

Understanding the UTM Grid

Used on Canadian
Topographical Maps

Ver. 3.0

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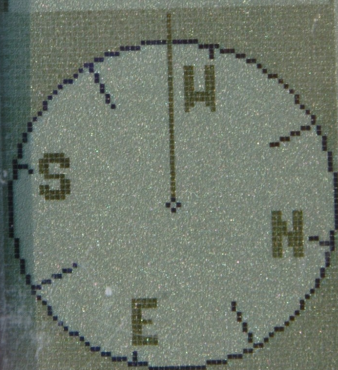




etrex

12 CHANNEL GPS

READY
TO NAVIGATE

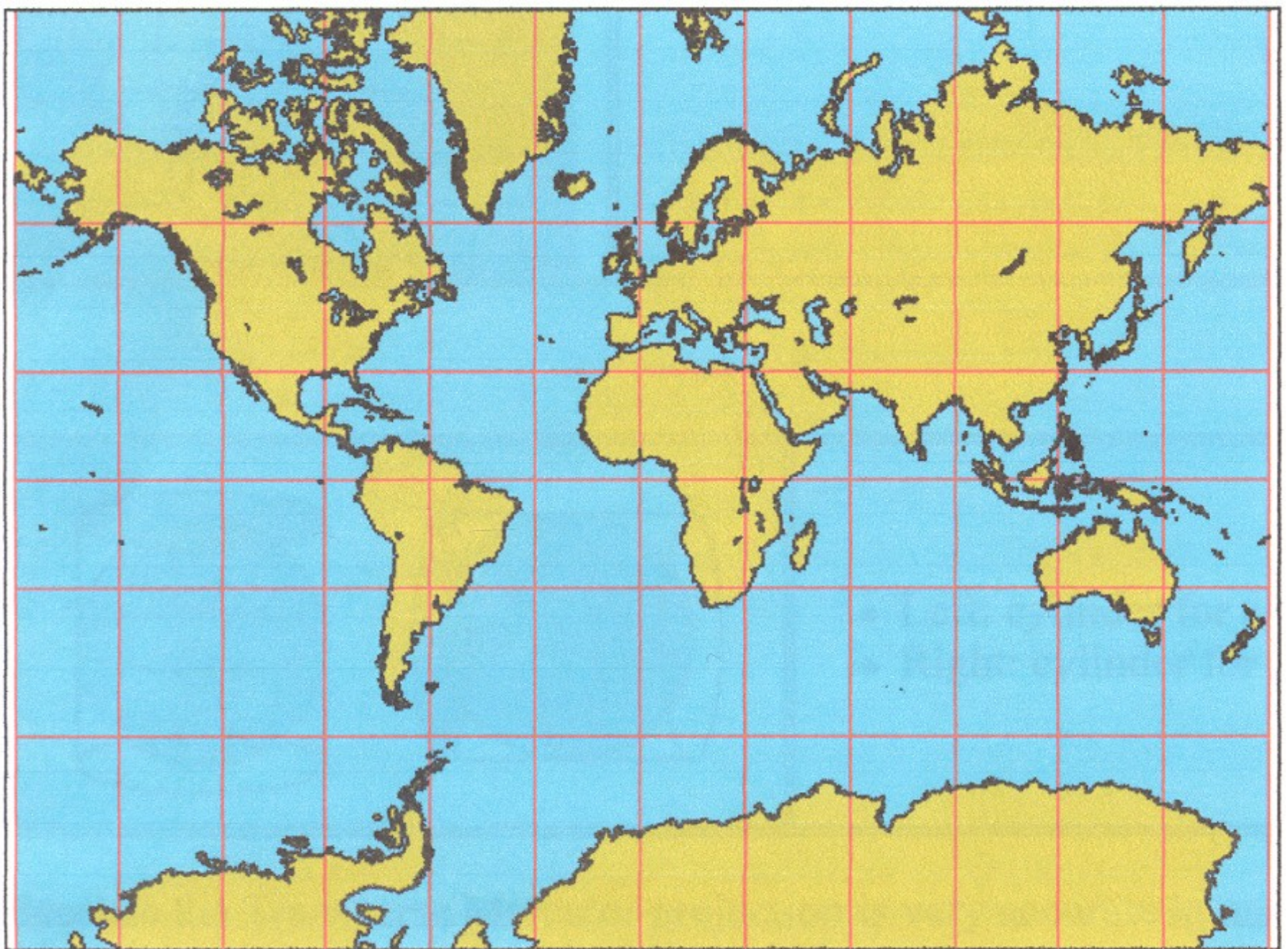


LOCATION
12 U 0330816
UTH 5451667

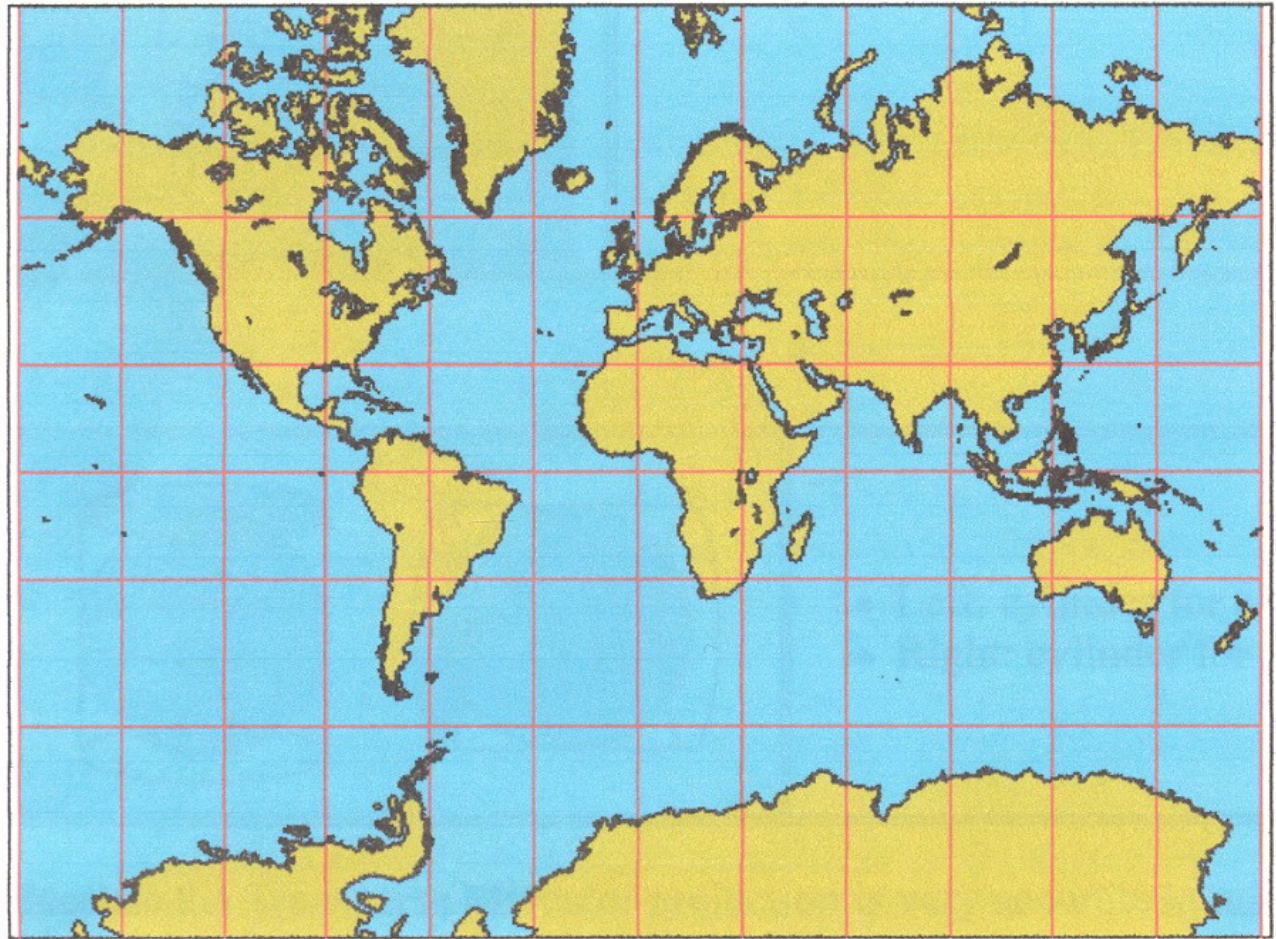
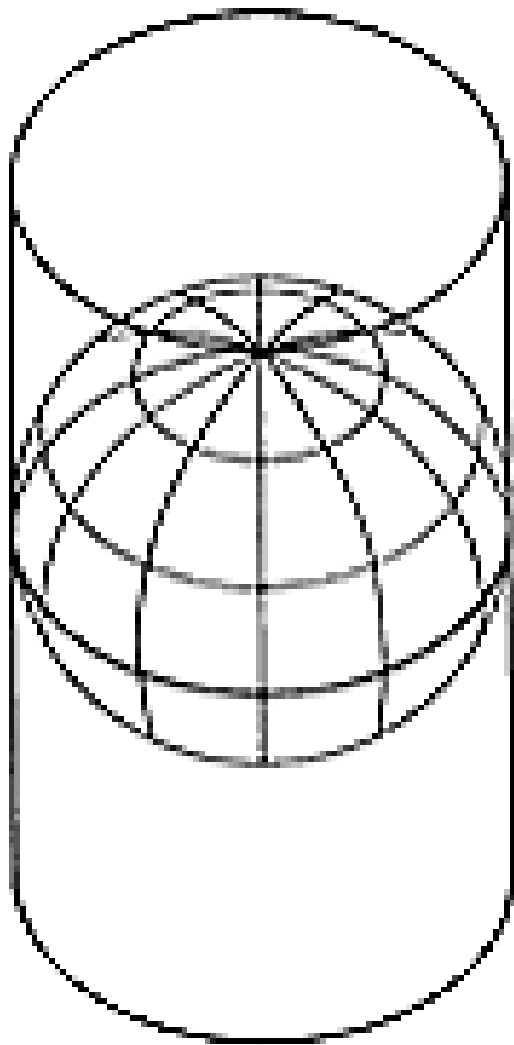
GARMIN



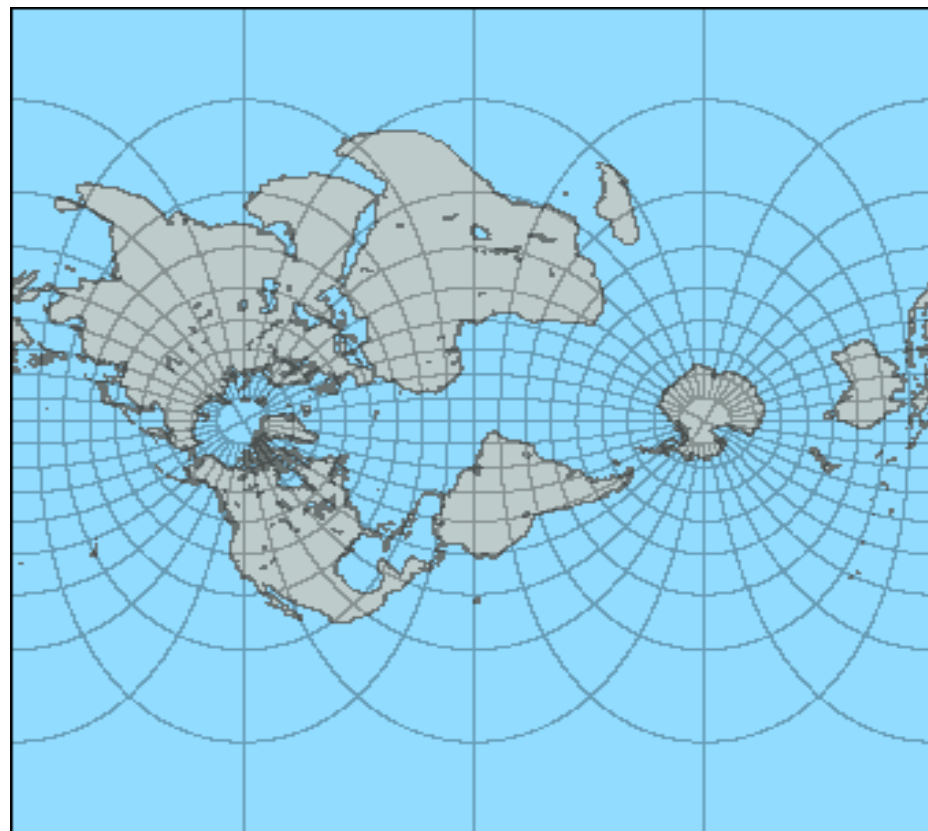
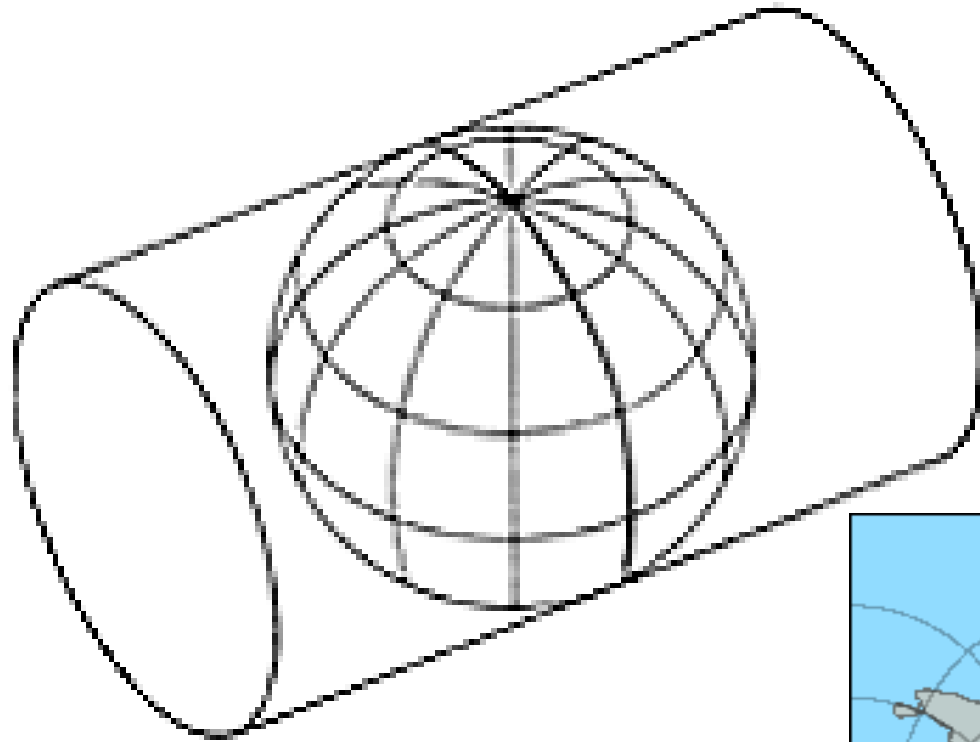
UTM is the abbreviation for
“Universal Transverse Mercator”

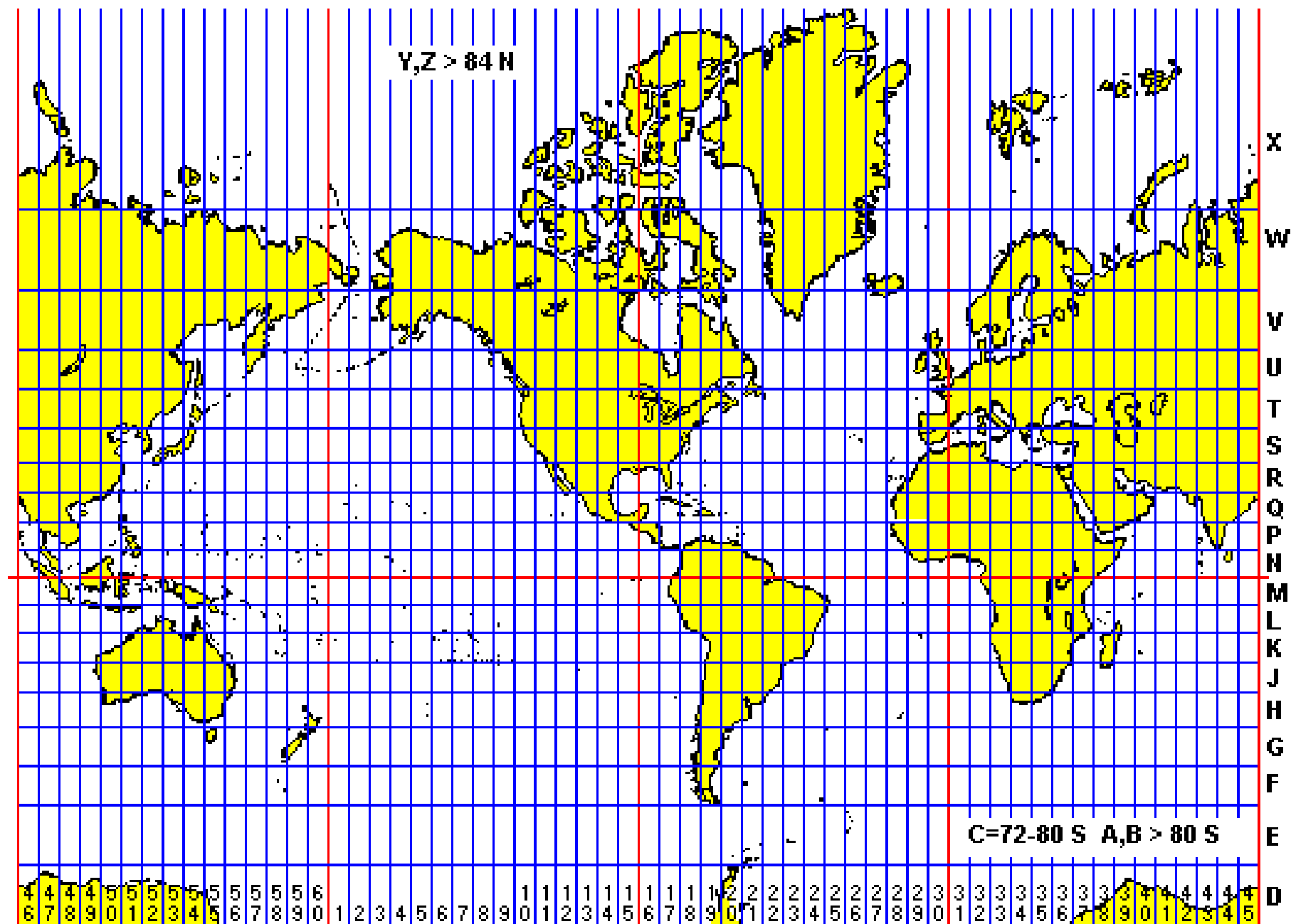


A Mercator Projection Map









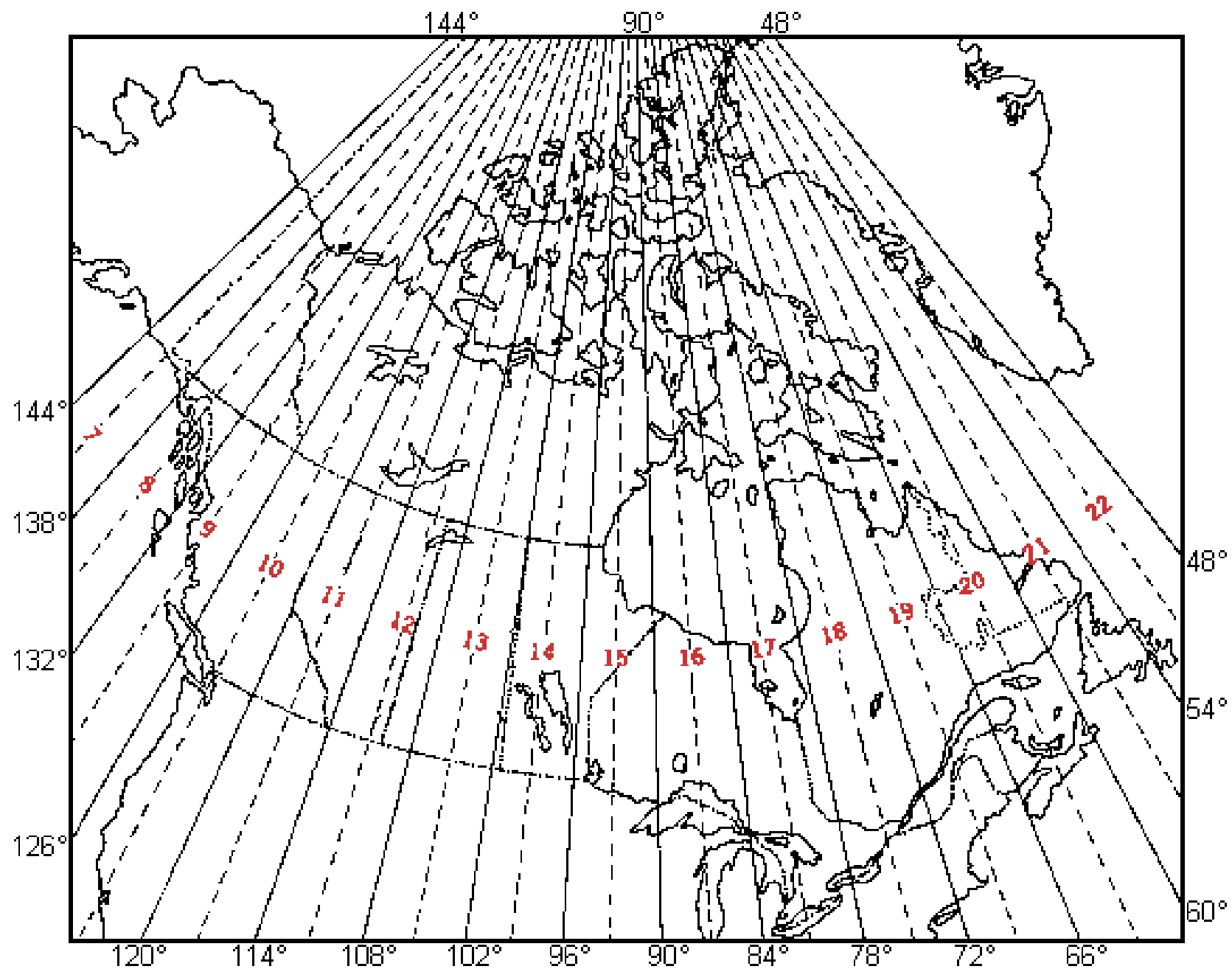


Figure 2 - UTM Zones and Central Meridians for Canada

Zone Width

- 668 Km at equator
- 438 km at 49 deg. N
- 80 km at 84 deg. N

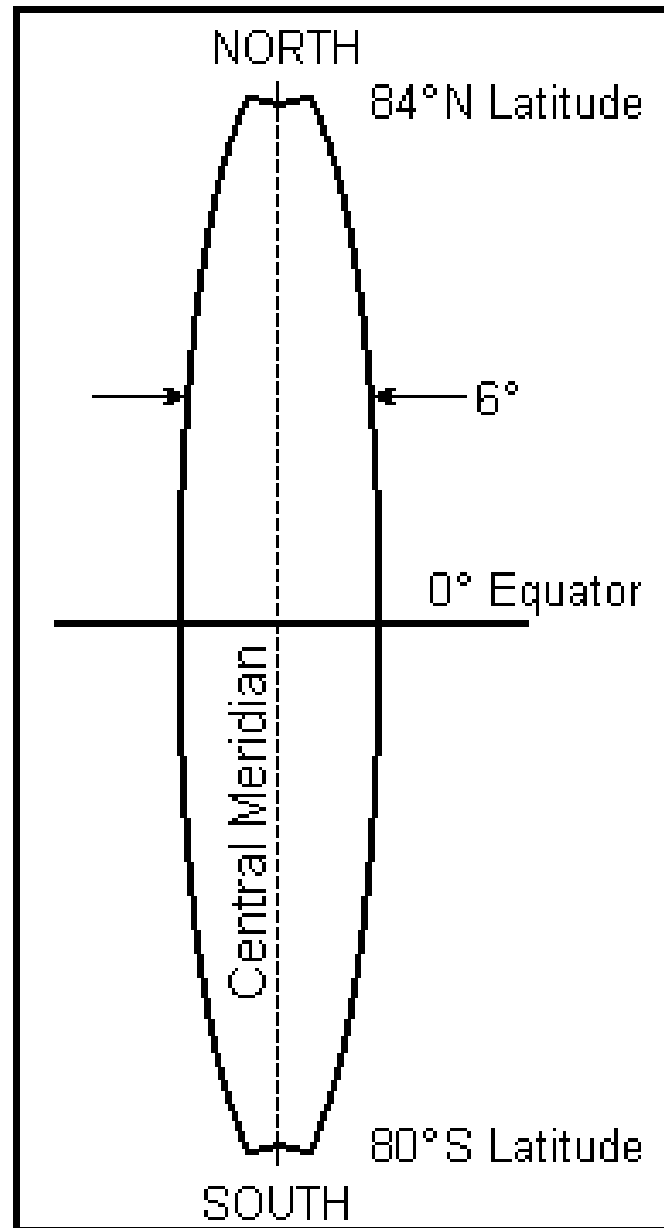


Figure 1 - Shape of a UTM Zone

UTM Zones

- 6 degrees of longitude wide (east to west) and are numbered 1 to 60.
- 8 degrees of latitude high (north to south) and are designated by letters of the alphabet (the letters “i” and “o” are not used).
- Each UTM zone is identified by a number and letter combination (e.g., 12U)

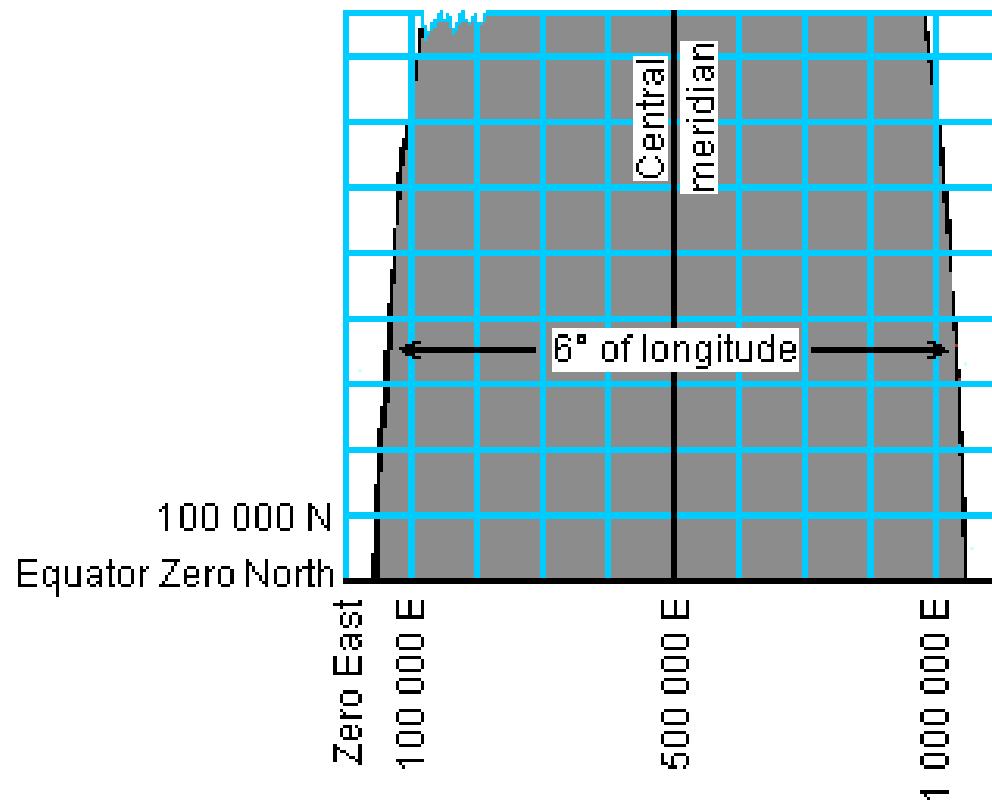
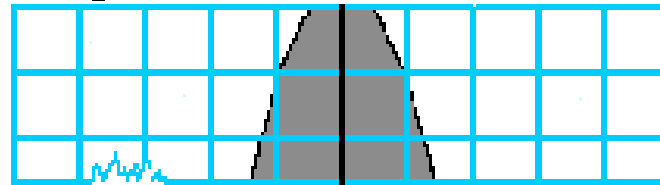
Zone 12U

- Goes from 108 to 114 degrees west longitude and from 48 to 56 degrees north latitude.
- The central meridian is 111 degrees west longitude.

Northernmost
100 000-metre
line in Canada

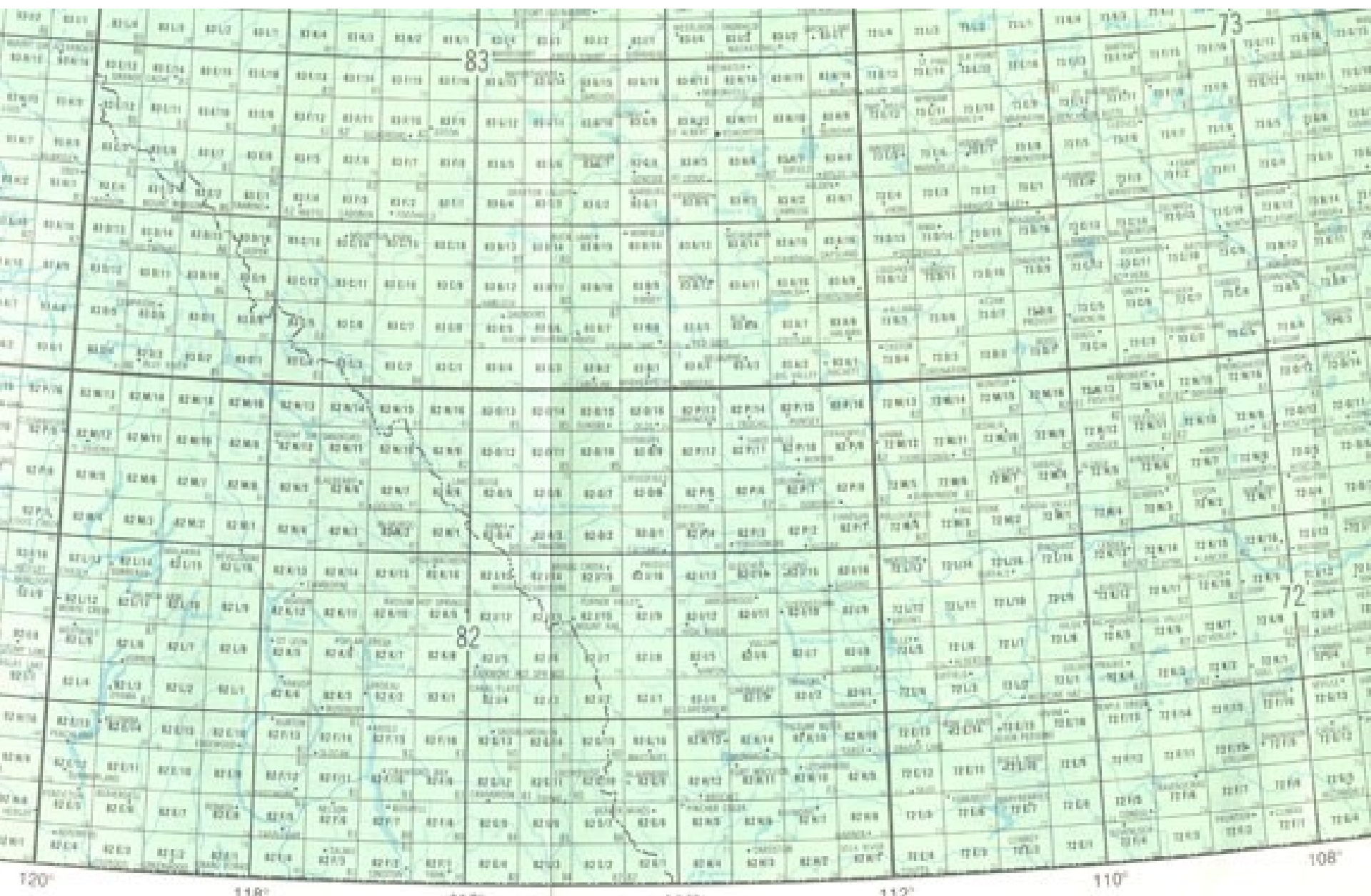
At the northernmost point in
Canada, zone boundaries
are only 80 000 metres
apart.

9 200 000 N
9 100 000 N



UTM Numbering System

- Easting values are measured in relationship to the central meridian. Grid lines west of the central meridian are less than 500,000. Those to the east are greater than 500,000.
- Northing values are measured in relationship to the equator and are actual distances from the equator.



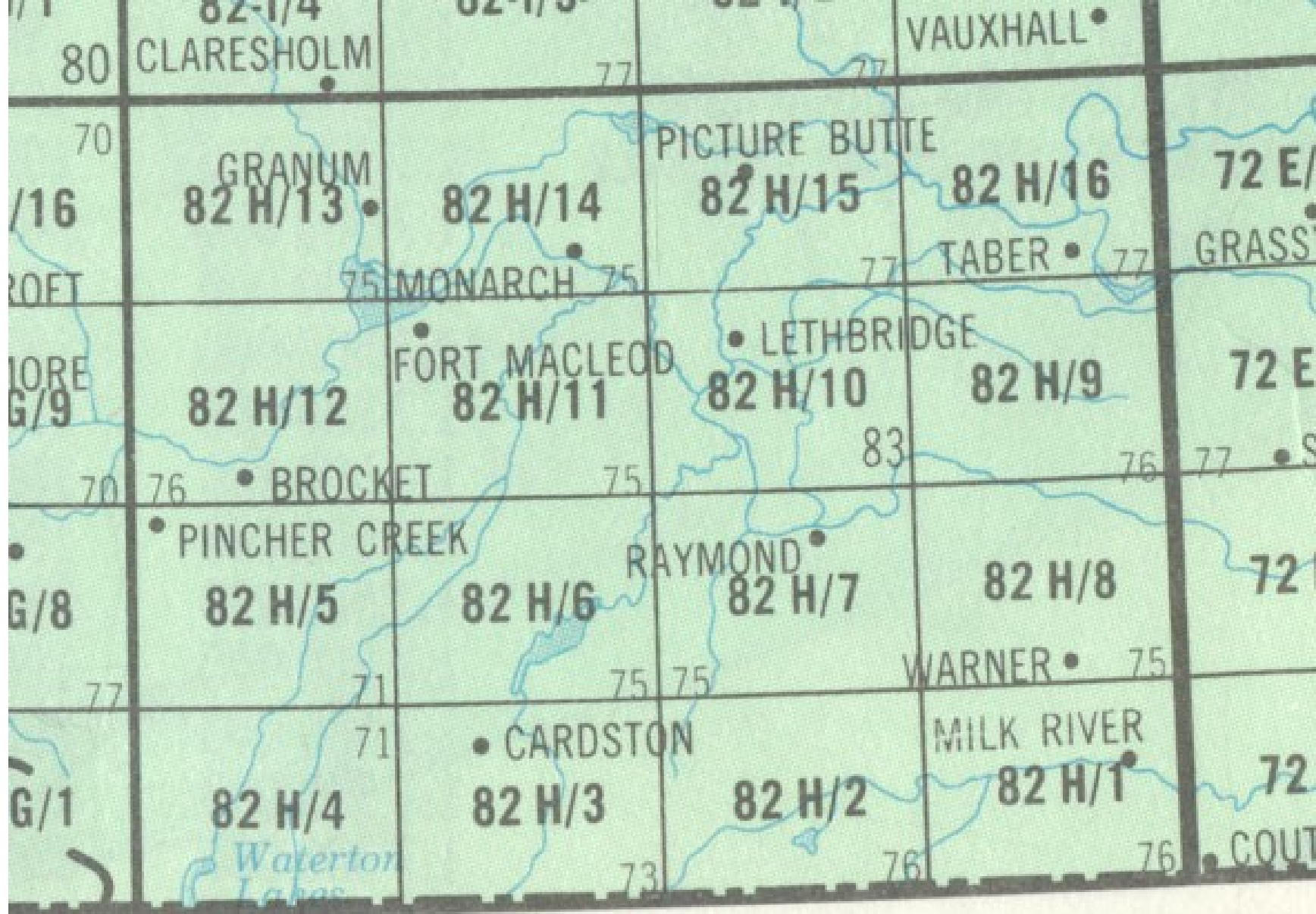
120°

118°

112°

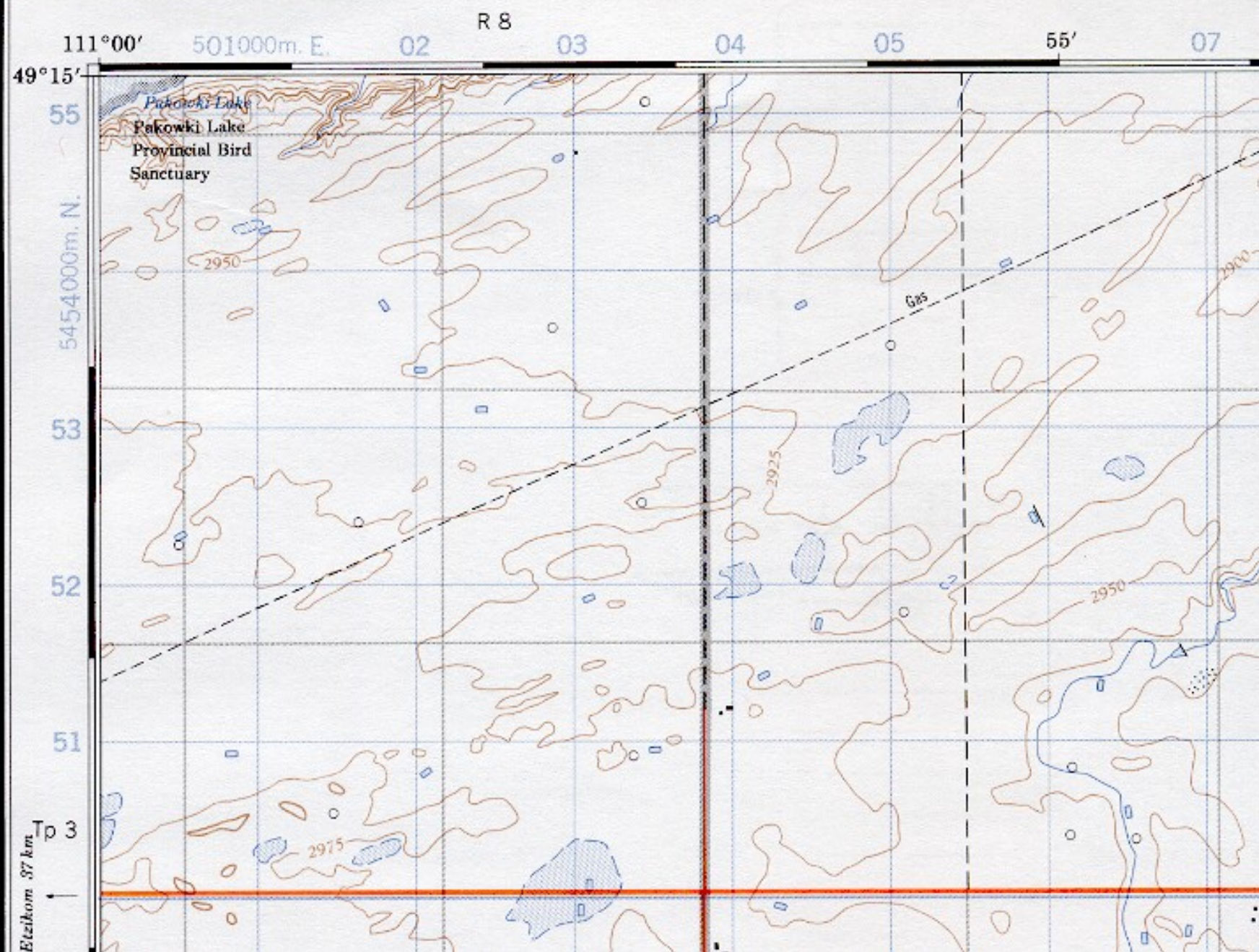
110°

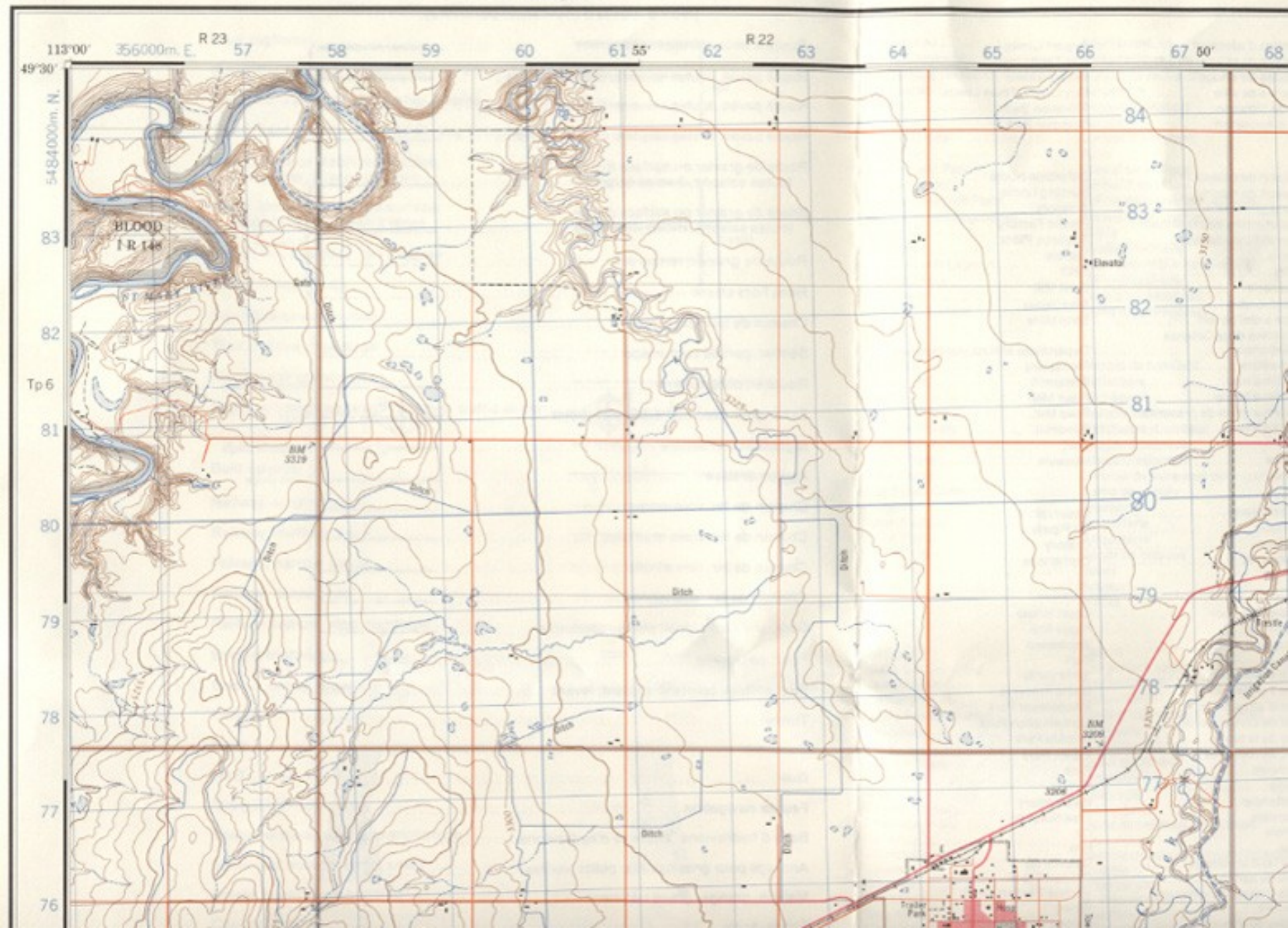
108°



114°

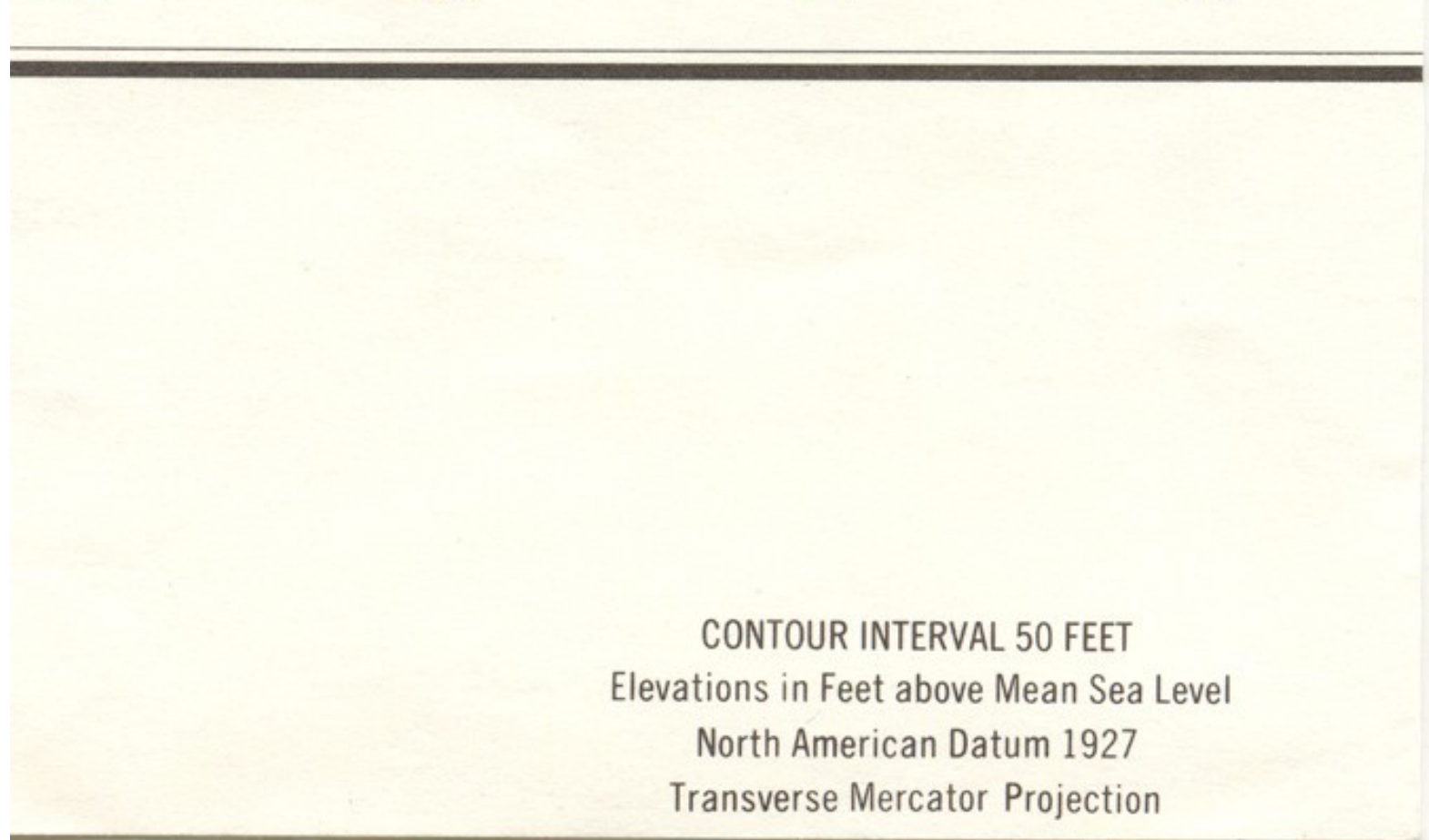
112°





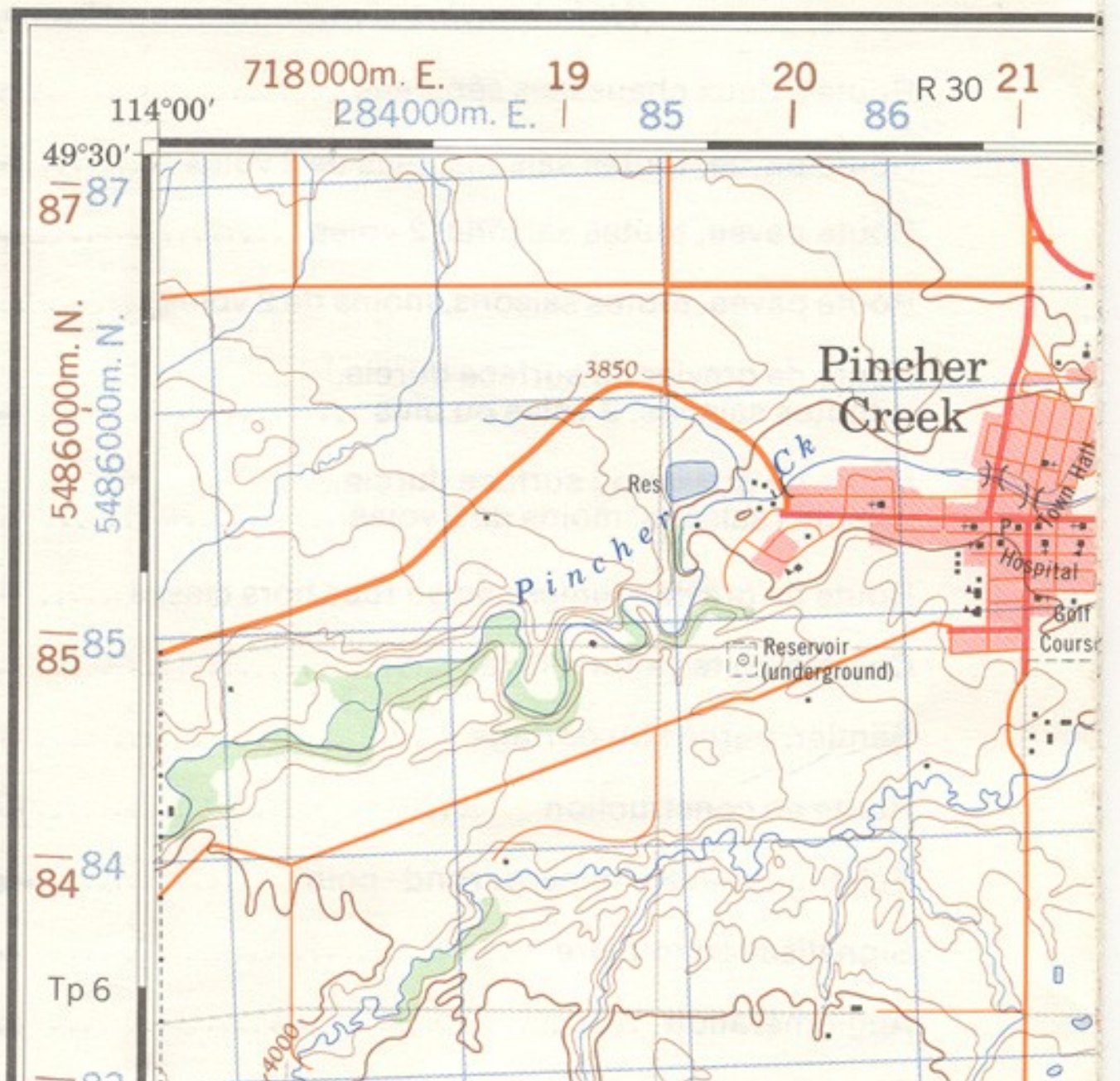
ONE THOUSAND METRE UNIVERSAL TRANSVERSE MERCATOR GRID ZONE 12

GRID ZONE DESIGNATION	100,000 M. SQUARE IDENTIFICATION				
12 U	<table border="1"><tr><td data-bbox="991 812 1219 1169">TK</td><td data-bbox="1219 812 1449 1169">UK</td></tr><tr><td colspan="2" data-bbox="991 1169 1219 1245">3</td></tr></table>	TK	UK	3	
TK	UK				
3					



Transverse Mercator Projection

82 H/5



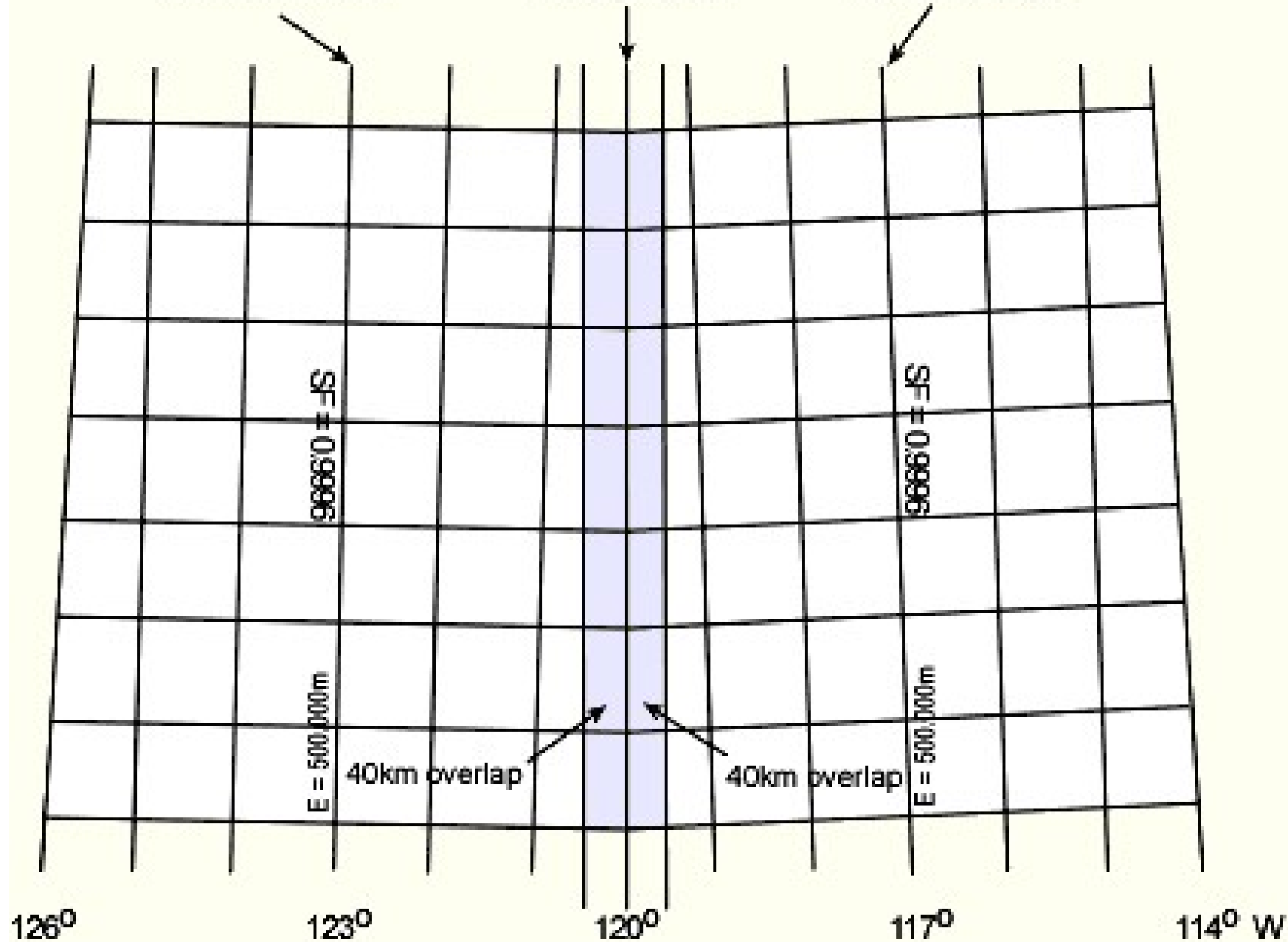
Zone 10

Zone 11

Central Meridian

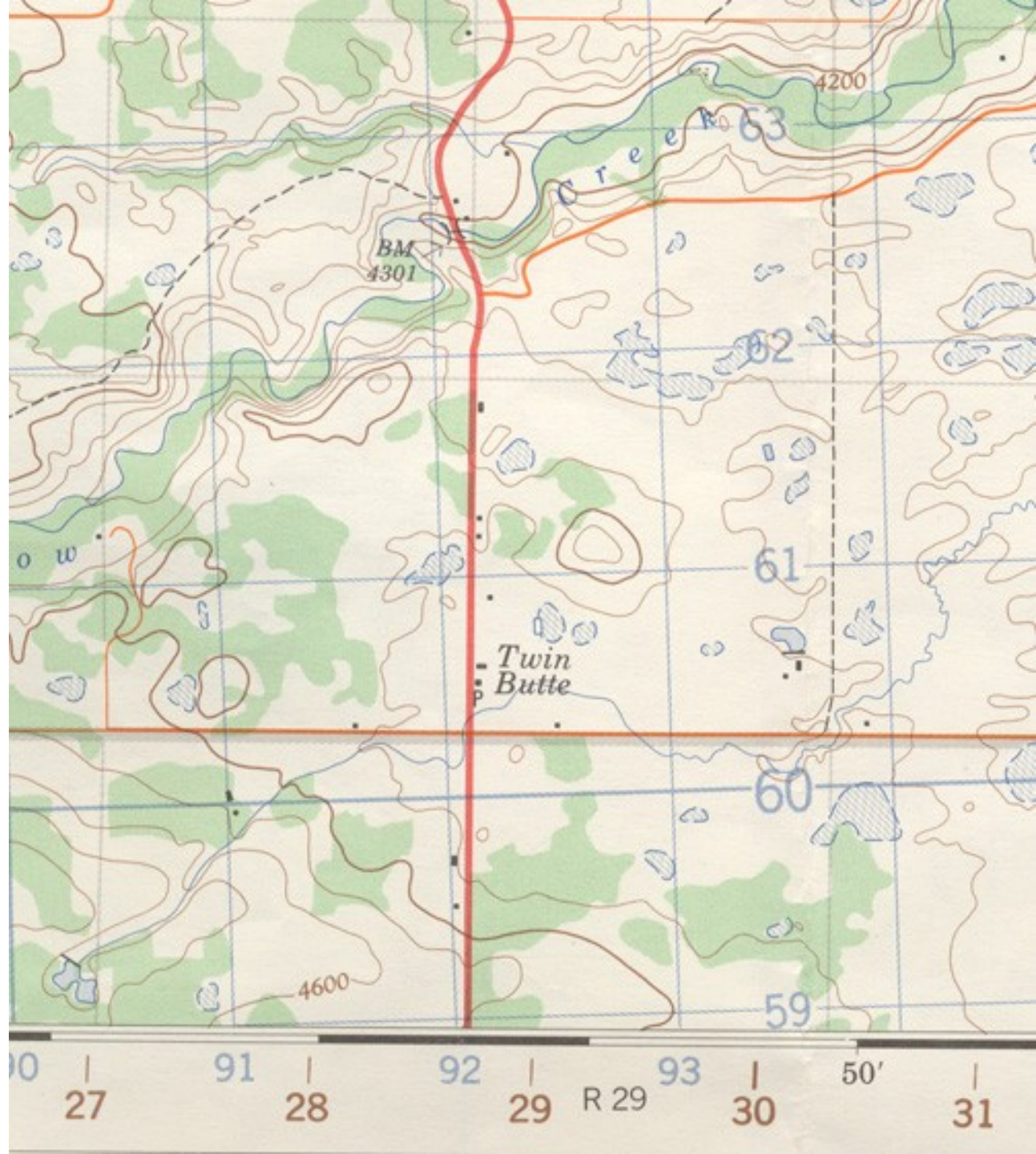
Zone Junction

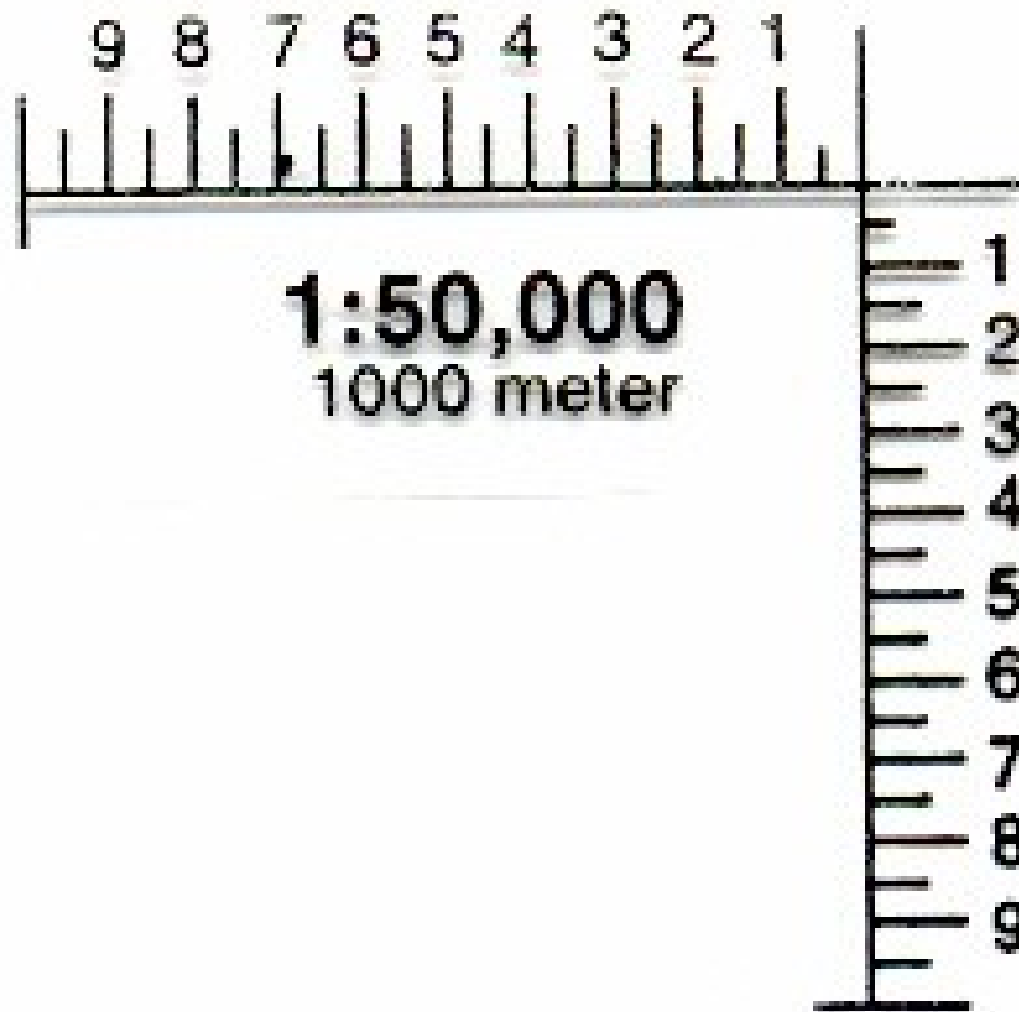
Central Meridian



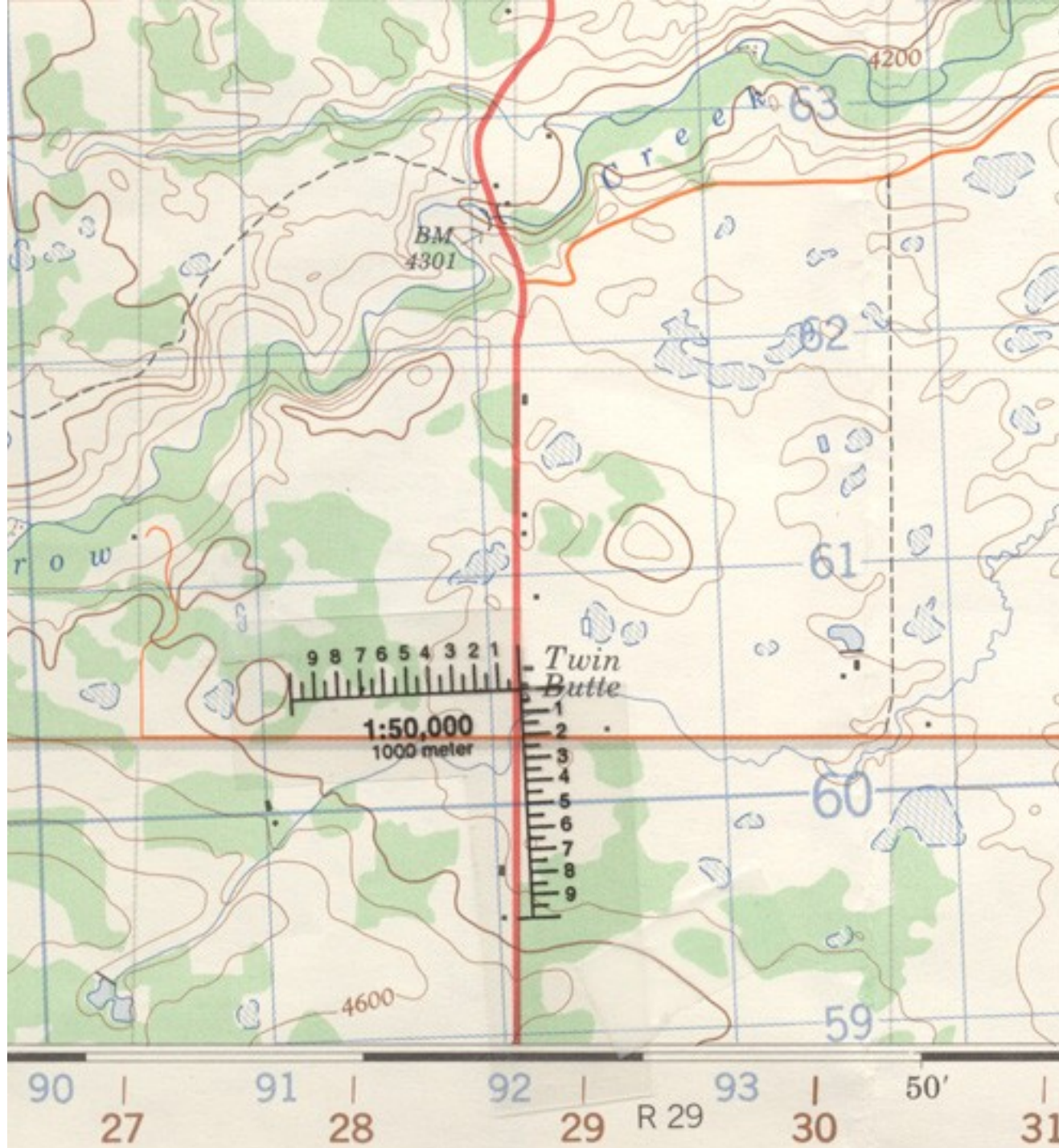
Any point on the map can be identified by using two sets of coordinates. The first coordinate is called the “easting” and the second is called the “northing”.

Eastings are measured from the central meridian of the zone and northings are measured from the equator.





A “roamer” is a measuring device for increasing the accuracy when reading a grid reference from a topographic map.



12U 0292140
5460500

9 8 7 6 5 4 3 2 1



1:50,000

1000 meter

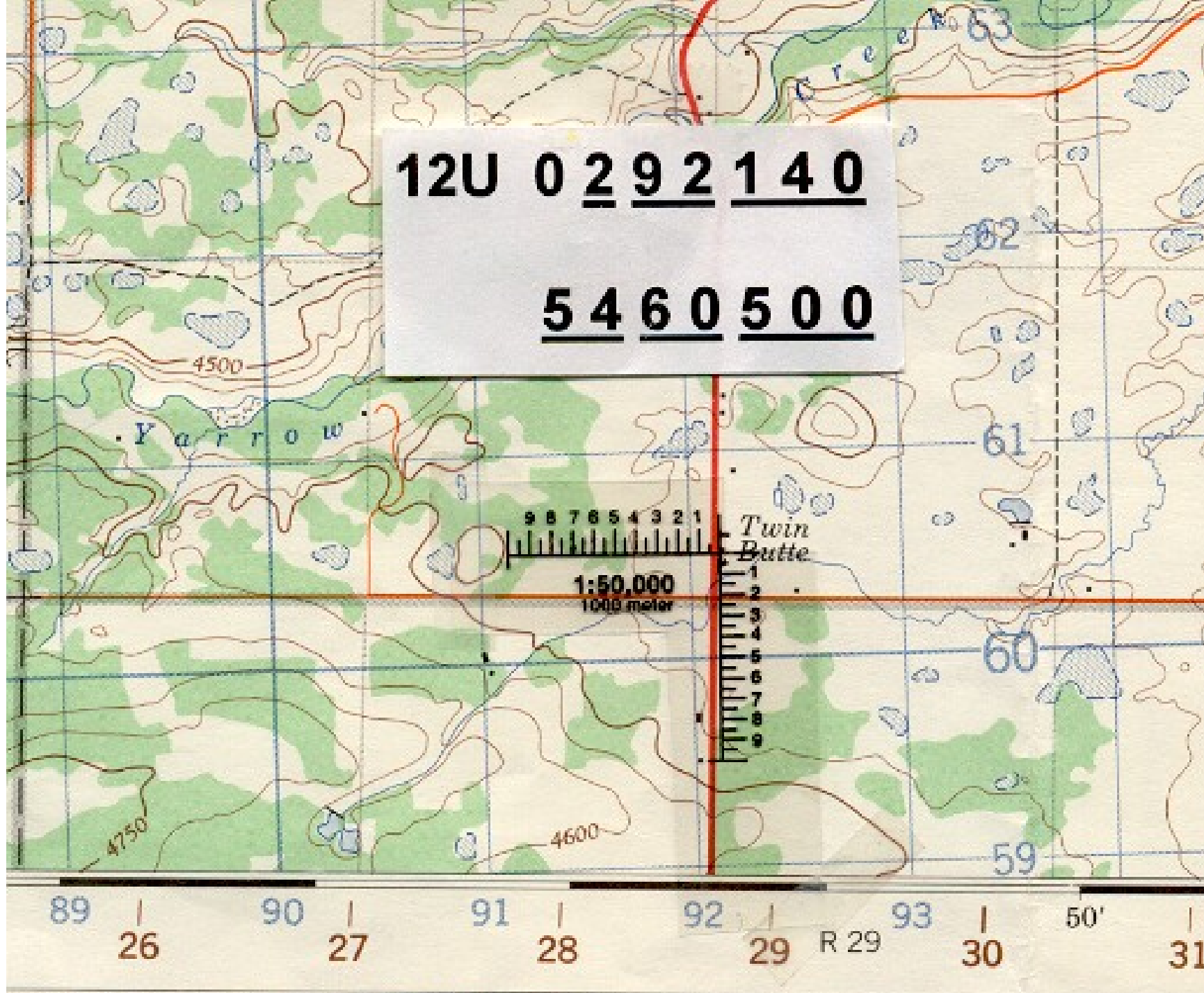
Twin Butte



90 27 91 28 92 29 R 29 93 30 50' 3

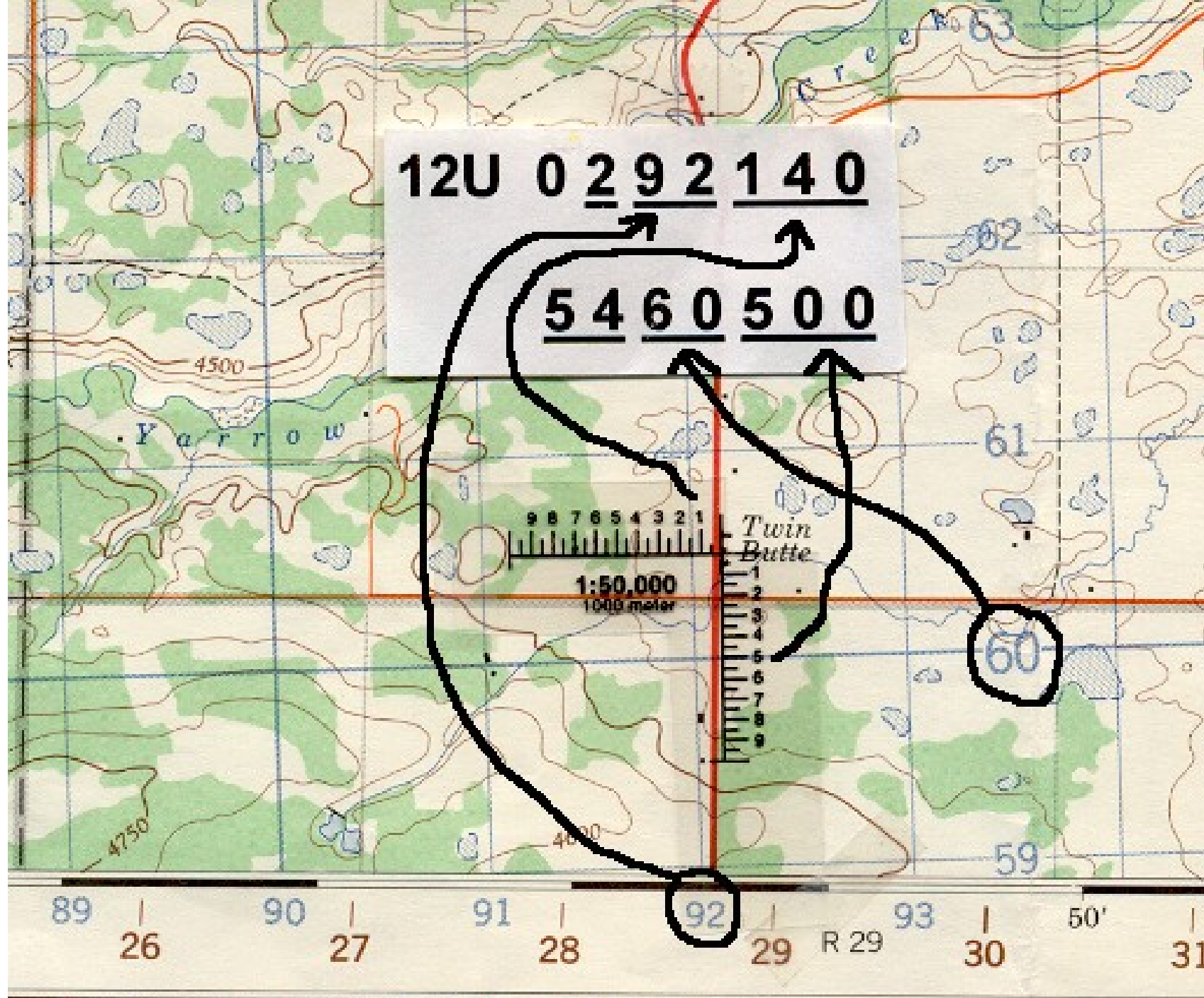
12U 0 2 9 2 1 4 0

5 4 6 0 5 0 0



12U 0 2 9 2 1 4 0

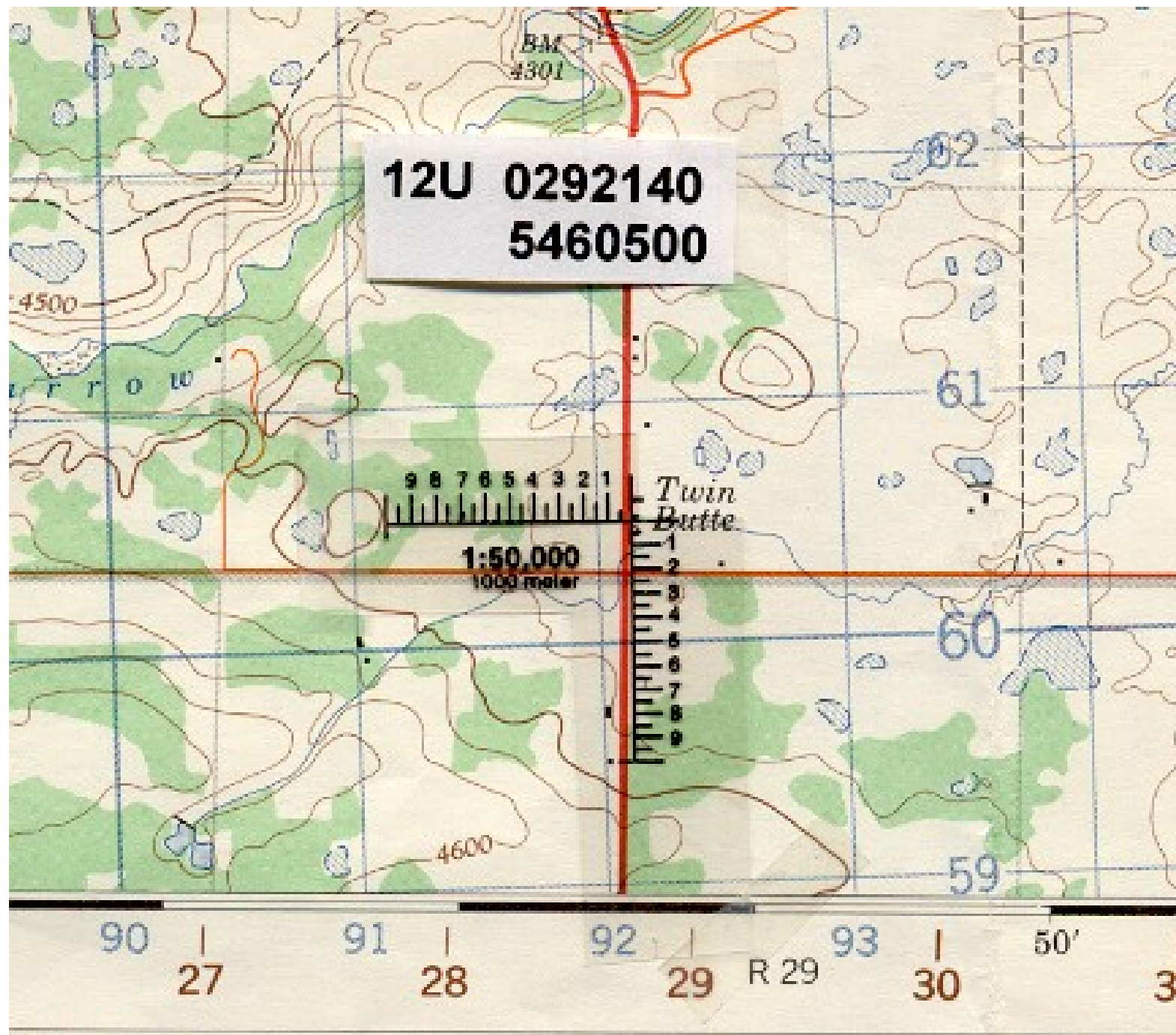
5 4 6 0 5 0 0



UTM Coordinates

- On GPS receivers they are expressed as 17 digits (the zone designation plus 7 easting values and 7 northing values).
- Sometimes in search and rescue operations the coordinated are expressed as 6 digits (no zone designation and 3 easting values and 3 northing values).

12U 0292140
5460500



12U 0292140
5460500

921605

92 1 60 5

9 8 7 6 5 4 3 2 1

1:50,000
1000 meter

Twin
Butte

1
2
3
4
5
6
7
8
9

90

27

91

28

92

29

R 29

93

30

50'

31

12U 0292140
5460500

921605

6 digit reference

92 1 60 5

9 8 7 6 5 4 3 2 1

1:50,000
1000 meter

Twin
Butte

60

92

90

27

91

28

29

R 29

93

30

50'

31

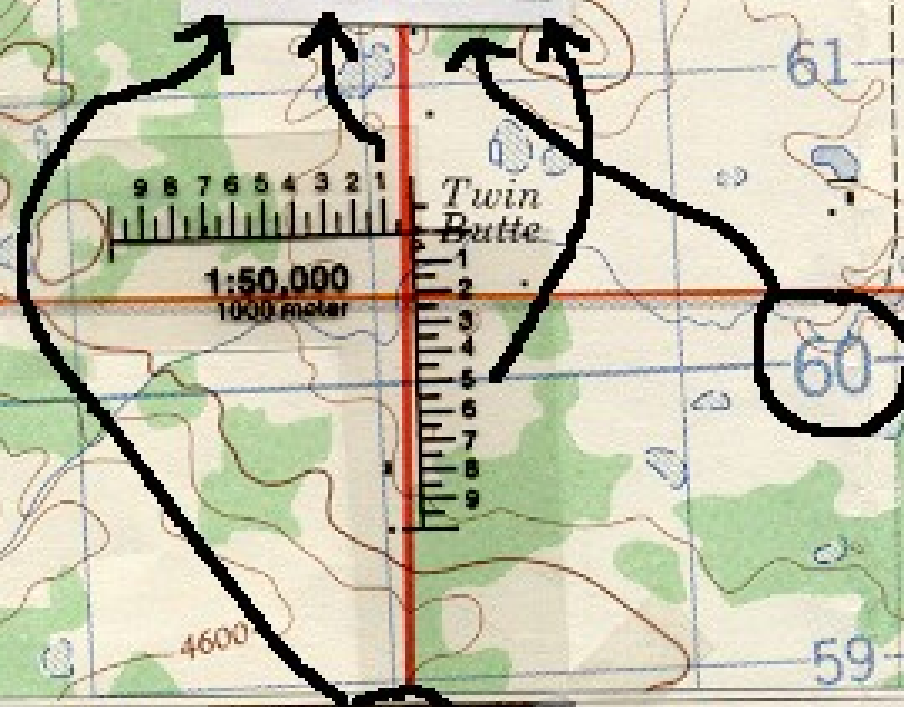
59

61

4600

4500

arrow



6 Digit Reference

LOCATION
12 U 0330816
UTH 5451667

GARMIN