October 2021
New FM Channel 205A
Browning, Montana
Allocation Study

Domestic Allocation Study

The attached spacing study shows the co-channel and adjacent channel spacing between stations and demonstrates that the proposed operation meets the IF channel spacing requirements as prescribed in §73.207 of the Commission's Rules.

Individual stations were examined to confirm the lack of prohibited contour overlap as prescribed in §73.509 of the Commission's Rules. The attached allocation study exhibits demonstrate requisite contour protection for the following domestic stations:

First-adjacent	KLKM	204C1	Kalispell
	KUFM	206C	Missoula

International Allocation Study

The attached spacing study demonstrates that the proposed facility is fully-spaced to Canadian stations and allotments.

TV Channel 6

Section 73.525 of the Commission's Rules specifies a threshold distance of 225 kilometers for FM stations operating on Channel 205. There is no domestic full-power TV Channel 6 station located within this threshold distance.

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SEARCH PARAMETERS FM Database Date: 20211005

Channel: 205A 88.9 MHz

Latitude: 48 42 22.5 (NAD83)

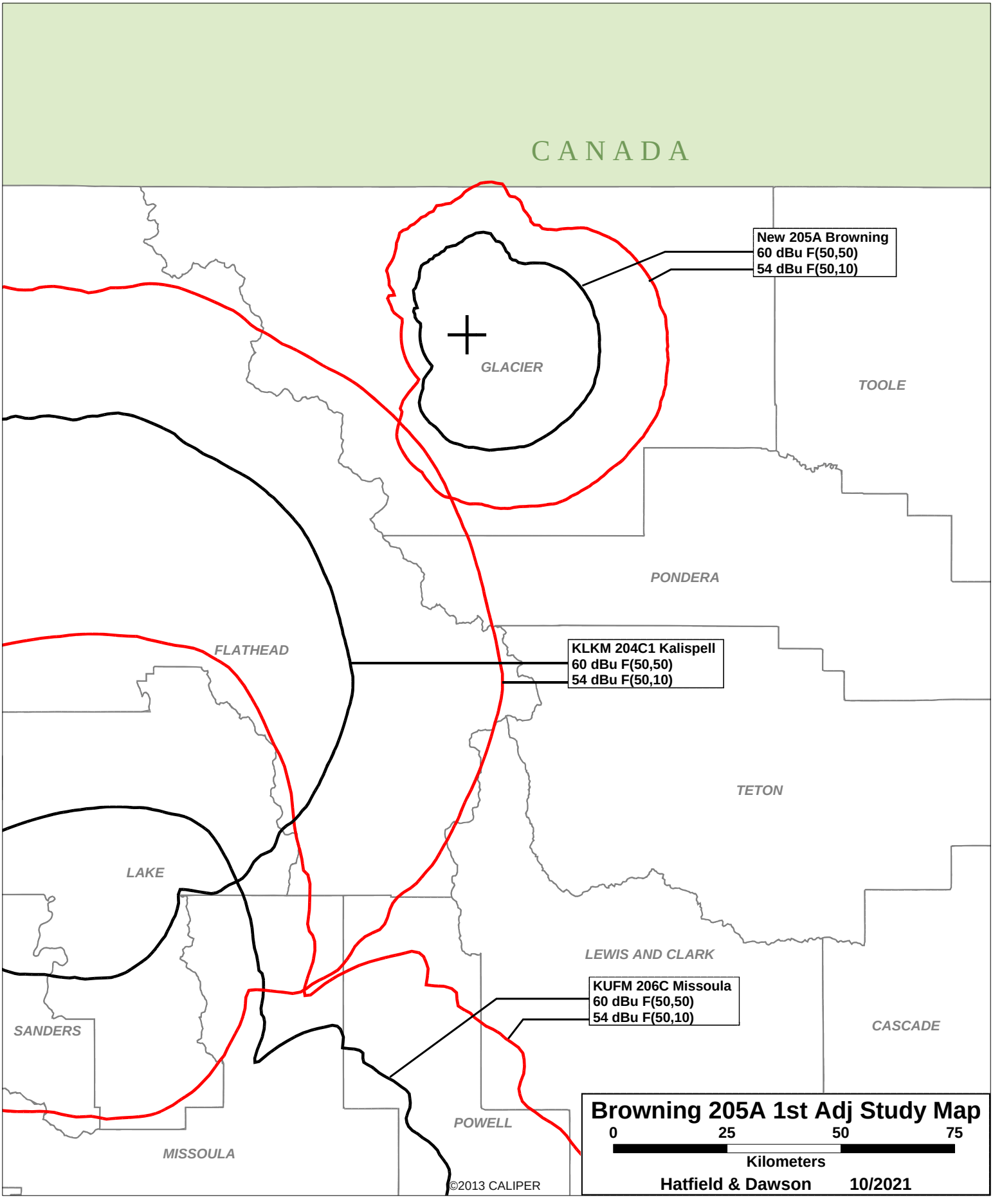
Longitude: 113 6 1.9

Safety Zone: 50 km

Job Title: BROWNING 205A

Call Status	City St FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
C202LP	RED ROCK CANYON	202D	0.039	49 5 53.9	305.5	75.75	0
LIC	AB	88.3	-222.0	113 56 43.4		0.00	TRANS
KLKM	KALISPELL	204C1	3.300	48 0 47.8	231.0	121.39	133
LIC	MT BLED-20101109ACL	88.7	785.0	114 21 58.4		-11.61	SHORT
K205BZ	CUT BANK	205D	0.023 DA	48 37 33.9	98.5	58.20	0
LIC	MT BLFT-19930726TE	88.9	0.0	112 19 11.1		0.00	TRANS
	CALGARY	205C1	0.000	51 3 54.2	343.5	274.30	243
CP	AB	88.9	0.0	114 12 50.5		31.30	CLEAR
	CALGARY	205C	0.000	51 4 21.2	342.9	276.11	247
ALC	AB	88.9	0.0	114 15 41.6		29.11	CLEAR
KUFM	MISSOULA	206C	14.500	47 1 57.7	200.0	197.68	165
LIC	MT BLED-19920722KA	89.1	754.0	113 59 32.3		32.68	CLEAR
	PEIGAN	207B	0.000	49 46 19.0	337.6	128.48	78
CP	AB	89.3	0.0	113 46 53.4		50.48	CLEAR
	WATERTON NATIONAL PA	208D	0.000	49 4 22.9	305.2	71.40	0
CP	AB	89.5	0.0	113 53 58.4		0.00	CLS=D

==== END OF FM SPACING STUDY FOR CHANNEL 205 ====


CANADA
New 205A Browning
60 dBu F(50,50)
54 dBu F(50,10)
GLACIER
TOOLE
PONDERA
FLATHEAD
KLKM 204C1 Kalispell
60 dBu F(50,50)
54 dBu F(50,10)
TETON
LAKE
LEWIS AND CLARK
KUFM 206C Missoula
60 dBu F(50,50)
54 dBu F(50,10)
SANDERS
CASCADE
POWELL
MISSOULA
©2013 CALIPER
Browning 205A 1st Adj Study Map
0
25
50
75
Kilometers
Hatfield & Dawson
10/2021

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RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 205A (88.9 MHz) with an effective radiated power of 1 kilowatt. Operation is proposed with a 2-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on a tower located at Hausman Hill.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	48-42-22.5 north
Longitude	113-06-01.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	30.5
Support Structure Height (AGL)	30.5
Site Elevation (AMSL)	1557
Structure Type	
GTOWER - Guyed Structure Used for Communication Purposes	

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

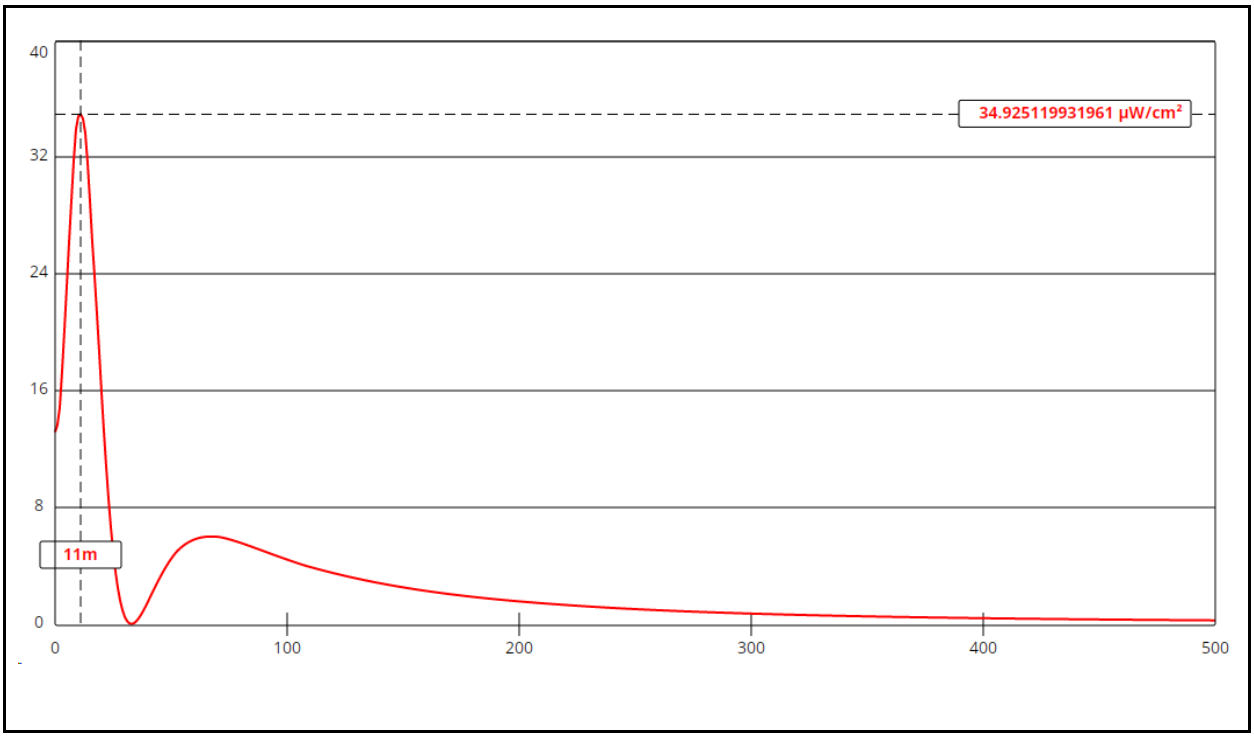
D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the element pattern for the "double V" antenna proposed for use. The highest calculated ground level power density occurs at a distance of 11 meters from the base of the antenna support structure. At this point the power density is calculated to be 34.9 $\mu W/cm^2$, which is 17.5% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

At present, the only other broadcast user of this site is FM translator K216DS. Calculations of the power density produced by the K216DS antenna system assume a Type 1 element pattern, which is the element pattern for the dipole antenna in use. The highest calculated ground level power density occurs at a distance of 2 meters from the base of the antenna support structure. At this point the power density is calculated to be 6.5 $\mu W/cm^2$, which is 3.3% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.



Ground-Level RF Exposure **OET FMModel**

Browning 205A

Antenna Type:	Type 2
No. of Elements:	2
Element Spacing:	1.0 wavelength
Distance:	500 meters
Horizontal ERP:	1 kW
Vertical ERP:	1 kW
Antenna Height:	21 meters AGL

Maximum Calculated Power Density is 34.9 µW/cm^2 at 11 meters from the antenna structure.

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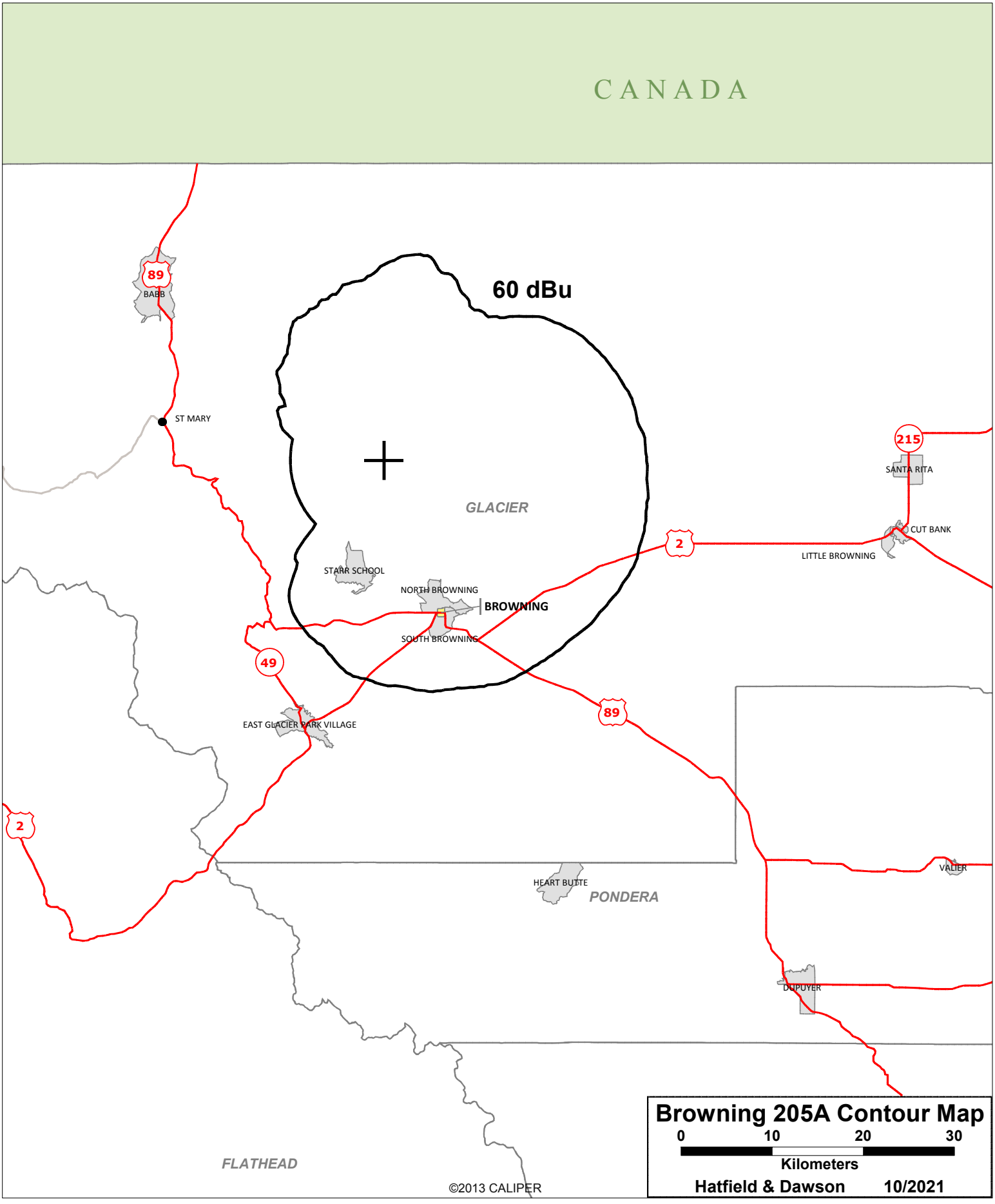
Area and Population Calculation Methodology

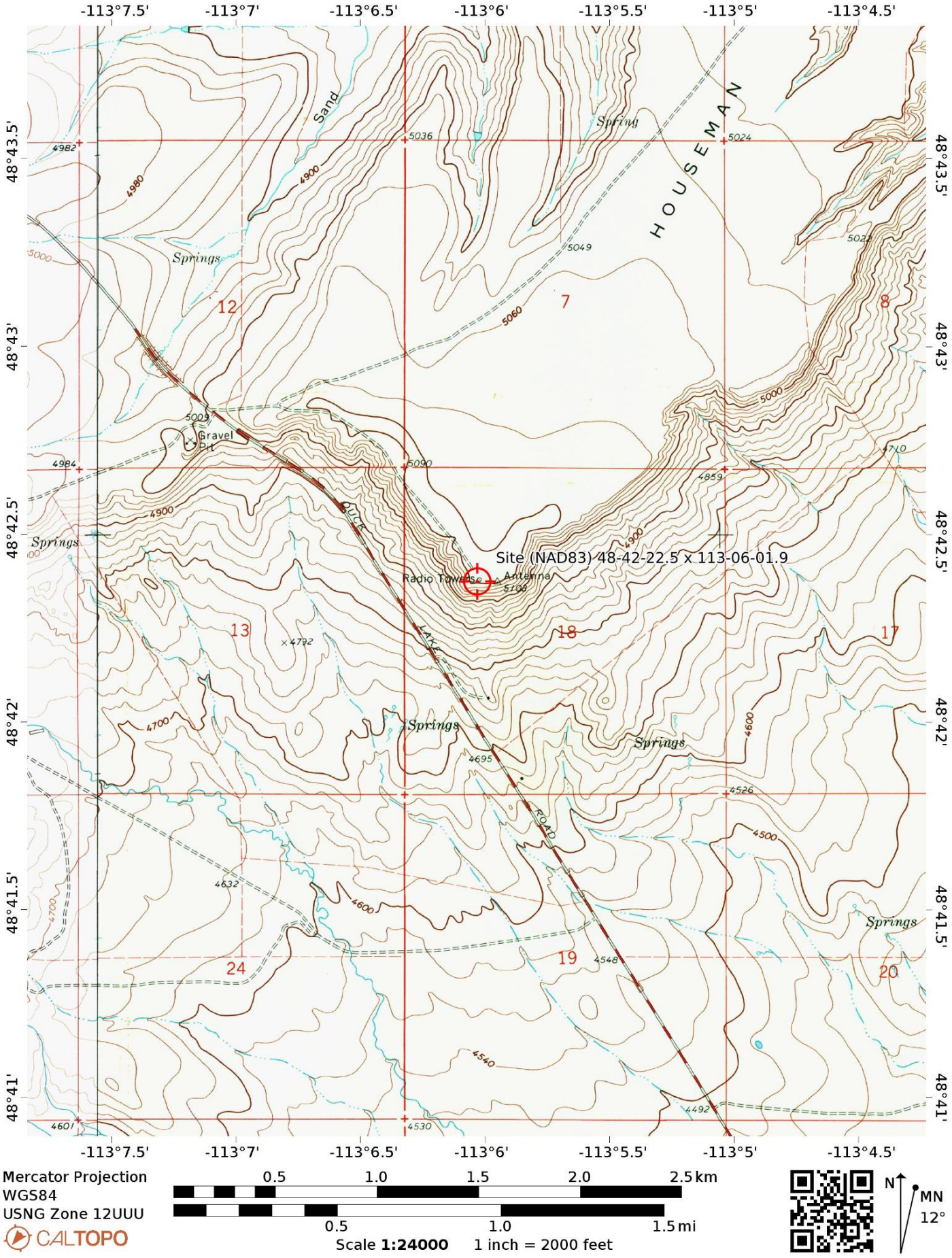
Calculation of the area within the 60 dBu contour was performed by the mapping program Maptitude, which includes a function which automatically calculates the area within irregular polygons. In cases where the 60 dBu contour included any large water areas, those were excluded by using a related tool in the program which allows the user to "clip" to the land area within the contour. The software returns the area of the land area.

Total area inside 60 dBu contour:	1471 sq km
Water area excluded:	0 sq km
Total land area inside 60 dBu contour:	1471 sq km

Population was calculated by summing the individual populations of each of the census blocks from the 2010 Census whose centroids are encompassed by the proposed 60 dBu contour.

Population inside 60 dBu contour:	6875


CANADA
60 dBu
89
BABB
ST MARY
GLACIER
215
SANTA RITA
CUT BANK
LITTLE BROWNING
2
STARR SCHOOL
NORTH BROWNING
BROWNING
SOUTH BROWNING
49
89
EAST GLACIER PARK VILLAGE
2
HEART BUTTE
PONDERA
VALIER
DUPUYER
FLATHEAD
©2013 CALIPER
Browning 205A Contour Map
0 10 20 30
Kilometers
Hatfield & Dawson 10/2021



Hatfield & Dawson Consulting Engineers