lands represented in the survey plan.

(7) All survey reports submitted with survey plans must be made in the format provided for in Annex C of Schedule 2.

*Survey plans the property of the State*

7.—(1) All plans received by the Surveyor-General from a surveyor or other person for examination are deemed to be held on behalf of the responsible surveyor until approved by the Surveyor-General.

(2) The responsible surveyor must notify the Surveyor-General if he or she has reason to believe that the Surveyor-General's consideration of the survey plan is to be withheld and the Surveyor-General may, upon receipt of a request from the responsible surveyor, delay the approval of a survey that has already been lodged, as he or she deems fit. ,

(3) Once approved by the Surveyor-General, a survey plan becomes the property of the State.

(4) The Surveyor-General may amend an approved survey plan and any such amendment to the survey plan must be made—

- (a) at the office of the Surveyor-General; and
- (b) in red ink bearing the signature of the Surveyor-General certifying the amendment.

*Examination of survey plans*

8. Where a survey plan is submitted to the Surveyor-General or the Registrar of Titles for examination, an examination fee of \$100 (VEP) per plan and \$100 (VEP) per lot must be charged unless otherwise prescribed by the Surveyor-General.

## PART 3—GENERAL PRACTICE AND PROCEDURE

*Duties of surveyor*

9.—(1) A surveyor must, when making a survey to which these Regulations apply, have regard to the responsibilities of the State which may arise in consequence of any wrongful or inaccurate survey.

(2) A surveyor must at all times apply such checks and tests to his or her work as may be necessary to comply with the standards in these Regulations.

(3) A surveyor must search for all old marks necessary to prove the accuracy of a survey and, after having found such old marks, must connect the survey to them.

(4) A surveyor must provide to the Surveyor-General all information obtained by him or her relating to the survey.

(5) A surveyor must report to the Surveyor-General any interference, or the likelihood of any interference, to trigonometrical stations or control survey marks, and the surveyors engaged on Government work must renew or repair any such stations and marks or report their inability to do so.

*Compliance with good survey practice*

10. A surveyor must comply with good survey practice including the provisions of the Surveyors (Code of Ethics) Regulations 2007 and any directions as may be issued by the Surveyor-General.

*Compliance with Surveyor-General's requisition*

11.—(1) The Surveyor-General may issue a requisition in respect of a survey plan to—

- (a) amend a survey plan; or
- (b) supply information concerning a survey plan which is not contained in the field notes or on the survey plan.

(2) Upon receipt of a requisition, the surveyor must attend to and return such requisition promptly within 3 months from the date of requisition.

(3) Where a surveyor is not able to return a requisition within the prescribed time, the surveyor may apply to the Surveyor-General for an extension of time to do so.

(4) An application for an extension of time must—

- (a) be in writing;
- (b) set out the reasons for the delay; and
- (c) suggest a time within which the requisition is to be returned.

(5) The Surveyor-General must, as soon as reasonably practicable, determine the application including—

- (a) an acceptable timeframe within which the requisition is to be returned; and
- (b) such other conditions as the Surveyor-General requires.

(6) Where an approved survey is to be amended under a requisition, all erroneous markings must be removed, obliterated or defaced by the responsible surveyor.

(7) Where a surveyor's work is in error or not in accordance with these Regulations, even after a plan is approved, the surveyor must rectify such error or default, or may be charged with the cost of rectification.

(8) The Surveyor-General may recover the cost of rectification of a survey work from the responsible surveyor who fails or neglects to amend his or her survey work, as required under a requisition in subregulation (1).

*General requisition*

12.—(1) Upon examination, if a survey plan has 15 or more errors, it must be returned on general requisition.

(2) Full examination fees apply for all survey plans returned on general requisition and the survey plans must be re-drawn after such examination.

*Field notes*

13.—(1) The field notes of a survey must—

- (a) contain a record of all observations and measurements made by the surveyor and of the marks found or placed by the surveyor, including diagrams, for the purposes of these Regulations;
- (b) record the type of all survey equipment used for the survey, including the make, model, and serial number of the equipment, the calibration factor and date of calibration;

- (c) be neatly and clearly recorded in black pencil in such a way that a surveyor or a competent draftsman may draw a correct plan of the survey;
- (d) on the first page, must show the title of the survey, with particulars of the district, block, town or such other reference as must sufficiently identify the land surveyed, the date of commencing the survey and the signature of the surveyor; and
- (e) on each page, be initialled by the surveyor and dated.

(2) The original pencil notes must not be obliterated, inked over or erased and every alteration made by the surveyor must be clearly written and erroneous entries must be clearly crossed out.

(3) The reduced FMG bearing and final reduced distances including all corrections applied to the bearings and distance must be clearly shown in the field notes.

(4) Peg numbering on a survey plan must agree with those in the field notes and all traverse pegs occupied must be numbered.

(5) Original field notes of all surveys including diagrams from electronic field books must be submitted on A4 size paper upon request of the Surveyor-General.

#### *Distance*

14.—(1) All distances must be expressed in metres and decimal fractions of a metre on a survey plan.

(2) The distances expressed in a survey plan is final record once lodged under regulation 5, and any amendments to the distance recorded must be made in accordance with regulation 11.

(3) The necessary corrections must be applied to the measured distance and the final horizontal distance at sea level shown in the field notes.

(4) With the use of EDM, vertical angles and a minimum of 2 slope distances, one on each face and a third, the horizontal distance as a check, should be recorded in the field notes.

(5) Measured distances must be reduced using the Mean Sea Level Formula where appropriate and all calculations must be provided.

#### *Bearings*

15.—(1) Bearings must be measured in degrees, minutes and seconds of arc in sexagesimal measurements, commencing at 00, the north point of the standard meridian of the initial station, and then through east, south and west in that order, returning to the north point at 360°.

(2) Bearings for all surveys must be measured with a theodolite, total stations or any other equipment approved by the Surveyor-General.

(3) Any correction to the origin and closure must be applied and any deduced bearing must be shown in the field notes.



(4) For the purposes of computation and recording on plans the deduced bearings may be rounded off as follows—

Class of survey	Length of line	May be rounded off to nearest
A	up to 100 m	0°01'00"
A	over 100 m	0°00'30"
B	up to 200 m	0°01'00"
B	over 200 m	0°00'30"

*Origin of coordination and bearings*

16.—(1) Subject to subregulation (2), the origin of coordination and bearings must be obtained from—

- (a) the national triangulation or control survey system; or
- (b) surveys approved under the Surveyor Regulations 1980.

(2) If it is impracticable to carry out the methods mentioned in subregulation (1), the origin of bearings may be obtained from at least 2 independent stellar, solar or 3 GNSS observations where the full details of these observations must be provided.

(3) Calculation sheets are to be provided if not computed electronically.

(4) The reliability of any 2 marks for the purposes of these Regulations must be provided by checking their agreement with a third approved mark, preferably not on the same line.

(5) The origin of bearings may be based from calculated data.

(6) Subject to subregulations (1), (2) and (3), any of the following methods of survey is acceptable—

- (a) direct traverse;
- (b) resection from at least 3 favourably situated control survey stations that are part of a reliable control system with at least 3 sets of observations and with at least one independent check; or
- (c) by GNSS as per regulation 19, with the approval of the Surveyor-General.

*Check bearings*

17.—(1) Where a traverse through dense bush consists of more than 20 lines—

- (a) check bearings must be observed to traverse stations from a well-established point;
- (b) the number of stations between the check bearings referred to in paragraph (a) must depend upon the nature of the country and length of the traverse lines but check bearings must be observed at approximately every 20th station where the lines are on the average not more than 100 metres;
- (c) where lines are on the average more than 100 metres in length or where, due to the nature of the country, difficulty is experienced in obtaining accurate angular observations of the traverse lines, a check bearing must be observed at approximately every 10th station;

- (d) stellar or solar azimuths may be used for checking purposes when other means are impracticable; and
- (e) GNSS may also be used to provide independent orientation of every GNSS-observed line.

(2) Where lines exceed 2000 metres in length, check bearings must be applied to the stations at both ends of the lines.

(3) In country other than bush, check bearings must be observed to approximately every 10th station except where lines average more than 200 metres in length, in which case check bearings must be observed at stations not more than 2000 metres apart.

(4) The nature and location of check bearings must always depend upon the circumstances of the particular case and must be governed by the nature of the country, the length of the lines and the visibility at the time of observation.

*Angular and linear errors*

18.—(1) The bearing of any line shown on the plan must not differ from the approved bearing, in terms of the origin of bearings of the survey, by more than the following limits of error—

Class of Survey	Length of Line	By not more than
A	Up to 200 m	0°01'00"
A	Over 200 m	0°00'30"
B	Up to 200 m	0°02'00"
B	Over 200 m	0°01'00"

(2) The maximum limits of misclose must be—

Urban	1 minute
Rural	3 minutes

(3) The length of any line shown on the plan must not differ from its true length in terms of the official standard of length by more than the following limits of error—

- (a) class A survey: 0.01 m plus 0.001 m for each 10 m;
- (b) class B survey: 0.02 m plus 0.002 m for each 10 m.

(4) Measurements must be rounded off—

- (a) in the case of class A surveys normally to 0.01 m but where in the opinion of the surveyor a higher degree of precision is desirable because of land values or other relevant factors, measurements may be rounded off to 0.005 m; and
- (b) in the case of class B surveys to 0.01 m.

*GNSS cadastral surveys*

19. Only Dual Frequency GNSS Receivers may be used for cadastral surveys but must comply with the provisions and guidelines set out in Schedule 1.

*Traverse computations and closures*

20.—(1) The closure of the traverse on to well established marks, or with the original or initial point of the survey after completing the traverse circuit, must not exceed the following limits—

- (a) class A surveys ..... 1:8000;
- (b) class B surveys—
  - easy to hilly country ... 1: 5000
  - rough country ... 1: 3000.

(2) Notwithstanding subregulation (1), in cases where the traverse circuit comprises, in whole or in part, traverse or boundary lines adopted from prior surveys, the closing limits prescribed in this regulation may be increased by the Surveyor-General.

*Elimination of misclose*

21. In a new traverse forming a complete surround, or in traverse connecting 2 triangulation or control survey stations which traverses have been adjusted to conform to the geodetic triangulation, the closing error must be eliminated by applying the Bowditch Rule or Least Squares adjustment.

*Traverse sheets*

22.—(1) Where possible, adjusted traverse coordinate values of all main traverse stations and all boundary angle marks, together with the appropriate references to sources of the initial values used, must be tabulated on approved sheets to be lodged with the plan.

(2) The circuit for provision of coordinates will include all traverse and boundary pegs shown on the plan and the circuits must if possible, not be fragmented but consist of one continuous adjusted circuit.

(3) Values of points already coordinated are to be held.

(4) The adjusted coordinates of at least 3 major traverse points including the origin must be tabulated on the face of the survey plan.

(5) Grid cuts of 2 northings and 2 eastings must be shown on the face of the plan as well.

(6) The practice of showing easting coordinates first and northings second must also be adopted on all calculation sheets and survey plans.

(7) A survey that is less than one km or less than 2 abutting surveys away from a point already in FMG must be done in FMG.

(8) All survey plans must have bearings converted to FMG but where co-ordinates are not readily available, the plans may be submitted without FMG co-ordinates with the prior written approval of the Surveyor-General.

(9) The tolerance which must be met in checking the co-ordinates of a previously co-ordinated point, that is, the allowable misclose between the 2 surveys/measurements must not differ, in either a northerly or easterly direction, from the position of those marks as determined from their FMG coordinates or by using information shown on the survey plan by more than—

- (a) where the land surveyed is in an urban area, 0.25 metres; and
- (b) where the land surveyed is in a rural area, 0.50 metres.

*Boundaries to be marked*

23.—(1) Boundaries must be marked at every angle and where necessary at points on the boundary line in accordance with regulation 26.

(2) Straight boundary lines must be cleared where necessary and distinctly marked at intervals not exceeding 500 metres, which interval may be varied to suit the conformation of the country, and advantage must be taken of all prominent and favourable positions on the line for the markings so that the direction may be seen from mark to mark.

(3) Where a boundary of a portion crosses a tract of inaccessible country, the boundary must be surveyed and marked on either side of, and up to the inaccessible part.

(4) Marks must be established at the terminal points which must, when practicable, be connected by a traverse survey detouring the obstacle or by triangulation.

(5) If, owing to the nature of the ground or other causes, it is not possible to place the boundary mark upon the actual boundary, the mark must be placed as near as possible to the boundary, and references from the mark to the unmarked point to be shown.

(6) Where any of the boundaries of a land under survey coincide with previously surveyed lines or boundaries, such common boundaries must be redefined and sufficient evidence must be given on the plan that such boundaries are coincident with the originals.

(7) Where no marks of the original survey can be found, the surveyor must indicate that the boundaries and corners have been reinstated and correctly measured in relation to adjacent boundaries, fences, and ditches or to such other evidence of original occupation as may be found.

*Measurements to natural boundaries*

24.—(1) A natural boundary must be fixed at intervals close enough to delineate it accurately and to conform with regulation 31(5)(a)(ii) and regulation 31(5)(b)(ii)—

- (a) new boundaries intersecting or meeting a natural boundary must be line marked close to it; and
- (b) a plan depicting a natural boundary must indicate clearly its extent and nature—
  - (i) when a boundary follows a sea coast or a tidal river it must in all cases follow the high water mark; and
  - (ii) after a lapse of 10 years from the previous surveys, creek and river boundaries are to be re-surveyed, except where accretion and erosion are predominant, by which case the boundaries are to be re-surveyed at earlier intervals.

(2) Notwithstanding anything in subregulation (1), fixation of a natural boundary may be determined by tacheometric, photogrammetric or any other methods approved by the Surveyor-General.

(3) Field notes and data required for these alternative methods must accompany the survey plan.

*Irregular boundaries*

25. Fresh water swamps are inadmissible as boundaries unless they are reduced to right lines.

*Boundary marks*

26.—(1) Boundary marks must be—

- (a) suitably reinforced concrete pegs not less than 50 centimetres long with a minimum cross section of 55 square centimetres, or galvanized iron pipes or iron rods 12 millimetres inside diameter and 500 millimetres long or angle iron pegs 500 millimetres in length; or
- (b) plastic or other suitable permanent material, approved by the Surveyor-General prior to the survey; and all marks are to be driven or set to protrude not more than 5 centimetres above ground level.

(2) Where the presence of rock, stone, concrete or other permanent material or structure makes it impossible to use any of the boundary marks specified in subregulation (1), a metal plug, bridge spike or plastic of a type approved by the Surveyor-General must be used, grouted if necessary into the base material to ensure stability and a broad arrow cut to indicate the mark, the height of which above ground level must be shown on the plan.

(3) Notwithstanding anything in subregulations (1) and (2), where a boundary corner or boundary line falls on a permanent structure or other obstacle in such a manner that it is not possible to use any of the marks prescribed in this regulation, the exact position of the structure or obstacle must be defined by survey, and the relationship between the structure or obstacle and the boundary corner or the boundary line must be clearly shown on the plan of the survey together with the age and description of the structure or obstacle.

(4) Notwithstanding anything in subregulations (1), (2) and (3), permanence and stability must be the main considerations in the marking of any boundary and where necessary the length of any driven mark must be increased accordingly.

(5) Pegs found “disturbed” or “unreliable” are to be identified as such.

(6) A new peg is to be placed in the correct position and the relationship between the new peg and the peg found out of position is to be shown on the plan. For points shown as “not marked” show an IP symbol with notation “not marked” or “N/M”.

*Curved boundaries*

27. Boundaries defined by curves must be marked on the ground by pegs or other accepted marks on the curve in such manner that the offset from the middle of the chord between adjacent ground marks must not exceed 0.4 metres nor must those ground marks be at greater intervals than 20 metres apart, but in every case a curve must be marked by at least one peg or mark in addition to the pegs or marks at the tangent points.

*Connections to marks indicating iTaukei tribal boundaries*

28.—(1) Connections must be observed and measured to mounds, cairns or other marks indicating surveyed iTaukei tribal boundaries situated within or reasonably near to the boundaries of the land being surveyed.

(2) The type of mound found together with the name, if available is to be shown.

(3) All new surveys of portions which are detached from portions already surveyed, or distant from the main traverse marks or trigonometrical stations, must be connected thereto by a closed traverse which must be shown on the plan together with a computed direct bearing and distance between the principal connected points, provided that it must not be necessary to make any traverse connection exceeding 800 metres in direct distance if the new survey is for an area not exceeding 10 hectares, or exceeding 1200 metres in direct distance in the case of an area exceeding 10 hectares.

(4) If the new portion is situated at such a distance from previously established survey marks, as to be beyond the limits laid down in subregulation (2), a note must accompany the plan describing the situation of the portion so that it may be approximately indicated on a map.

*Traverse and witness marks*

29.—(1) All traverse and witness marks must be placed in positions that are as safe as possible from foreseeable disturbance and must normally be driven below ground level.

(2) Where there is any risk of disturbance or destruction by cultivation, road formation, road maintenance or malicious interference, marks must be driven as deep as is considered necessary for reasonable preservation.

(3) The depth of any such mark driven deeper than 30 centimetres must be shown in the field notes and on the plan.

(4) Traverse and witness marks must be so located and driven that they cannot be mistaken for boundary marks.

*Permanent reference marks*

30.—(1) All surveys must be connected to at least 3 permanent reference marks.

(2) In this regulation, “permanent reference mark” means any of the following—

- (a) a trigonometrical station;
- (b) a standard survey block or control survey marks;
- (c) a galvanized iron pipe or iron rod of not less than 12 mm inside diameter driven at least 100 mm below ground level, of sufficient stability to guarantee permanence and where possible set in concrete;
- (d) a metal or plastic mark of a type approved by the Surveyor-General prior to the survey, securely set or grouted into rock or into a permanent structure; or
- (e) such other mark as the Surveyor-General must designate from time to time.

(3) Permanent reference marks must be placed where practicable on traverse lines not more than 1000 metres apart, in positions free from disturbance, and a permanent reference mark may serve as a traverse mark or witness mark but not as a boundary mark but wherever practicable permanent reference marks must be so sited that adjoining marks are permanently intervisible.

(4) Notwithstanding anything in subregulations (1) to (3), permanent reference marks must be sited and established to ensure the greatest stability, permanence and convenience for future reference.

(5) Permanent reference marks may be sited and established on road formation including footpath if—

- (a) freedom interference or destruction can be reasonably inferred; and
- (b) such positions are clear of underground services or road or footpath maintenance.

*Hanging traverse*

31.—(1) A hanging traverse must not consist of more than one line which must not exceed 40 metres in length when using measuring bands and 125 metres when using EDM.

(2) Independent measurements to check bearing and distance must be recorded in the field notes.

(3) When using EDM, slope and horizontal distance must be observed on both faces and recorded.

(4) Independent measurements to check bearing and distance must be recorded in the field notes.

(5) In a—

(a) class A survey—

- (i) a boundary mark or boundary angle must be no further than 125 m from the witness mark to which it is connected; and
- (ii) a point at which a natural boundary mark is fixed must be no further than 250 m from the witness mark at which it is connected; and

(b) class B survey—

- (i) a boundary mark or boundary angle must be no further than 250 m from the witness mark to which it is connected; and
- (ii) a point at which a natural boundary mark is fixed must be no further than 500 m from the witness mark at which it is connected.

*Computation of angles and azimuths*

32. Where connecting triangles or resections have been determined astronomically, the necessary field observations data must be provided and computations must accompany the plan.

*Computation of areas*

33.—(1) Areas of parcels of land must be entirely mathematically computed except where the area is bounded by irregular lines, or a large number of sides in which case a planimeter may be used to obtain the areas of small parts if at least 80 per cent of the total area of a parcel is computed mathematically.

(2) All final areas are to be unadjusted areas and shown as such on the plan.

(3) Areas of parcels—

- (a) less than one hectare (or 10,000 m<sup>2</sup>), must be shown in square metres (m<sup>2</sup>) and decimal fractions of a square metre resulting from the computation of an area, must not be shown, but in all cases areas must be rounded down; and

- (b) larger than one hectare (or 10,000 m<sup>2</sup>), must be shown in hectares (ha), normally to 4 decimal places of a hectare, although for computation purposes a tolerance of  $\pm 1$  part in 1000 will be acceptable, and areas may be rounded down within this tolerance.

(4) After accurately computing the exact areas in subregulations (1) and (2), modifications with regard to fractional quantities, as specified hereunder, must be made—

- (a) in portions not exceeding 4 hectares; if bounded partially by natural features, record to the nearest 0.0025 hectare;
- (b) in portions from 4 hectares but not exceeding 40 hectares; if bounded partially by natural features, record to the nearest 0.05 hectare;
- (c) in portions from 40 hectares but not exceeding 200 hectares, if bounded partially by natural features, record to the nearest 0.1 hectare; and
- (d) in portions exceeding 200 hectares; if bounded partially by natural features record to the nearest 0.25 hectare.

*Drawing of survey plans*

34.—(1) All survey plans must be drawn to scale and plotted in their true positions.

(2) Two grid cuts in easting and northing must be shown with co-ordinates to the nearest 100 metres.

(3) The direction of the flow of water in rivers, creeks and drains must be indicated on each plan by an arrow.

(4) Houses, fences and other improvements within 2 metres of the boundary lines must be located and shown on each plan.

(5) Each plan must show the name, plan number and lot number of any abutting portion of land, as well as the points of the intercepts of the boundaries of any such abutting portion of land and one or more lines of any intercepting boundary.

(6) Notwithstanding any of the foregoing, all plans must be drawn and presented in accordance with the directions given in Schedule 2.

*Survey equipment calibration*

35.—(1) Any survey equipment used for measuring must be calibrated annually and a certificate must be issued in respect of such annual calibration.

(2) Initial calibration must be free of charge after which an annual fee of \$100 (VEP) per instrument is payable.

(3) All survey plans must be accompanied by a copy of the current certificate of calibration of survey equipment used in the survey when lodging for plan examination and approval.

*Measurements*

36.—(1) The reduced measurements determined in accordance with regulation 14 must be shown on the plans, notwithstanding that those measurements may not agree with those previously recorded.



(2) Where the definite location of a boundary is indeterminate owing to the absence of evidence supplied by approved surveys or undisputed occupation of the requisite age, sufficient measurements must be made without encroaching upon adjoining titles.

*Mining plans*

37. The regulations for the time being in force under the provisions of the Mining Act 1965 must, in so far as such regulations apply to surveys to be made for the purposes of that Act, be deemed to be incorporated in these Regulations and must be read and construed *mutatis mutandis* as part of these Regulations.

*Redefinition surveys*

38. Where a surveyor carries out a survey that does not require a plan of subdivision, a survey plan together with the copy of field notes defining the boundary being resurveyed must, within 3 months after placement of boundary marks, be forwarded to the Surveyor-General for approval.

*Roads*

39.—(1) Particular attention must be paid to the reservation of ample access roads, not only to any portion surveyed but through it, or along the boundaries thereof, to back lands or where such lands do not have any access.

(2) On any road, a traverse must be run and permanently marked along the one side or at an offset distance within the road reserve.

(3) A road reserve must be permanently marked on both sides at every road angle and boundary intersection, and if such road has been properly formed for traffic, the road reserve must include the whole of the road formation or as stipulated by the Director of Town and Country Planning.

(4) Any access road in State and iTaukei land survey must be surveyed as a separate lot and shown as an access road.

(5) In rough and mountainous terrain where the alignment is subject to change, the access road may be shown as a broken line with the area excluded from the lot.

(6) Any access road in a freehold survey should be surveyed as part of the lots with the relevant “Memorandum of Access Easement” shown in the “Notes and Purpose” column of the Title Plan.

(7) The limits of such access road should be clarified by use of alphabets on the face of the Title Plan and on the “Memorandum” column.

(8) Where reservation for road follows the boundaries of a portion, such boundaries must be measured and marked so as to exclude the road reservation.

(9) The bearings and distances at the angle points of surveyed roads must be measured, marked and shown on the plan.

*Trigonometrical station reserves*

40. When conducting a cadastral survey on or near a trigonometrical station, a surveyor must create a reserve of 20 metre radius from the centre of the trigonometrical station.

PART 4—MISCELLANEOUS

*Minister may amend schedules*

41. The Minister may by notice in the Gazette amend the schedules to these Regulations upon recommendation of the Surveyor-General or where he or she deems necessary.

*Revocation and transitional*

42.—(1) The Surveyors Regulations 1980 is revoked.

(2) All survey matters and proceedings commenced under the Surveyors Regulations 1980 and pending as at the commencement of these Regulations continue in force under these Regulations until varied, altered or revoked in accordance with these Regulations.

Made this 14th day of October 2021.

J. USAMATE  
Minister for Lands and Mineral Resources

SCHEDULE 1  
(Regulation 19)

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**Contents**

1. Introduction
2. Surveys
  - 2.1 Calibration of Equipment
  - 2.2 Origins
  - 2.3 Good Survey Practice
3. General Provisions
  - 3.1 Connection to Witness Marks
  - 3.2 Information Must Be Enough to Fix Boundaries and Marks
4. Measurements
  - 4.1 Distances and Bearings
  - 4.2 Heights
5. Accuracy, Tolerances, Misclosures and Areas
  - 5.1 Prescribed Standard of Accuracy for Vectors
  - 5.2 Misclosures
6. Form and Formatting of Plans and Other Information
  - 6.1 Format and Content of Plans and Traverse Sheets
  - 6.2 Survey Report
    - 6.2.1 Description of the Survey
    - 6.2.2 List of Equipment Used
    - 6.2.3 Description of the GNSS Methods Employed
    - 6.2.4 Assessment of GNSS Data Quality
    - 6.2.5 Proof of Origin
    - 6.2.6 Presentation of Tabulated Data

GUIDELINES FOR GNSS CADASTRAL SURVEYS

**1. Introduction**

These provisions apply to the measurement of distances, bearings and coordinates in cadastral surveys under regulations 14, 15 and 16.

## 2. Surveys

### 2.1 Calibration of Equipment

GNSS equipment, software and procedures should be tested before general usage. This can be achieved by taking measurements and processing data over known baselines or a network of points. All observations must be carried out using dual frequency equipment.

Unlike EDM equipment, GNSS receivers cannot be calibrated for scale because the definition of scale is inherent in the satellites and orbit data. However, antennas and Tribrachs can be calibrated for centering errors.

Antenna centering errors are generally not significant when geodetic quality equipment (e.g. with microstrip antennae) is used for cadastral surveys. However, the Surveyor-General is entitled to request a calibration test if there is reason to doubt the GNSS Results, particularly those on short lines. Note however, such doubts are more likely to be the result of errors in a Tribrach or antennae pole bubble.

Note: Centering errors can be tested by setting up 2 receivers within a few metres of each other and periodically rotating one of the antennas by 90°. The observing time for each position should be longer than the usual field observation time so as to minimise the impact of the multipath errors which otherwise may lead to an apparent centering error where none exists. A baseline should be calculated for each position.

If the baselines vary by a few millimetres, then the centering error may be ignored for cadastral survey. Variations greater than 5 millimetres will require further investigation, particularly if the pattern of results matches the rotation of the antenna. Antenna offsets may also be present when mixing different antenna types; this may be tested by measuring a line of few metres with GNSS and comparing the results with a direct EDM or taped measurement of the line between the antennae.

### 2.2 Origins

A survey must be connected to at least 3 existing approved survey marks adequate to prove its reliability, orientation and scale.

GNSS observations can be made directly between 3 or more appropriate existing survey marks to prove the origin in the conventional manner, e.g. by comparing bearing and distances between origin marks.

Alternatively, where a base station is used outside the area of the survey, 3 or more appropriate existing survey marks in the area of the survey need to be tied to the base station. A transformation of the GNSS data to the local coordinate system of the origin marks may be required. The transformed data must then be used to prove the origin of the survey in terms of the Regulations, e.g. by calculating the GNSS joins between the origin marks and comparing with the bearing and distances between origin marks.

### 2.3 Good Survey Practice

GNSS provides the ability to operate over greater distances than with conventional equipment. Often base stations outside the area of the survey can be employed. All GNSS surveys must be undertaken in accordance with accepted good survey practices as follows—

- (i) ambiguity in initialization errors;
  - (ii) the effects of multipath;
  - (iii) interference from electrical disturbances such as substations, microwave or other spurious radio signals;
  - (iv) poor satellite geometry due to satellite configuration and/or sky coverage obstructions;
- (d) all marks should be annotated with a unique identifier. This is particularly important where data is tabulated on the plan or traverse sheets.  
Note if boundary marks are not being tabulated, unique identifiers are not essential;
- (e) all GNSS observations are to be checked by independent observations from another independent base station except where the Surveyor-General may allow re-measurement of the same vector as a check. Where re-measurement of the same vector is carried out, observations are to be made at a different time (at least 30 minutes after the first observation) to enable satellite geometry to change and thus ensure that any multipath errors will be detected. Where vectors are re-measured, proof that no transaction errors have occurred on the plan must be provided.  
Note: satellite geometry replicates itself approximately every 23 hours, 56 minutes, therefore, multiples of 23 hours, 56 minutes should be avoided.

## 3. General Provisions

### 3.1 Connection to Traverse Marks

GNSS observations from an independent base station can be used to connect survey or boundary marks to traverse marks. The boundary-traverse mark connection can be calculated from the independent GNSS observations. Such

observations must be independently checked to ensure compliance with the Regulations.

If there is no direct connection between a boundary mark and a traverse mark that lies within the distance of tolerance of regulation 18, then the calculated connection between the boundary and its traverse mark must be shown on the plan and annotated with “calc”.

### 3.2 Information must be enough to fix boundaries and marks

Sufficient GNSS information must be shown on the survey plan, and annotated “GNSS” to indicate the general method of survey.

To avoid cluttering plans with extensive line work, particularly where double ties have been used, tabulation of the data is recommended. This tabulation of the data must be shown on the survey plan except that check observations may be tabulated on a separate traverse sheet and ties to natural boundaries may be shown on a traverse sheet referenced on the plan.

Where a line is calculated between 2 GNSS points, it must be annotated “calc”.

Note: All GNSS data, except check observations and ties to natural boundaries must be shown either as GNSS or in tabular form on the survey plan. Depending on the length of GNSS vectors, bearings may need to be shown to the nearest second in order to comply with the accuracy requirements between the adjacent marks that have not been directly connected by observation, e.g. if adjacent marks have been independently surveyed from points many kilometres away.

## 4. Measurements

### 4.1 Distances and Bearings

GNSS vectors are to be supplied as bearings, and distances reduced to the ellipsoid of the survey datum, from the base station to points in the survey. For practical purposes this is the same as reduction of distances to sea level.

Where a new line is measured by GNSS it must be annotated “GNSS”. If all observations are made using GNSS, a note in the side panel indicating that all observations are GNSS can be used in place of annotating each line.

Note: The GNSS vector (bearing and distance) between 2 points determined from simultaneous GNSS observations at those points is regarded as the measured dimension.

Where bearings and distances are calculated (not observed) between points in the survey, they must be annotated as “calc”.

## 4.2 Heights

Where heights are to be shown on the plan, GNSS spheroidal heights must be transformed to an orthometric height datum acceptable to the Surveyor-General e.g. when heights are required for strata titles.

## 5. Accuracy, Tolerances, Misclosures, Areas

### 5.1 Prescribed standard of accuracy for vectors

The standards of accuracy for GNSS data must comply with regulations 18 and 20 of the Regulations. Sufficient redundant and check observations must be made to prove that the Regulations have been met.

### 5.2 Misclosures

Any misclosures must be computed by a standard method such as “Bowditch” or “Least Squares”.

### 5.3 Areas

Areas of parcels of land must be entirely mathematically computed except where the area is bounded by irregular lines, or a large number of sides in which case a planimeter may be used to obtain the areas of small parts if at least 80 per cent of the total area of a parcel is computed mathematically.

## 6. Form and Formatting of Plans and Other Information

### 6.1 Format and Content of Plans and Traverse Sheets

Where coordinates derived from GNSS observations are being shown, they must be provided as local circuit grid coordinates (e.g. E, N) and NOT as geocentric Cartesian coordinates (e.g. X, Y, Z) or geographic coordinates (e.g.  $\phi$ ,  $\alpha$ , h).

GNSS observations on a plan must be shown as the 2 dimension polar (horizontal) vector between survey marks, e.g. as a bearing and reduced spheroidal distance.

### 6.2 Survey Report

Under the Regulations, it is the surveyor’s responsibility to report on checks made, quality of results, and proof of compliance with the Regulations.

### 6.2.1 Description of the Survey

A description of the survey is to include where applicable—

- (a) a brief statement as to the purpose of the survey to enable the type of survey carried out to be put in context of the GNSS methodology used;
- (b) what observations were made (e.g. how were ties made to permanent reference marks, traverse marks and boundary marks. Were they direct GNSS vector measurements or were they calculated from GNSS observations);
- (c) how check observations were made (e.g. were they repeat observations of the same line or were observations from a different base station used to provide a fully independent measurement);
- (d) a description of precautions taken to identify and minimise the effects of multipath and of gross errors.

### 6.2.2 List of Equipment used

A list of the type and model of equipment used. This should also include information on any base station service that has been used.

### 6.2.3 Description of the GNSS Methods Employed

A description of the methods used must include as applicable—

- (a) the method of survey used e.g. static, rapid static, stop and go, kinematic, or real time kinematic (RTK);
- (b) the expected precision from the method of survey used. This may be provided by manufacturers, software providers, other survey literature or the surveyor's experience;
- (c) description of any specific parameters programmed into the receiver or used in the processing that would be likely to affect the result of the survey, e.g. use of tropospheric models;
- (d) for static observations, an indication of observation and session times;
- (e) the mode of operation, e.g. dual frequency observations, carrier phase, differential pseudo range, or carrier phase smooth GNSS;
- (f) tabulation of the observations used from any base stations;
- (g) description of the GNSS reduction techniques used, including the software used.

### 6.2.4 Assessment of GNSS Data Quality

This must be provided so that the appropriateness of the methodology used for the survey can be assessed. This may be provided by—



- (a) the repeatability of observations e.g. the maximum difference or standard deviation of repeated observations on each line;
- (b) a comparison of GNSS observations with underlying work;
- (c) summary of independent checks to verify quality assessment, e.g. loop closures or network analysis.

#### 6.2.5 Proof of Origin

Proof that an origin of the survey has been established in compliance with the Regulations (e.g. observation of 3 old marks).

#### 6.2.6 Presentation of Tabulated Data

Example of the Presentation of Tabulated GNSS Data on a Survey Plan.

<b>From (Base Station)</b>	<b>To</b>	<b>Bearing</b>	<b>Reduced Spheroidal Distance (m)</b>
OIT VII (DP2354)	IT II (DP2354)	11°29'30"	153.98
	OIT IV (DP2354)	23°41'30"	23.48
	Peg A (DP454)1)	54°057'20"	56.98
	ITVI(DP2354)	164°052'40"	12.42
	OIT VI (DP2354)	275°31'40"	128.87
	OIT V (DP 4541)	289°31'40"	77.34
17734 (DP983)	IT II (DP 2354)	23°45'26"	5623.43
	OIT IV (DP 2354)	23°48'20"	5632.14
	Peg A (DP4541)	24°21'43"	5734.46
	Peg B (DP4541)	26°40'31"	5689.73
	Peg C (DP4541)	31°13'18"	5543.54
	OIT V (DP 4541)	31°14'16"	5552.73

SCHEDULE 2  
(Regulations 6 and 34(6))

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SURVEY PLANS

1. Plans, Forms and Scales

- 1.1 All plans must be drawn in black on transparency medium and on drawing material approved by the Surveyor-General.
- 1.2 The size of the forms must be International Standards Organisation size A2.  
A2 size: 594 mm x 420 mm including 10 mm surrounding margin
- 1.3. Plans must be plotted on appropriate metric representative fraction scales that will suitably and clearly illustrate the details of the work. The scale must be shown in the appropriate panel on the plan. Where necessary intricate details must be shown by diagram.
- 1.4. Plans must be drawn to a standard acceptable to the Surveyor-General and must be drawn so as to be suitable for reproduction on microfilm, and for scanning.
- 1.5 Plans found to be incomplete or faulty or failing to achieve clarity of presentation may be rejected.
- 1.6 All work must be contained within the plan drawing area of the plan and must not extend into the surrounding margin.
- 1.7 Draughting of plans must be done with stencil or freehand showing the micro font style of lettering as indicated on Annex B or by Computer Aided Draughting (CAD).

2. Plan Drawings

- 2.1 Unless otherwise specified, 2 plans must be prepared of surveys executed.
- 2.2 One of the 2 plans mentioned above must be the survey plan which must show all survey traverses and adopted information that was used for the purposes of boundary definition, and boundary dimensions may be shown if detail permits.
- 2.3 The other plan must be the title plan which must show all areas and boundary dimensions, and all such other information and appellations that are necessary for the issuance of titles or leases.

### 3. Plan Details

#### 3.1 Lines on plans must be shown as follows—

- (a) all new survey traverse lines must be shown by a pecked line, i.e. -----  
--- 0.25 mm;
- (b) all boundary lines of parcels in the plans must be shown by a heavy line,  
i.e. ----- 0.7 mm;
- (c) lines that have been calculated or adopted and that are not boundary lines  
described at (b) must be shown as a fine line i.e. ----- 0.25 mm and  
must be annotated with the expression “Calc” or “Adpt”; and
- (d) relevant expressions of abbreviations and symbols must be shown on  
plans as indicated on Annexes A and B.

3.2 If boundary lines are adopted from prior surveys, it must not be necessary to show the traverse detail upon which those lines depend, but a reference to the plan from which the lines are adopted must be shown.

3.3 As far as practicable distances and bearings must be written close to the line with a minimum height of 2.5 mm.

3.4 The plan must show an area for each separate parcel of land shown on the plan. A lot area of the land being dealt with must be shown on the plan.

3.5 Buildings with their eaves or projecting portions butting on, overlapping, or closely approaching boundaries must be accurately fixed, and their position in relation to the boundary clearly specified and delineated on the survey plan. When the wall of the building or structure is erected on or adjoining a boundary, and that wall is used as a party wall or where party rights thereto have been created, the wall must be described as a party wall on the title plan, and the position of the boundary in relation to the wall must be shown by diagrams illustrating the height and width or any changes in the thickness of the wall. Fixes of the party wall must be shown on the survey plan. The position of the title boundary relative to the occupation must be accurately shown, and the nature, description, and age of the feature or occupation must be stated.

3.6 The legality of all roads and streets adjoining or within any area under survey must be determined and the names of those roads and streets, together with their nominal and formed widths, must be shown on the survey plan.

3.7 Notes may be added to a plan for the purpose of clarification and to reduce repetitive use of annotations.

3.8 The directions of the flow of water in rivers and creeks must be indicated on the plan by an arrow.

3.9 There must be shown upon all plans the names, plan number and registered title number of every abutting or adjacent portion, if any, as well as the points of the intercepts of the boundaries of any such abutting portion and one or more lines of every such intercepting boundary.

- 3.10 The plan must show clearly what the survey represents, and must show thereon the name of the land or estates, the Tikina and the Province and the island in which the portion is situated.
- 3.11 The title plan must be signed by the registered proprietor or other person affected, as the case may require, or by his or her lawfully authorised attorney or agent.
- 3.12 Reference to certificates of title must be shown for areas forming the subject of the survey.
- 3.13 The title plan must bear all consents and endorsements required under the provisions or any statute applicable to the survey, and all plans must be verified by the surveyor by a certificate to the effect that the surveys are correct and that the Surveyors Regulations 2021 have been complied with.



#### 4. Plotting

- 4.1 A north point must be shown on all plans.
- 4.2 All plans must be accurately plotted with the standard meridian parallel with the side of the plan form and the north point upwards; but in exceptional cases where it is necessary to make the best use of the form on account of the shape or layout of the survey side of the form, this angle is not to exceed 90°; and the north pointing must not be below a line parallel with the bottom edge of the form.
- 4.3 Where possible coordinate grid cuts must be shown towards the edge of the plan form together with the co-ordinate values for at least 2 meridians and 2 perpendiculars suitably spaced and origins of co-ordinates shown.

#### 5. Symbols for Survey Marks or Stations

- 5.1 Survey marks or stations must be represented on plans in black as follows—

	New	Adopted	Old Mark Found
(a) Iron rod, iron tube, iron spike or metal or plastic mark			
(b) A concrete peg			
(c) Standard survey mark or control station			
(d) A trigonometric station			

- (e) A solar or stellar obs. station 
- (f) NLC mound 

### 5.2 All plans must contain the following information—

- (a) all old marks must be annotated with mark and plan number;
- (b) all adopted marks or traverses must be annotated with the expression “ADPT” and must show the plan number;
- (c) such traverse marks must show the plan number;
- (d) traverse marks must show the type of mark placed and given a number;
- (e) the type and number of the control survey station must be noted against the symbol i.e. SS;
- (f) an old mark found and renewed must be shown by the symbol of the new mark, and the mark if replaced must be indicated in the notation;
- (g) all topographical features intersected by or adjacent to boundary lines must be shown on the plan. Local names, if any, of such features must be shown on the plan, due care being taken by the surveyors to ascertain and adhere to correct orthography;
- (h) in the case of any portion having a water course as a boundary, there must be written along each boundary line intercepting such water course, the total length of such boundary line measured successively from the edge of the water course, and from the traverse line, and from mark to mark marking such a boundary. The average width of the frontage water course must be indicated on the plan; and
- (i) in new rural surveys there must be noted upon all plans a concise description of the country and of the quality of the soil, and such plan must also show respective areas of flat, arable slopes and hill grazing land within the portion surveyed.

5.3 The correct iTaukei names for all iTaukei boundary marks must be shown on the plan.

## 6. Symbols

6.1 Symbols (in all cases written without full stops unless they terminate a sentence) are—

m	metre
ha	hectare
m <sup>2</sup>	square metre

Symbols are the same for singular and plural.

## 7. Conversion of Lengths

- 7.1 All length measurements must be in metres and decimals of a metre. This relates to distances, co-ordinates and heights. Most surveys, including urban and rural, must show measurements to 2 decimal places. Provision however, is made in the Surveyors Regulations 2021 for distances to be shown to 3 decimal places where in the opinion of the surveyor a higher degree of accuracy is required.

For conversion purposes the following exact factors must be used—

1 link equals 0.201168 metre - for ordinary survey work;

1 link equals 0.2011661195 metre - for converting co-ordinate values.

### EDM Distances

Most of the distances measured by EDM instruments are in metres and are in terms of the international metre. A factor of 1.000008973 is to be applied to all EDM distances before they are used in McCaw datum.

e.g. A line measured 600 m by E.D.M. will be  $600 \times 1.000008973 = 600.005\text{m}$  in terms of the McCaw datum.

1 foot equals 0.3048 m

1 yard equals 0.9144 m

Useful approximate conversion factors are—

5 lk equals 1 m approximately

100 lk equals 20 m approximately

## 7.2 Conversion Tables

It is recommended that the New Zealand Lands and Survey Department “Metric Conversion Tables for Land Surveyors” be used for conversion of Imperial units to Metric units for all the quantities occurring in land survey. These tables are available from the Department of Lands.

## 8. Angular Measurements

Angular measurements in degrees, minutes and seconds will continue to be used.

## 9. Conversion of Areas

- 9.1 Areas of parcels less than 1 hectare (ha) or 10,000 square metres (m<sup>2</sup>) must be shown in square metres (m<sup>2</sup>).

Areas of parcels 1 ha or 10,000 square metres (m<sup>2</sup>) and larger must be shown in hectares (ha)—

$$1 \text{ ha} = 10,000 \text{ m}^2$$

so that conversion from hectares to square metres merely involves moving the decimal point 4 places to the right.

Useful approximate conversion factors are—

$$\begin{array}{lcl} 5 \text{ ac} & = & 2 \text{ ha approximately} \\ 100 \text{ ac} & = & 40\frac{1}{2} \text{ ha approximately} \end{array}$$

## 10. Survey Tapes

10.1 Existing equipment may be used until it is required to be written off. Measurements made with non-metric equipment must be converted to metric units.

10.2 Sag tables at present in use are computed for a tension of 15 lbs (6.8 kg) and this tension must continue to be used.

## ANNEX A

### ABBREVIATIONS

Term	Abbreviation
ARC	A
AVENUE	AVE
AZIMUTH	AZ
BACK OF KERB	BK KB
BEARING	BRG
BENCH MARK	BM
BLOCK	BL
BOTTOM	BTM
BOUNDARY	BDY
BUILDING	BLDG
CALCULATED	CALC
CENTRE	CEN
CERTIFICATE OF TITLE	CT
CERTIFICATE OF TRANSFER	CTR

CHORD	C
CIRCLE	CLE
CLOSE	CL
CONCRETE	CONC
CONCRETE PEG	CP
CONTROL MARK	C MK
CORNER	COR
CREEK	CK
CRESCENT	CRES
CROWN GRANT	CG
CROWN LEASE	CL
DEALING	D
DECLARATION	DEC
DECLARED ROAD	DEC RD
DEDICATION	DDN
DEDUCTION	DEDN
DEPOSITED PLAN	DP
DIAGRAM	DIAG
DISTANCE	DIST
DISTURBED	DSTB
DRAINAGE	DRNGE
DRILL HOLE & WING	DH&W
DRIVE	DR
EARTH MOUND	EM
EASEMENT	EASMT
EDGE	ED
ELECTRIC	EL
ELECTRONIC DISTANCE MEASUREMENT	EDM
EXCLUDING	EXCL
FENCE	FCE
FENCE POST	FP
FIJI ROYAL GAZETTE	FRG
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FOUND	FD
FROM	FR




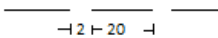
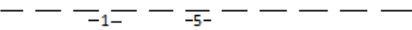
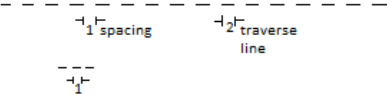
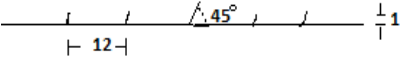
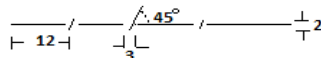
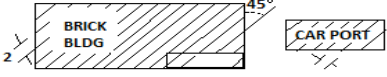
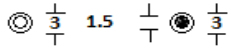
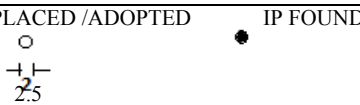
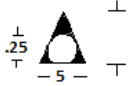
GARAGE	GAR
HECTARE	ha
HIGHWAY	HWY
HOUSE	HSE
HIGH WATER MARK	HWM
INCLUDING	INCL
IRON	I
IRON BOLT	IB
IRON NAIL	IN
IRON PIPE	IP
IRON ROD	IR
IRON ROOF	I ROOF
IRON SPIKE	IS
IRON TUBE	IT
iTAUKEI GRANT	IG
iTAUKEI LEASE	IL
KERB	KB
LOCATED	LOC
MANHOLE	MH
MARK	MK
MARKED	MKD
MOUND	MD
MOUNT	MT
NOT FOUND	NF
NOT MARKED	NM
NUMBER	NO.
OBSERVATION	OBS
OCCUPATION	OCC
ORIGINAL	ORIG
PARADE	PDE
PART	PT
PART OF	Pt. Of
PER ORIGINAL (PLAN)	PO
PLACE	PL
PLASTIC MARK	PM
PORTION	POR

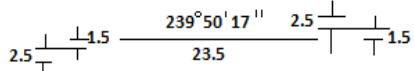
PROCLAMATION	PROC
PROCLAIMED ROAD	PROC RD
RADIAL	RAD
RADIUS	R
REFERENCE MARK	RM
REPLACED	REPL
RESERVE(D)	RES
RESUMPTION	RESM
RIVER	R
ROAD	RD
SECTION	SEC
SEWERAGE	SWGE
SQUARE METRES	m <sup>2</sup>
STANDARD SURVEY	SS
STREET	ST
STONE PEG	SP
STONE MOUND	SM
SURVEY OFFICE	SO
TANGENT POINT	TP
TERRACE	TCE
TRAVERSE	TRAV
TRIGONOMETRICAL	TRIG
VARIABLE WIDTH	VAR WIDTH
WOOD & IRON	W&I
WOODEN PEG	WP

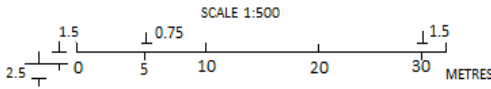
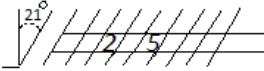
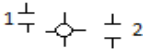

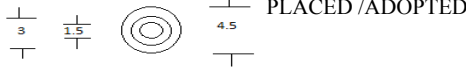
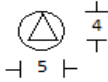
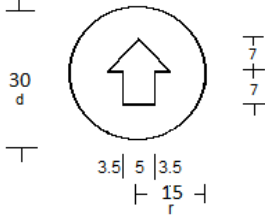
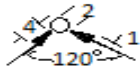

Note: Full stops should not be used

ANNEX B

LINEWORK AND SYMBOLS

DESCRIPTION		SYMBOLS, SPACING & DIMENSION IN MILLIMETRES	LINE WEIGHT (MM)
BOUNDARY LINE			0.7
KERB			0.25
EASEMENT BOUNDARY			0.25
CONNECTION			0.25
FENCE ON BOUNDARY			0.25
FENCE			0.25
IMPROVEMENTS			0.25
CONCRETE PEG CP PLACED/ADOPTED/FOUND			0.25
IRON ROD, IRON TUBE, IRON SPIKE OR METAL OR PLASTIC MARK			0.25
TRIG STATION	TANGENT POINT (NOT OTHERWISE MARKED)		0.25

BOUNDARY DETAILS		0.25
SUBJECT SECTION NUMBER	<b>44</b> $\frac{1}{10}$	1.0
BLOCK NUMBERS STREET NAME	<b>25</b> $\frac{1}{5}$ <b>LINE PL</b>	0.5
AREAS	$\frac{1}{4}$ <b>781 m<sup>2</sup></b> $\frac{1}{2}$ $\frac{1}{2}$	0.35
EASEMENT ACCESS RIVER BANK RESERVE	$\frac{1}{2}$ 1.5 $\frac{1}{2}$ $\frac{1}{2}$ 2.5 EL SPLY EASMT 15 WIDE	0.25
ROAD WIDTH PATHWAY & WIDTH RIVER & CREEK NAMES	$\frac{1}{2}$ 17.5 WIDE $\frac{1}{2}$ PATHWAY 3 WIDE $\frac{1}{2}$ REWA	0.25
IDENTIFICATION OF ABUTTING LAND SECTION NO. BLOCK D.P. STREET NAME	$\frac{1}{7}$ <b>39</b> $\frac{1}{4}$ $\frac{1}{7}$ $\frac{1}{4}$ DP3456 $\frac{1}{4}$ VANE ST $\frac{1}{4}$	0.35
LOTS TITLE NAME OF LAND PANEL 'A2' SIZE TIKINA PROVINCE ISLAND	$\frac{1}{2}$ 1-25 $\frac{1}{2}$ SARAVA	0.5
	$\frac{1}{2}$ NAKASALEKA $\frac{1}{2}$ KADAVU $\frac{1}{2}$ KADAVU	0.35

<p>BAR SCALE WITH REPRESENTATIVE FRACTION LINE WEIGHT</p>		<p>0.5 0.25</p>
<p>SLOPING FREEHAND NUMERALS MIN SLOPE 21°</p>		<p>0.25</p>
<p>NEW NLC MOUND AND ADOPTED</p>		<p>0.25</p>
<p>NLC MOUND FOUND</p>		<p>0.25</p>
<p>STANDARD SURVEY MAP OF CONTROL STATION</p>		<p>0.25</p>
<p>A SOLAR OR STELLAR OBSERVATION STATION</p>		<p>0.25</p>
<p>NORTH POINT</p>		<p>0.7</p>
<p>D H &amp; W</p>		<p>0.25</p>
<p>AMENDMENT D.P.</p>	<p>AMENDS DP ..... </p>	<p>0.35</p>

ANNEX C  
SURVEY REPORT

Pursuant to the Surveyors Regulations 2021, all survey reports submitted with the survey plans must conform to the following sub-headings.

1. PURPOSE OF SURVEY
2. DESCRIPTION & TYPE OF LAND SURVEYED
3. INSTRUMENTS USED AND DATE CALIBRATED
4. ORIGIN OF BEARINGS
  - Trigs
  - Old Surveys
  - Description thereof
  - Convergence applied (Tm to SM to FMG)
5. DATUM FOR SURVEY
  - Agreement or otherwise for marks found
  - Adoption made for old marks
  - Marks searched for and not found
  - Fixing of old boundaries and any differences to P.O etc  
(Occupation and fences)
6. FIXATION OF NEW BOUNDARIES
  - How achieved
  - Agreement or dispute between adjacent tenants
  - Outline disputes and how settled
  - Occupation and fences
7. ACCESS
  - Existing road centerlines adopted
  - How new road widths were determined
  - Continuation of existing roads
  - Any extraordinary access problems
8. RESERVES, EASEMENTS ETC
  - Creek, River, Foreshore, Drainage, Plantation, Sewer, Pipeline, Powerline,  
Access etc
  - How determined

9. MISCELLANEOUS

Anything out of the ordinary

Anything to assist later surveys etc

Planning requirements, Council Approval, Director Town & Country

Planning (DTCP), iTaukei Land Trust Board (TLTB), Director of Lands (DL)

10. DOCUMENTS ATTACHED TO THIS REPORT