

Saskatchewan Land Surveyors Association

Practical Surveying

April, 2019

Time Allowed: 3 hours

Instructions

- You may use any self contained calculator or computer that is battery operated.
- 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 survey a Metes and Bounds parcel in the SE 4-53-27-W3Mer. 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 A (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*

- | | |
|----------|---|
| 3 marks | 1. Explain the hierarchy of evidence. |
| 20 marks | 2. Provide coordinates, to three decimal places, to re-establish the Lost Monuments required by Section 29 of <i>The Land Surveys Act, 2000</i> in the course of this survey, and the coordinates to post the M&B parcel. |
| 4 marks | 3. Explain, no additional calculations required, how your calculations would change if you find an old fence corner post at the E. $\frac{1}{4}$ 4-53-27-W3Mer that the landowner says his father put in at the center of 4 pits in 1946. The location of the fence corner post is 0.925m South and 0.140m East from your original calculated position. |
| 4 marks | 4. On this same township platt, what steps would a surveyor need to undertake to be able to establish the NE 1-53-27-W3Mer? |

Question 2

The Rural Municipality would like to upgrade the trail in Section 18-49-22-W3Mer within Plan AH2766 and has asked your firm to stake the road plan. Your survey has indicated Lost Monuments at R.9, R.10, R.11 and R.12. The Field Notes Sketch shows the evidence in the area that was able to be found.

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

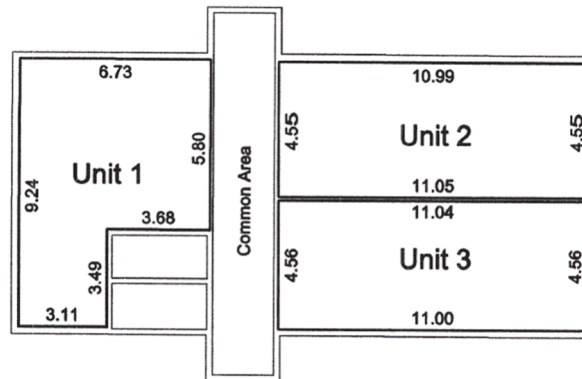
- i. *Field Note Sketch*
- ii. *Field Note Traverse*
- iii. *Plan AH2766*

- 5 marks 1. As instructed by the Information Services Corporation *Road Survey Guide, 2014* regarding re-establishments, explain the process to re-establish two or more consecutive lost monuments.
- 20 marks 2. From the setup at Turning Point 1 (TP1), back sight (BS) F.I.P. R13. Provide a layout angle right ($d^{\circ}mm'ss''$ to the nearest 1") and horizontal distance (HD to the mm) to the calculated positions of the Lost Monuments at R.9, R.10, R.11 and R.12.
- 2 marks 3. What is the closure of the Field Note Traverse?

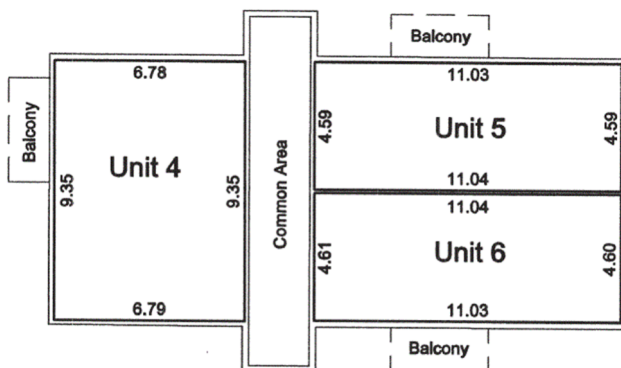
Question 3

The following are floor plans showing the dimensions for the 9 units on a condominium plan. Prepare a schedule of areas and unit factors for the 9 units. The developer has requested that the unit factors be based on the unit areas. Areas are to be shown to one decimal place.

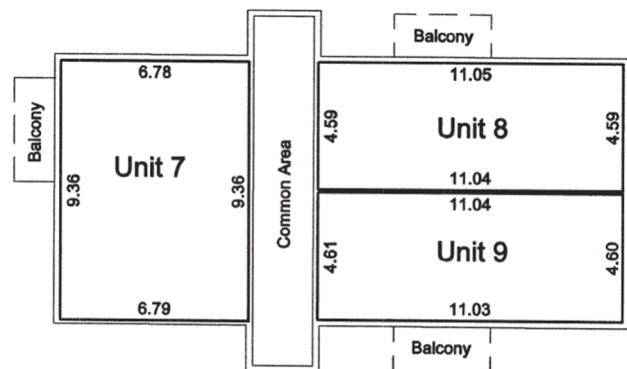
18 marks



FIRST FLOOR PLAN



SECOND FLOOR PLAN

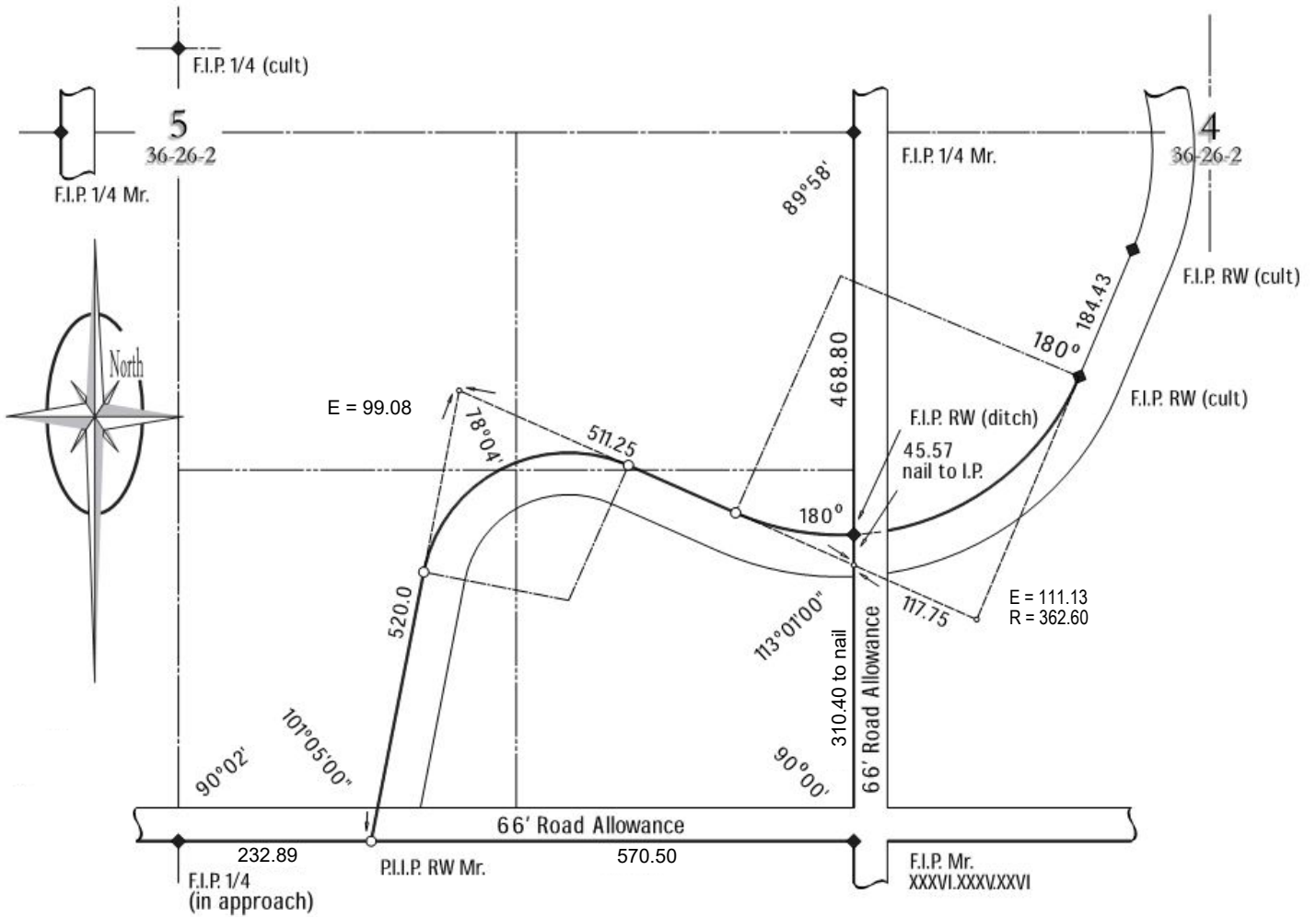


THIRD FLOOR PLAN

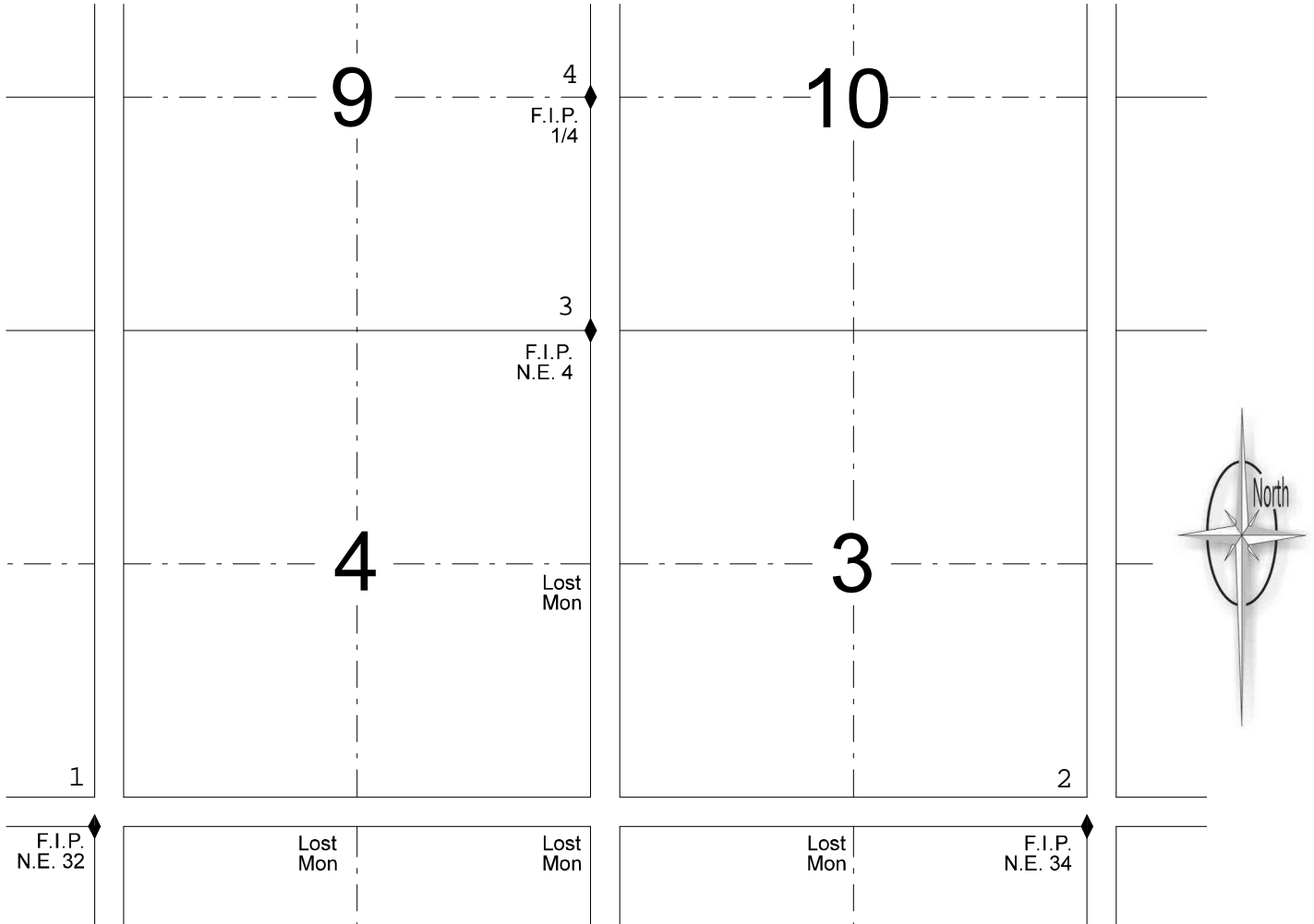
Question 4

24 marks

Your firm is preparing Individual Ownership Plans for a 30m wide drainage ditch easement survey as shown in the figure below. The SE ¼ of Section 5 is divided into Legal Subdivisions. Provide the right of way area required for each Legal Subdivision to the accuracy as required by the Information Services Corporation document *General Requirements for the Preparation of Plans, 2014*.



APPENDIX A - FIELD NOTE SKETCH AND COORDINATES - QUESTION 1



Point	Northing	Easting	Elevation	Feature Code
1	5000.000	5000.000	565.471	FIP NE 32-52-27-3
2	5000.000	8218.949	568.425	FIP NE 34-52-27-3
3	6629.758	6609.293	563.222	FIP NE 4-53-27-3
4	7434.523	6609.027	561.147	FIP E 9-53-27-3

Appendix A - 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

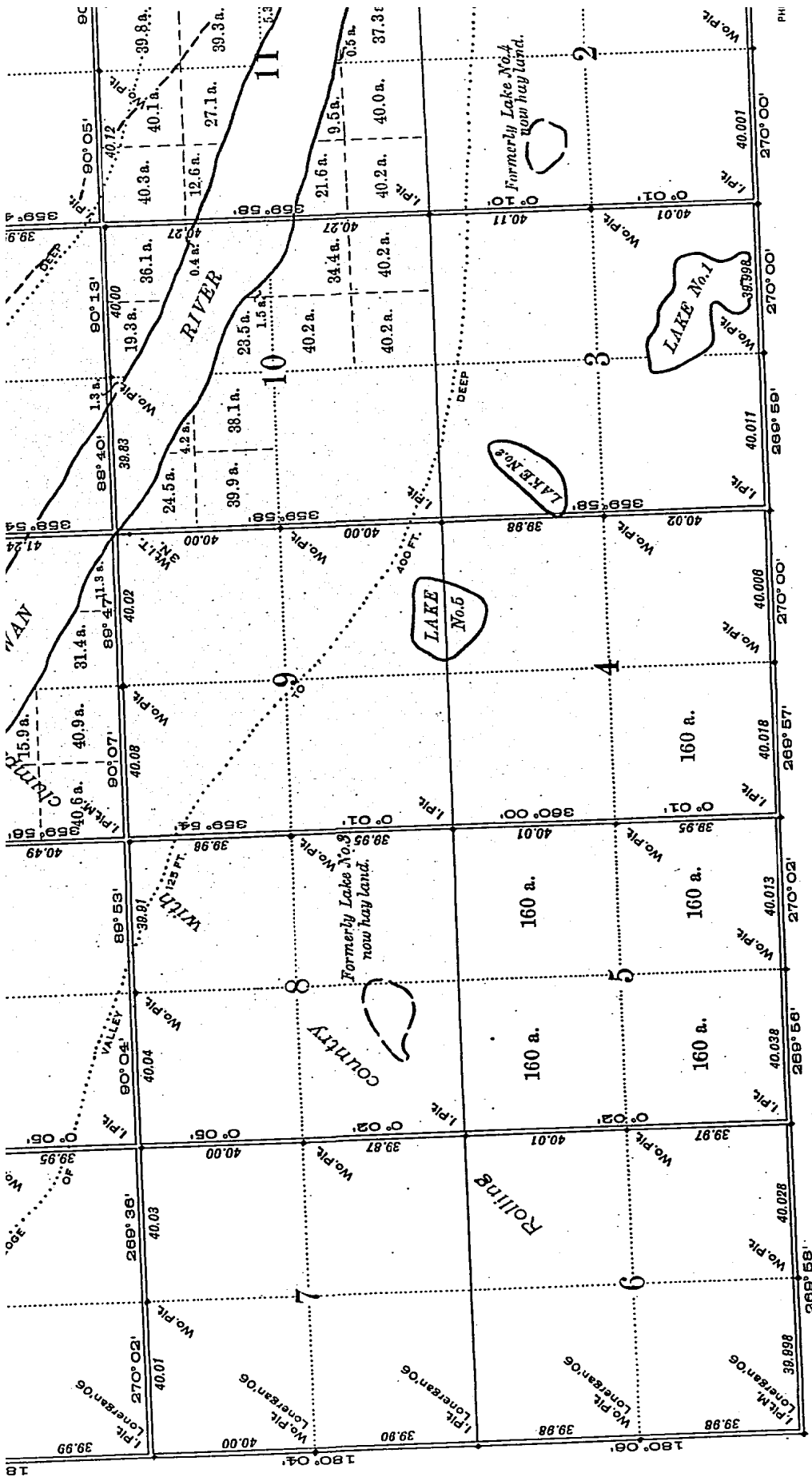
SUBJECT TO THE ENCUMBRANCES, LIENS, AND INTERESTS NOTIFIED BY MEMORANDUM NOW OR HEREAFTER UNDERWRITTEN OR ENDORSED HEREON, OR WHICH ATTACH BY IMPLICATION PURSUANT TO THE LAND TITLES ACT. ANY REFERENCE TO AREA IS "MORE OR LESS".

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

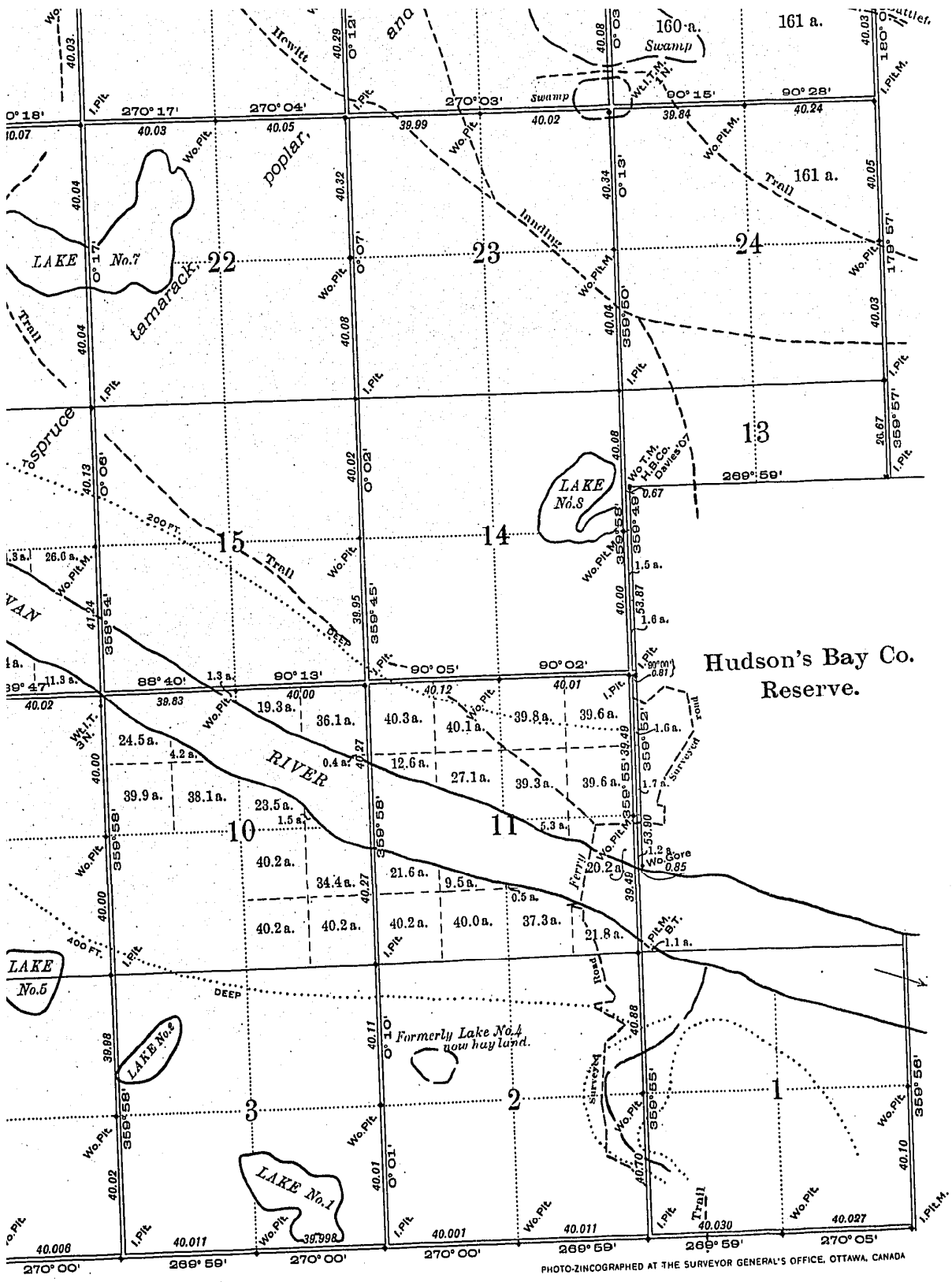
13	14	15	16
12	11	10	9
5	6	7	8
4	3	2	1

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. Lonergan	.....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. Lonergan	.....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



Department of the Interior, Ottawa, 10th June, 1919

Approved and Confirmed

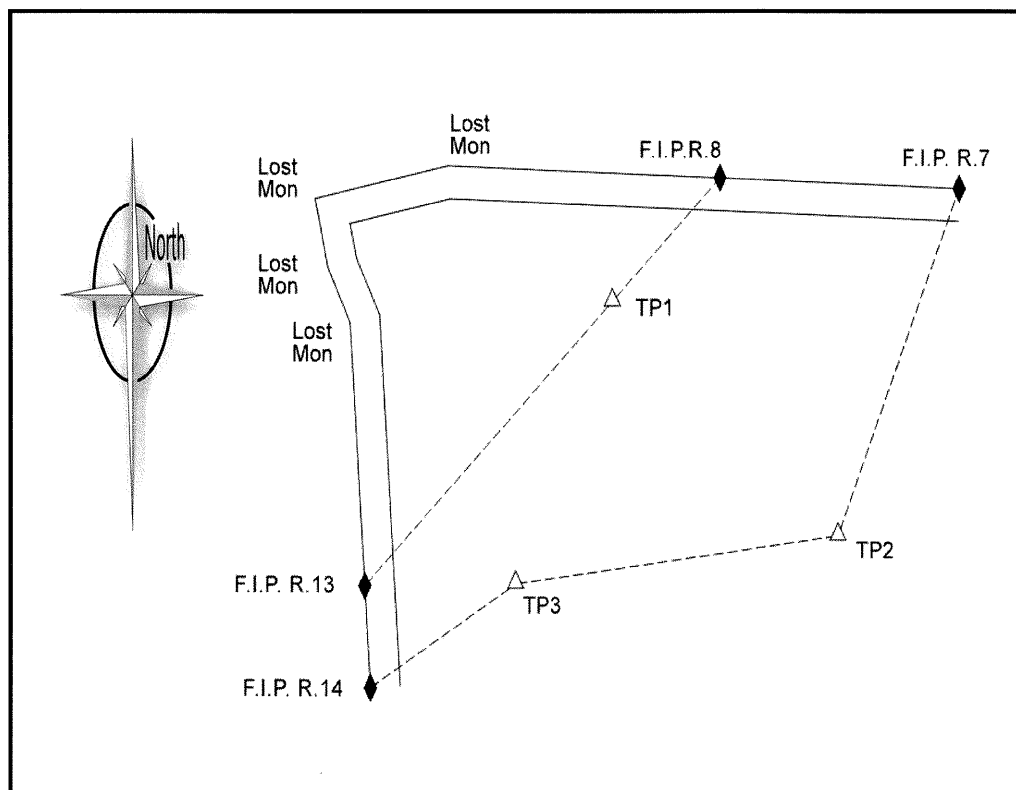
E. Deville
Surveyor General.

The subdivisions of quarter-sections shown on this plan are legal subdivisions and quarters of sections. Distances are in chains. Bearings reckoned from the astronomical meridian at the centre of the township. Areas in acres are on all lands surveyed, except lands that have been patented. Areas are taken to the banks of the Saskatchewan river. The name at a monument is the name of the person who erected, restored or

13	14	15	16
12	11	10	9

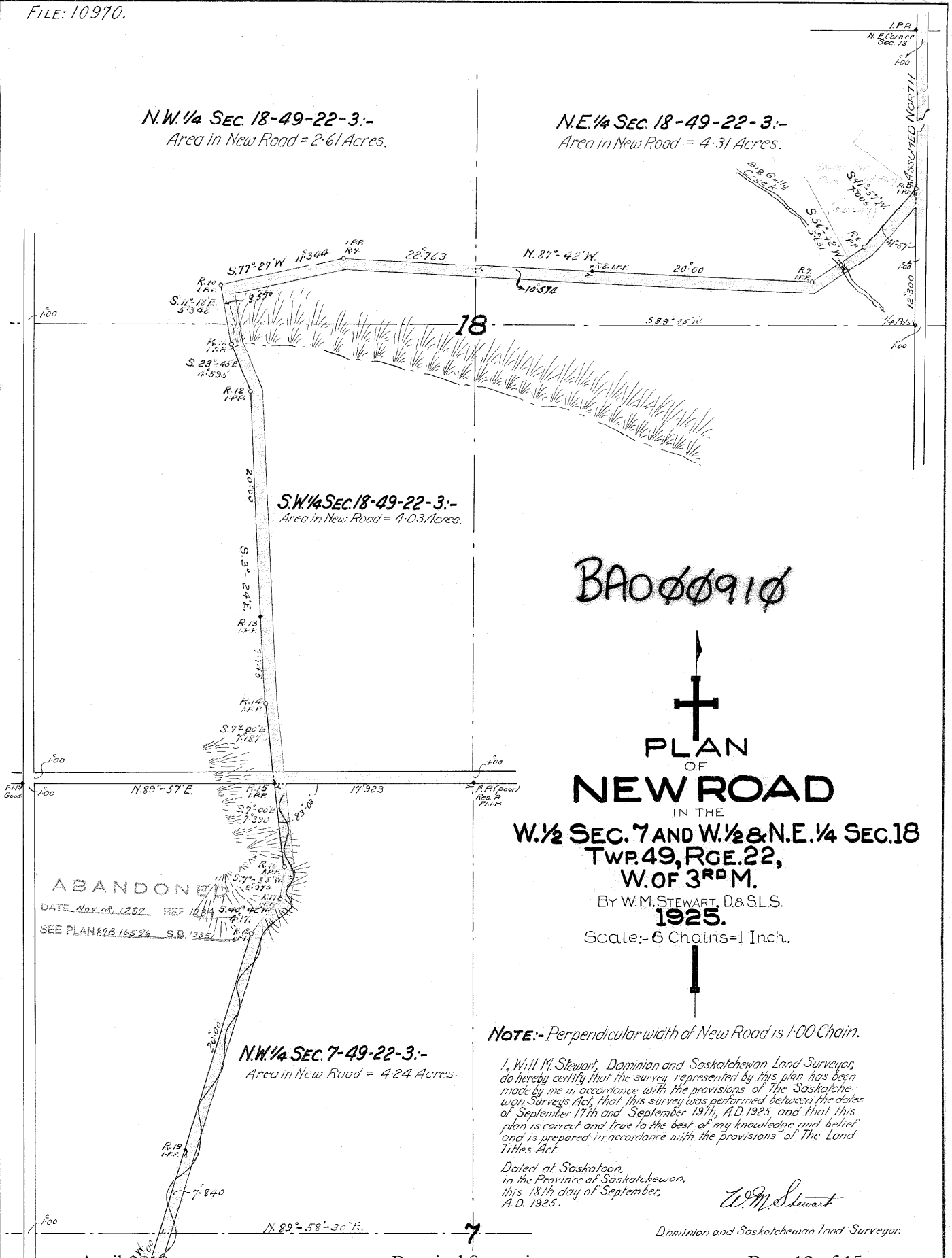
Appendix B - Field Notes Traverse and Sketch - Question 2

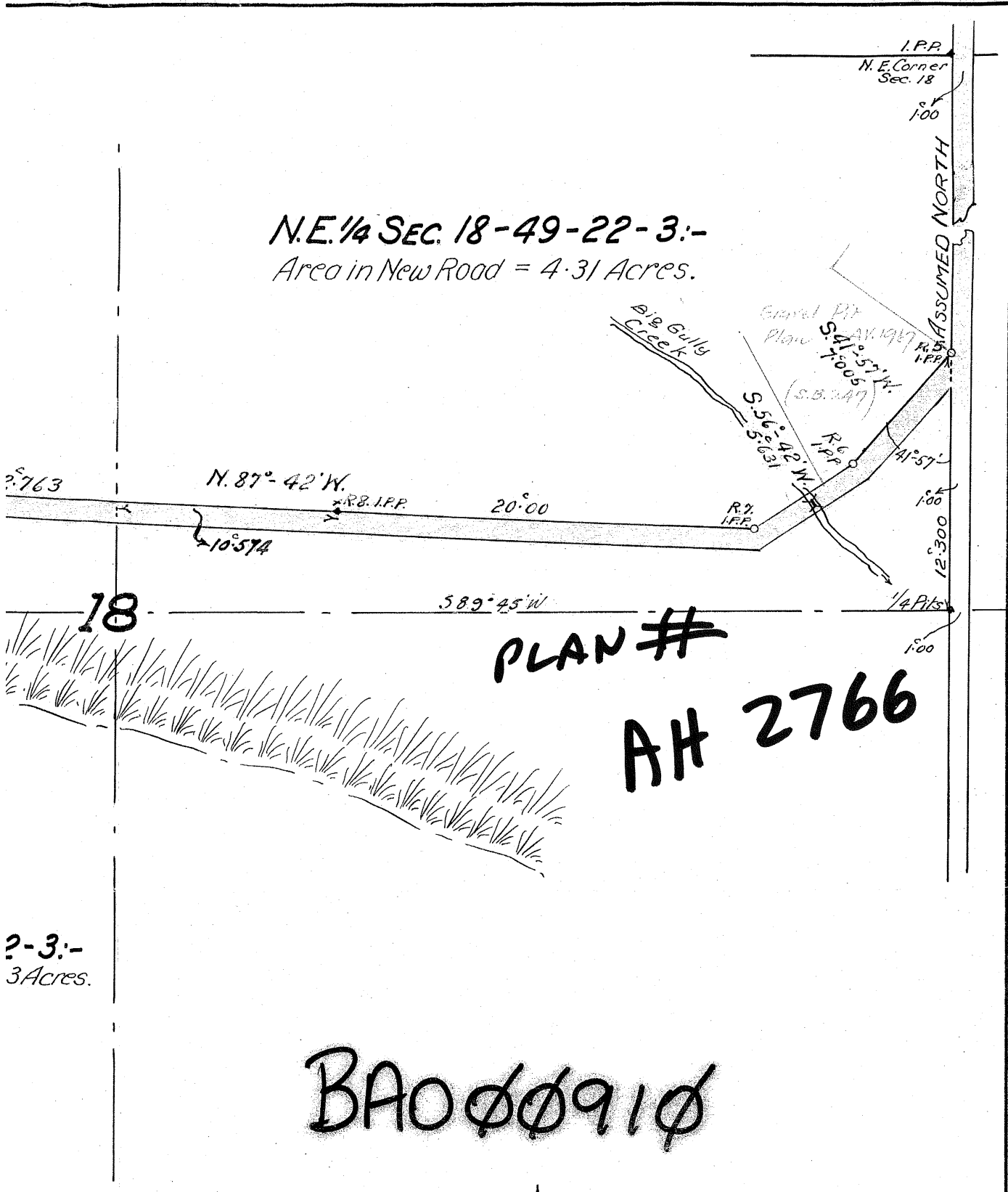
Date: August 18, 2018		S. Simpson
Project No.: Road Plan AH2766		W. Dion
SETUP TP1, INTERLINED FIP R8 to FIP R13		
TP1 - R8	229.118 m	
TP1 - R13	634.549 m	
SETUP FIP R8	BS TP1	FS FIP R7
228°27'02"	402.399 m	
SETUP FIP R7	BS FIP R8	FS TP2
288°50'30"	569.478 m	
SETUP TP2	BS FIP R7	FS TP3
241°10'15"	546.894 m	
SETUP TP3	BS TP2	FS FIP R14
154°44'24"	290.471 m	
SETUP FIP R14	BS TP3	FS FIP R13
299°32'28"	155.871 m	
All distances are horizontal.		
Angles and distances were check measured.		



Appendix B - Plan AH 2766

FILE: 10970.





FILE: 10970.

N.W. 1/4 SEC. 18-49-22-3:-
Area in New Road = 2.61 Acres.

