

Saskatchewan Land Surveyors Association

Practical Surveying

April, 2022

Time Allowed: 3 hours

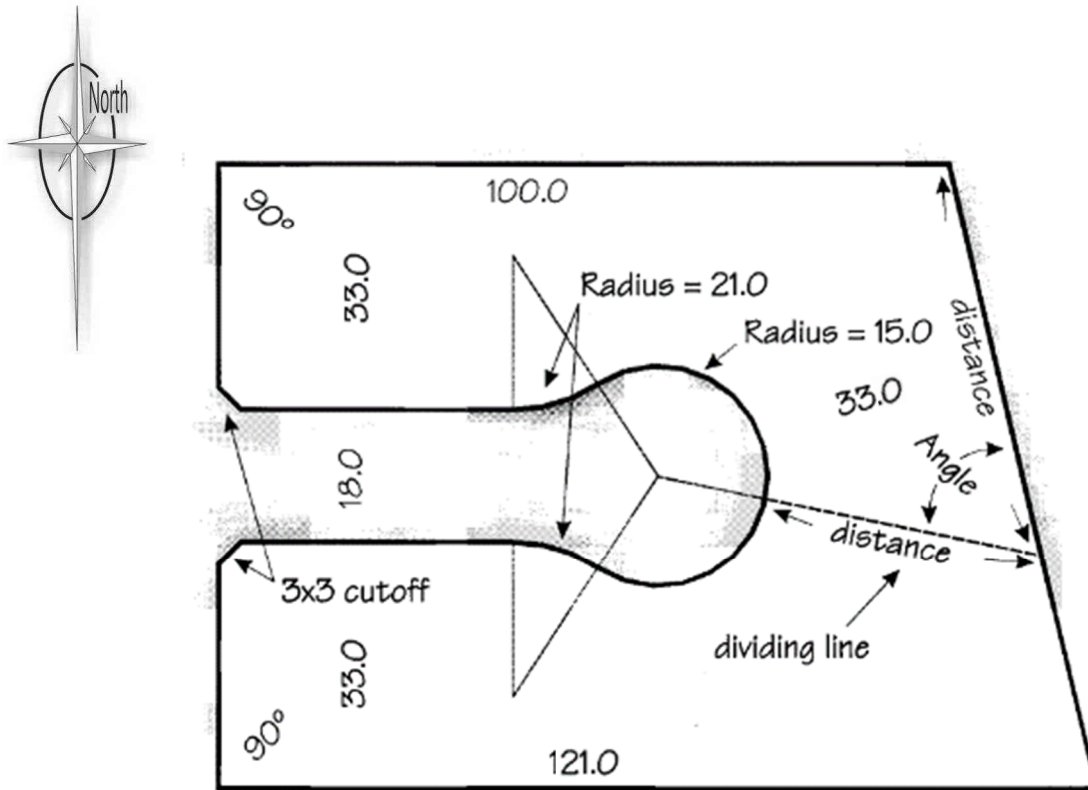
Instructions

- You may use any self contained calculator or computer.
- Partial marks may be awarded for incorrect answers if the solution process can be followed and is correct.
- Intermediate calculations are not necessary, but sketches and/or a brief description of geometric construction will show that you understand the problem and solution process.
- For traverses, a sketch showing the angular and linear input is all that is required. Showing coordinates is not required unless they form part of the answer.
- If the information appears vague, incomplete or incorrect and you make an assumption, state that assumption in your work.

Question 1

Your firm has been engaged to subdivide the parcel shown below. The landowner has requested the parcel be split into two equal areas. The dividing line is a radial line as shown, and the minimum depth of the parcel on the east side is 33.0 meters.

- 10 marks I) Calculate the total area of the parcel shown. Show your answer in Square meters and acres.
- 15 marks II) Calculate the two distances (to the nearest millimeter) and the angle of the subdividing line.



Question 2

Stewie Griffin wants to purchase the most easternly 30 Acres throughout the SW 16-22-1-W2Mer from the landowner Seth MacFarlane. Stewie has requested the west boundary of the parcel be parallel with the quarter line. The subdivision application has been approved by Community Planning and the field crew has found the information provided in Appendix A (listed below, i to iii)

i. Field Note Sketch

ii. Coordinate list derived from RTK GPS (local coordinates). Assume check measurements have been made

iii. Township Plat (Twp 22, Rge.1 W.2 Mer.)

- 10 marks I) The field crew has deemed the N $\frac{1}{4}$ 9 to be a Lost Monument and they have performed an exhaustive search of the area. Provide the local coordinates for the calculated position of the N $\frac{1}{4}$ 9.
- 15 marks II) Provide a sketch showing the interior angles and distances of the newly created parcel. Clearly indicate where monuments are to be placed on the sketch and their markings, if any.
- 10 marks III) The **Plan Preparation and Procedure Manual** constitutes instructions from the Controller of Surveys for the preparation and examination of plans. What does the manual say about 5-sided Quarters?

Question 3

Your firm has been engaged by the Rural Municipality to survey a road widening as shown within the line of approval below. Your initial survey has indicated Lost Monuments at the E. $\frac{1}{4}$ 4-53-27-W3Mer, NE 33-52-27-W3Mer, N. $\frac{1}{4}$ 33-52-27-W3Mer and the NE 34-52-27-W3Mer. The Field Notes Sketch shows the evidence in the area that was able to be found. Your research has revealed no recent surveys have been completed in the area and the only plans of record are the township plat and the Descriptive M&B Plan.

Using information provided in Appendix B (listed below, i to iv), answer the following questions.

- i. *Field Note Sketch*
- ii. *Coordinate list derived from RTK GPS (local coordinates). Assume check measurements have been made*
- iii. *Township Plat (Twp 53, Rge.27 W.3 Mer.)*
- iv. *Metes and Bounds Description*

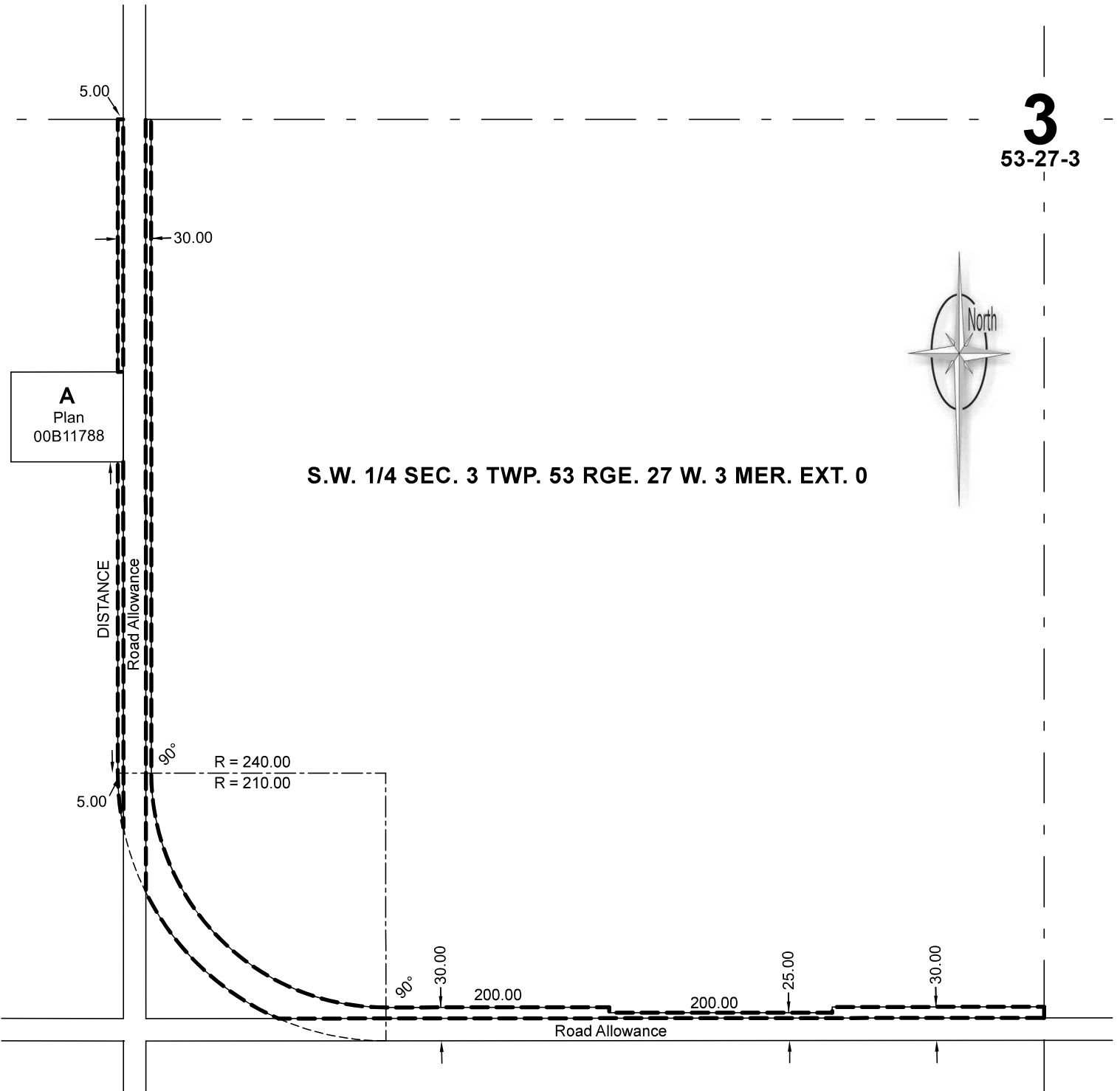
15 marks I) Provide coordinates, to three decimal places, to re-establish the Lost Monuments required by Section 29 of *The Land Surveys Act, 2000* in the course of this survey.

10 marks II) Calculate the distance required from the South boundary of the Descriptive M&B Plan to the beginning of the curve.

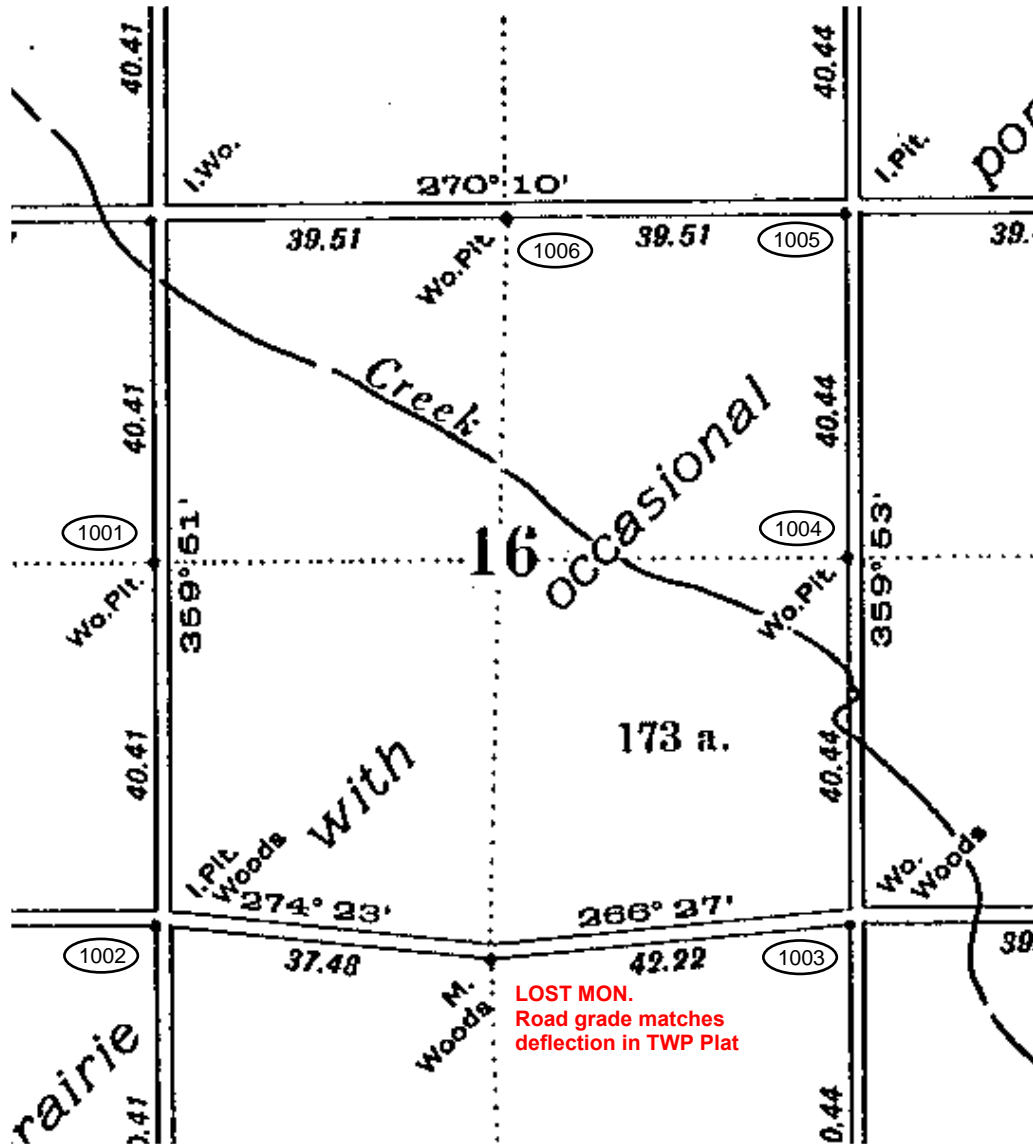
15 marks III) The Rural Municipality has requested that no widening be taken through the M&B parcel. Using the sketch provided, show the location of monuments to be placed in the course of this survey. Also indicate if any additional monuments are required to be found to complete this survey. Provide details for the sketch where needed for clarity.

Question 3

3
53-27-3



APPENDIX A - FIELD NOTE SKETCH AND COORDINATES



Point	Northing	Easting	Elevation	Feature Code
1001	10000.000	10000.000	425.251	F. Trace Wo. Center of 4 Good Pits - E1/4 17 - PL.I.P. Marked 1/4
1002	9160.730	10002.197	412.225	F.I.P. Pit. - VIII, XXII, I
1003	9152.888	11631.950	411.554	F.I.P. S003 - IX, XXII, I
1004	9996.423	11630.232	435.589	F.I.P. Pit. - S003 - 1/4
1005	10810.105	11628.299	422.556	F.I.P. Pit. - XVI, XXII, I
1006	10812.475	10833.508	409.547	F. Trace Wo. Center of 4 Good Pits - N1/4 16 - PL.I.P. Marked 1/4

APPENDIX A SASKATCHEWAN

Plan of Township 22, Range 1, West of the Second Meridian

FOURTH EDITION

SCALE 40 CHAINS TO AN INCH

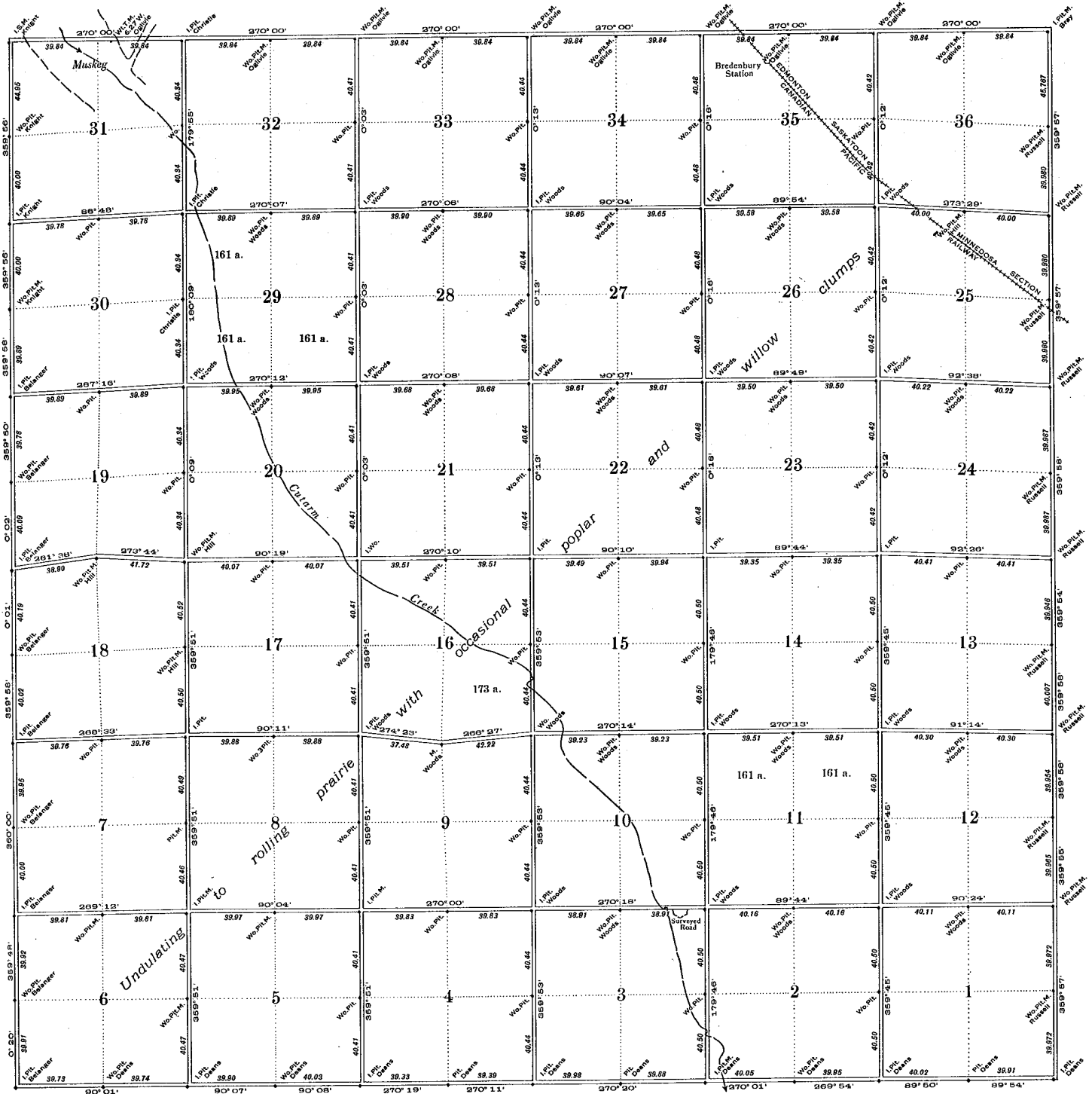


PHOTO-ZINCGRAPHED AT THE SURVEYOR GENERAL'S OFFICE, OTTAWA, CANADA

Compiled from official surveys by

A. I. Russell	D.L.S.	7th August	1876
W. Ogilvie	D.L.S.	19th June	1880
E. Bray	D.L.S.	12th August	1880
J. Hill	D.L.S.	11th August	1881
C. F. Miles	D.L.S.	2nd October	1890
J. E. Woods	D.L.S.	23rd May	1893
P. R. A. Belanger	D.L.S.	18th October	1902
R. H. Knight	D.L.S.	14th October	1904
W. J. Deans	D.L.S.	20th July	1907
R. B. McKay	D.L.S.	9th September	1920
F. C. Christie	S.L.S.	22nd May	1922

NOTE: Distances are in chains. Bearings are reckoned from the astronomical meridian through the centre of the township. Areas in acres are marked on all lands surveyed, except lands that have been patented. The name at a monument is that of the surveyor who erected, restored or reported the monument. All monuments not so designated were erected or restored by C. F. Miles.
 I. stands for old pattern iron post; Wo. for wooden post; Pit. for four pits; M. for mound; S. M. for stone mound; Wt. for witness; T. for trench.

Department of the Interior, Ottawa, 10th September, 1923

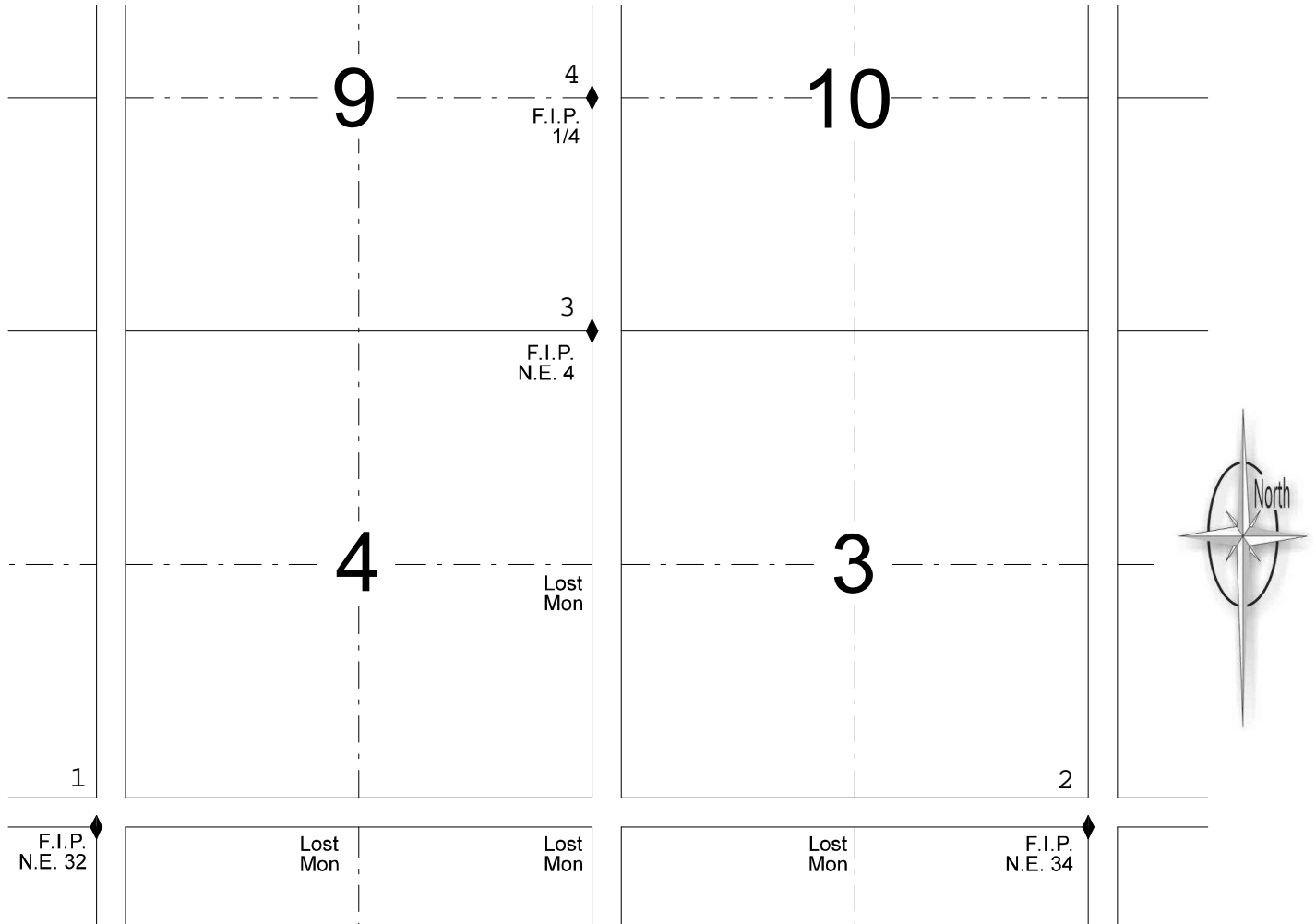
13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

Legal Subdivisions in a Section

Approved and Confirmed

J. Shanks
 For the Surveyor General

APPENDIX B - FIELD NOTE SKETCH AND COORDINATES



Point	Northing	Easting	Elevation	Feature Code
1	5000.000	5000.000	565.471	F.I.P. NE 32-52-27-3
2	5000.000	8259.189	568.425	F.I.P. NE 34-52-27-3
3	6629.765	6629.410	563.222	F.I.P. NE 4-53-27-3
4	7434.530	6629.144	561.147	F.I.P. E 9-53-27-3

APPENDIX B - METES AND BOUNDS DESCRIPTION



Government of
Saskatchewan
Battleford Land Titles Office

CERTIFICATE OF TITLE

RENEWAL

M.C.

No. 00B11788

Value \$

Grant No. Q 2430

Ref. MC 65

THIS IS TO CERTIFY that **THE COMPANY**

is now the owner of an estate in fee simple

of and in

All that portion of the South East Quarter of Section 4

Township 53

Range 27

West of the Third Meridian, Saskatchewan

described as follows: Commencing at a point on the Eastern boundary of the Quarter Section 11 chains and 25 links Southerly along the Eastern boundary from the North East corner of the Quarter Section; thence Westerly, 5 chains; thence Southerly parallel with the Eastern boundary of the Quarter Section 4 chains; thence Easterly parallel with the Northern boundary 5 chains; thence Northerly parallel with the Eastern boundary to the point of commencement.

MINERALS IN THE CROWN.



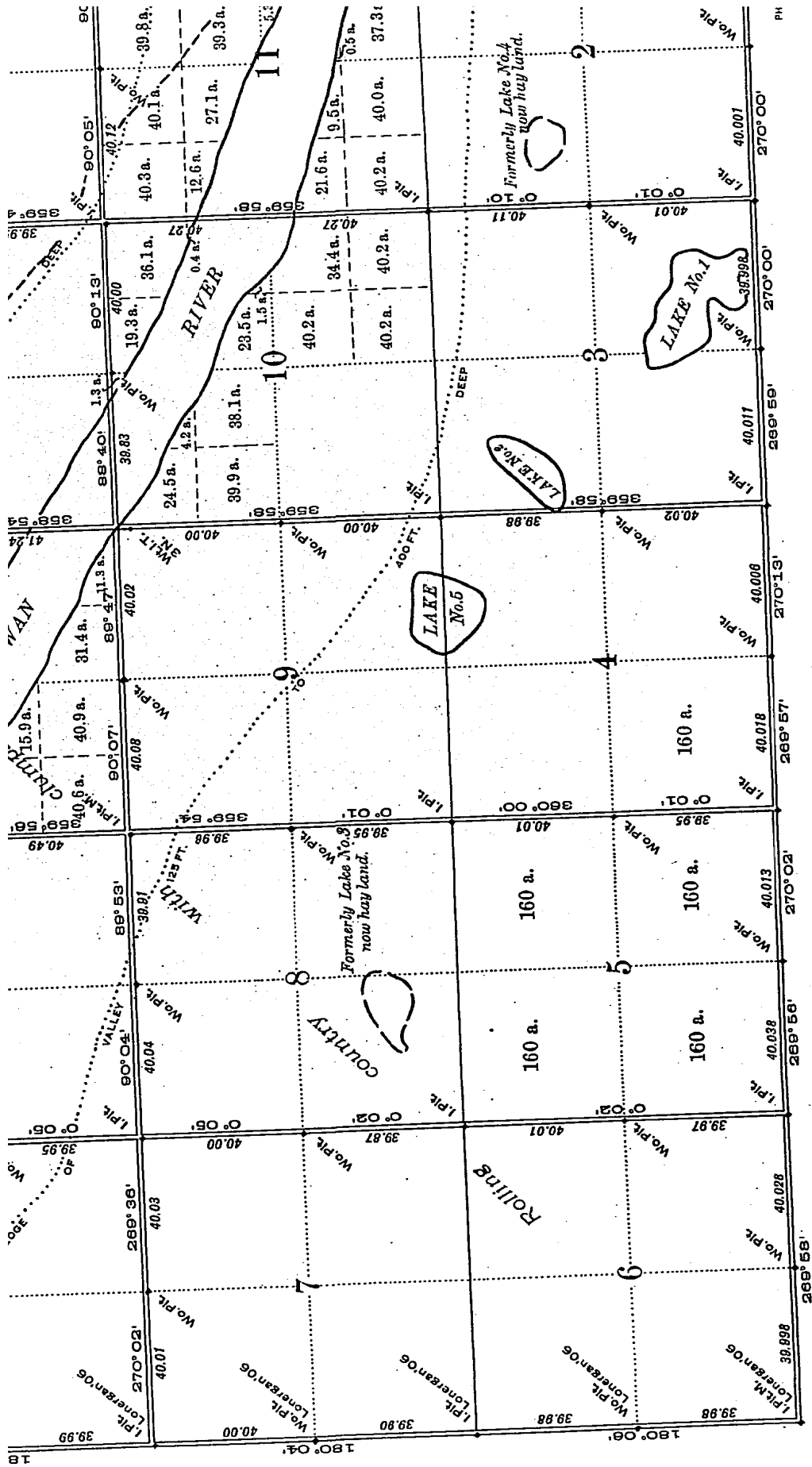
M & B Description 1a

SUBJECT TO THE ENCUMBRANCES, LIENS, AND INTERESTS NOTIFIED BY MEMORANDUM NOW OR HEREAFTER UNDERWRITTEN OR ENDORSED HEREON, OR WHICH ATTACH BY IMPLICATION PURSUANT TO THE LAND TITLES ACT. ANY REFERENCE TO AREA IS "MORE OR LESS".

NOTICE: The Land Titles Act requires that "every owner or mortgagee shall notify the Registrar of any change in his Post office Address."

 Registrar
Battleford Land Registration District

Ich



Department

APPENDIX B

13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

Legal Subdivisions
in a Section

NOTE: The subdivisions of quarter-sections shown upon this plan are legal subdivisions and quarters of legal subdivisions. Distances are in chains. Bearings are reckoned from the astronomical meridian through the centre of the township. Areas in acres are marked on all lands surveyed, except lands that have been patented. Areas are taken to the banks of North Saskatchewan river. The name at a monument is that of the surveyor who erected, restored or reported the monument. All monuments not so designated were erected or restored by W. R. Reilly. I. stands for old pattern iron post; Wo. for wooden post; Pit. for four pits; M. for mound; Wt. for witness; T. for trench; B. T. for bearing tree.

Compiled from official surveys by

W. S. Gore	.....D.L.S.	.....1873
G. J. Loneragan	.....D.L.S.	.....9th October 1906
T. A. Davies	.....D.L.S.	.....22nd October 1907
W. R. Reilly	.....D.L.S.	.....28th November 1909
G. J. Loneragan	.....D.L.S.	.....13th November 1912
R. C. Purser	.....D.L.S.	.....24th August 1916
A. G. Stuart	.....D.L.S.	.....23rd September 1916
T. A. Davies	.....D.L.S.	.....11th June 1918