

EXHIBIT 13  
(Page 1 of 8)

OVERLAP REQUIREMENTS  
Board of Trustees, Michigan State University  
East Lansing, MI

Figure 13.0 is an allocation study showing the interfering contours for the proposed W255BC facilities in relation to the protected contours for all FM broadcast, low power FM and FM translator stations operating on channels 230 through 236 which require protection consideration. As shown in this figure, the proposed W255BC operating facilities provide the contour protection required by Section 74.1204(a) of the FCC Rules to all other stations requiring protection consideration except second adjacent channel stations WWDK(FM) - Jackson, Michigan, which operates on Channel 231B, and WMMQ(FM) - East Lansing, Michigan, which operates on Channel 235B. As is documented below in more detail, however, the proposed W255BC facilities are not likely to result in any actual interference to WWDK or WMMQ. Thus, based on this lack of interference, Section 74.1204(d) of the FCC Rules permits the attached application to be granted in spite of this prohibited contour overlap.

Section 74.1204(a) of the FCC Rules prohibits any overlap between the proposed W255BC 94 dBu contour and the 54 dBu protected contours for both WWDK and WMMQ. Compliance with this requirement, however, is obviously not possible from this site, since the proposed site is located within the 54 dBu protected contours for both WWDK and WMMQ.

Figure 13.1 is a map exhibit depicting the predicted 94 dBu contour for the proposed W255BC facilities. As shown in this figure, the proposed 94dBu contour extends 1500 meters from the proposed site. This figure also shows that there are buildings and public highways located within this distance of the proposed site. As a result, it was nec-

EXHIBIT 13  
(Page 2 of 8)

essary to undertake a more detailed analysis to document that there is no population that is predicted to receive interference within this area of prohibited overlap.

As part of this detailed analysis, it was determined that the predicted WWDK signal strength at the proposed site is 66.5 dBu, while the predicted WMMQ signal strength at the proposed site is 86.0 dBu.<sup>1</sup> Based on the 40 dB undesired to desired (“U/D”) signal strength ratio specified for second adjacent channel stations in Section 74.1204(a)(3) of the FCC Rules, a signal level exceeding 106.5 dBu would be required to cause predicted interference to WWDK and a signal level exceeding 126.0 dBu would be required to cause predicted interference to WMMQ. The vertical radiation pattern data for the proposed three bay 0.75 wavelength spaced antenna was utilized in conjunction with free space propagation prediction techniques to calculate the distance to the 106.5 dBu contour<sup>2</sup> for the proposed facilities at depression angles ranging from 0° down through 90°. The results of these calculations are tabulated in Table 13.2 and depicted in Figure 13.2, which shows a side view of the predicted 106.5 dBu contour for this proposed antenna system. As shown in this figure, the predicted 106.5 dBu contour for these proposed operating facilities never reaches ground level, with its closest approach being 39.8 meters (131 feet) at a depression angle of 40°. Since, as shown in Figure 13.1, there are no tall buildings or other publicly accessible tall structures located near the proposed site, it is obvious that there is no population within the area where this overlap would result in interference being predicted to either WWDK or WMMQ. Thus, pursuant

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<sup>1</sup>These signal strength calculations were made using the F(50,50) curves from Section 73.333 of the FCC Rules and terrain data extracted from the NGDC 30 second terrain database.

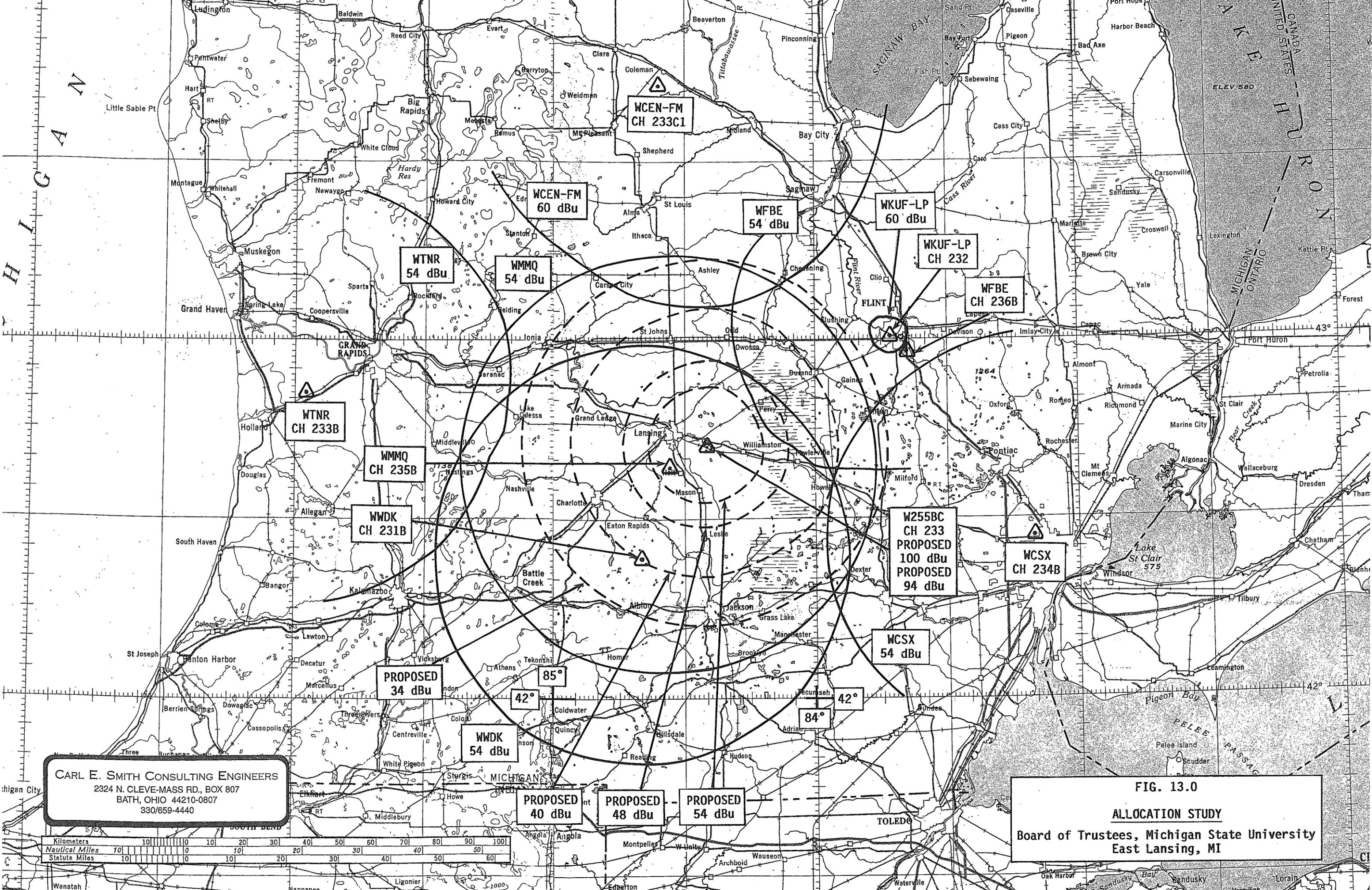
<sup>2</sup>The area where the predicted signal strength exceeds 126.0 dBu will be totally contained within the area where the predicted signal strength exceeds 106.5 dBu.

EXHIBIT 13  
(Page 3 of 8)

to Section 74.1204(d) of the FCC Rules, the attached application can be granted in spite of this prohibited contour overlap, due to the total lack of population within the area of predicted interference. If it is deemed to be necessary, a waiver of Section 74.1204(a) of the FCC Rules is respectfully requested with regard to this situation.

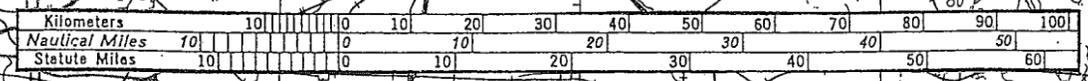
Table 13.3 is an FM spacing study which demonstrates that the proposed facilities will comply with the intermediate frequency separation requirements outlined in Section 73.207 of the FCC Rules with regard to all existing or proposed stations operating on FM Channels 286 and 287.

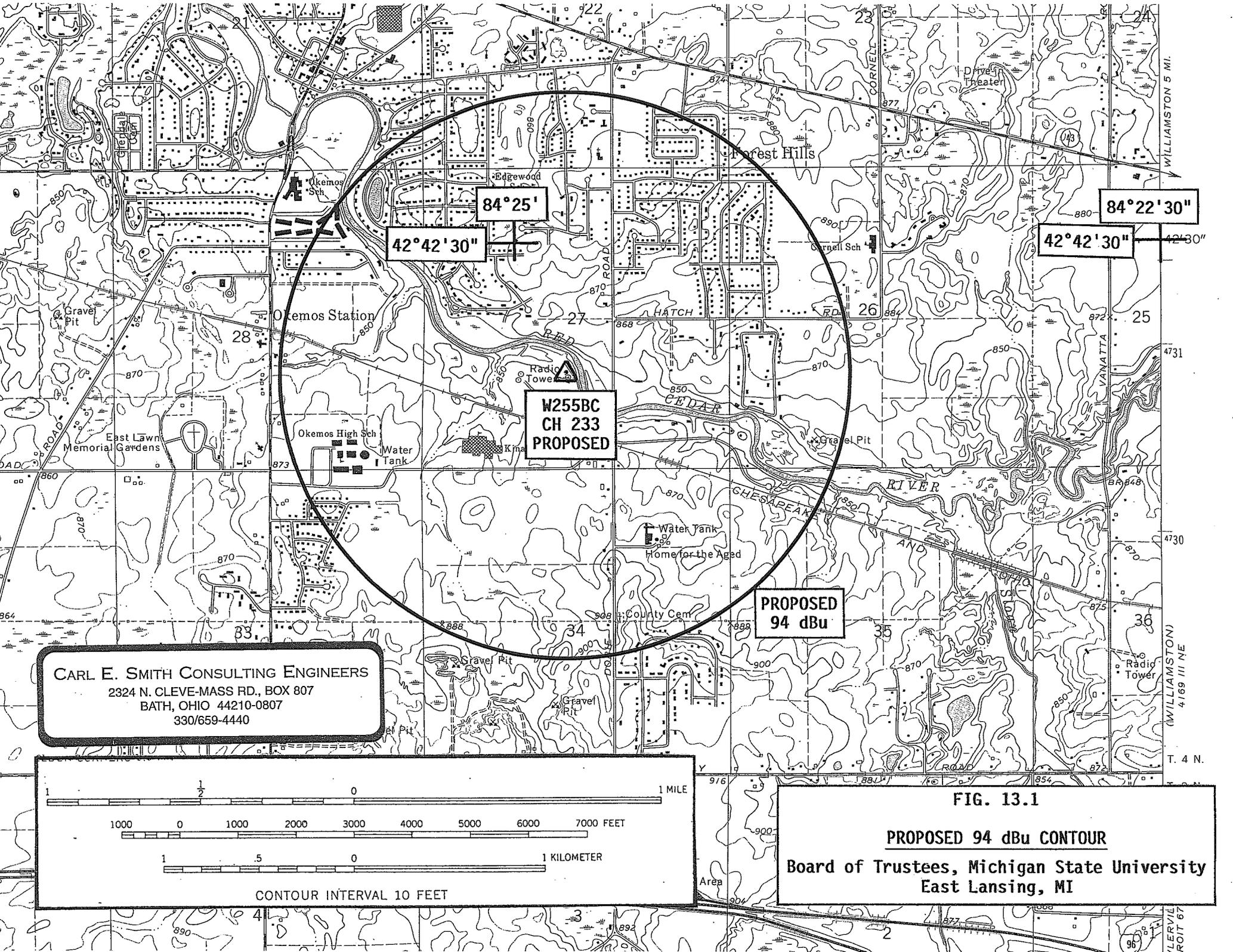
The proposed transmitter site lies within 320 kilometers of the common border between the United States and Canada. At its farthest point, the proposed 34 dBu contour will extend 59.1 kilometers from the proposed site and at no point does it cross the Canadian border. Since this distance is less than 60 kilometers and the proposed facilities will operate at a power level that is less than 250 watts, the proposed facilities will fully comply with Section 4.3 of the Working Arrangement for Allotment and Assignment of FM Broadcasting Channels 201-300 Under the Canadian-U.S.A FM Broadcasting Agreement of 1947.



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**FIG. 13.0**  
**ALLOCATION STUDY**  
 Board of Trustees, Michigan State University  
 East Lansing, MI





84°25'

42°42'30"

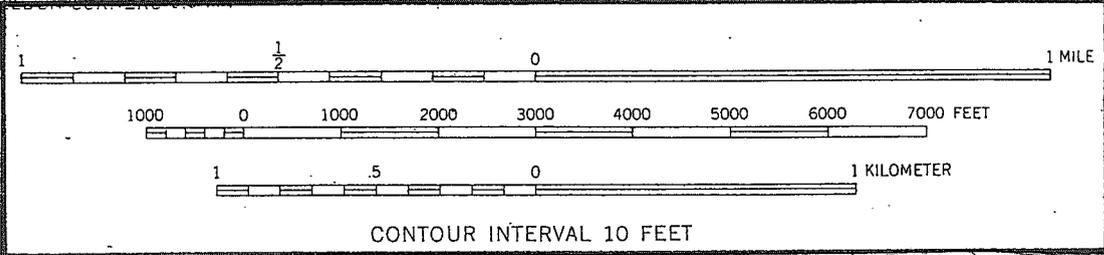
84°22'30"

42°42'30"

**W255BC  
CH 233  
PROPOSED**

**PROPOSED  
94 dBu**

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**FIG. 13.1**  
**PROPOSED 94 dBu CONTOUR**  
**Board of Trustees, Michigan State University**  
**East Lansing, MI**

TABLE 13.2

PROPOSED 106.5 DBU CONTOUR  
Board of Trustees, Michigan State University  
East Lansing, MI

<u>Depression Angle (Degrees)</u>	<u>Relative Field</u>	<u>ERP (dBk)</u>	<u>106.5 dBu Contour* (Meters)</u>
0	1.000	-7.21	457.6
5	0.939	-7.76	429.5
10	0.769	-9.49	352.0
15	0.529	-12.74	242.1
20	0.279	-18.30	127.6
25	0.054	-32.56	24.7
30	0.116	-25.92	53.1
35	0.208	-20.85	95.2
40	0.234	-19.83	107.0
45	0.209	-20.81	95.6
50	0.157	-23.29	71.9
55	0.088	-28.32	40.3
60	0.027	-38.59	12.3
65	0.018	-42.11	8.2
70	0.047	-33.77	21.5
75	0.057	-32.09	26.1
80	0.051	-33.06	23.3
85	0.045	-34.15	20.6
90	0.033	-36.84	15.1

Horizontal ERP = 190 Watts = -7.21dBk

\* - Contour distance calculated using free space calculation techniques.

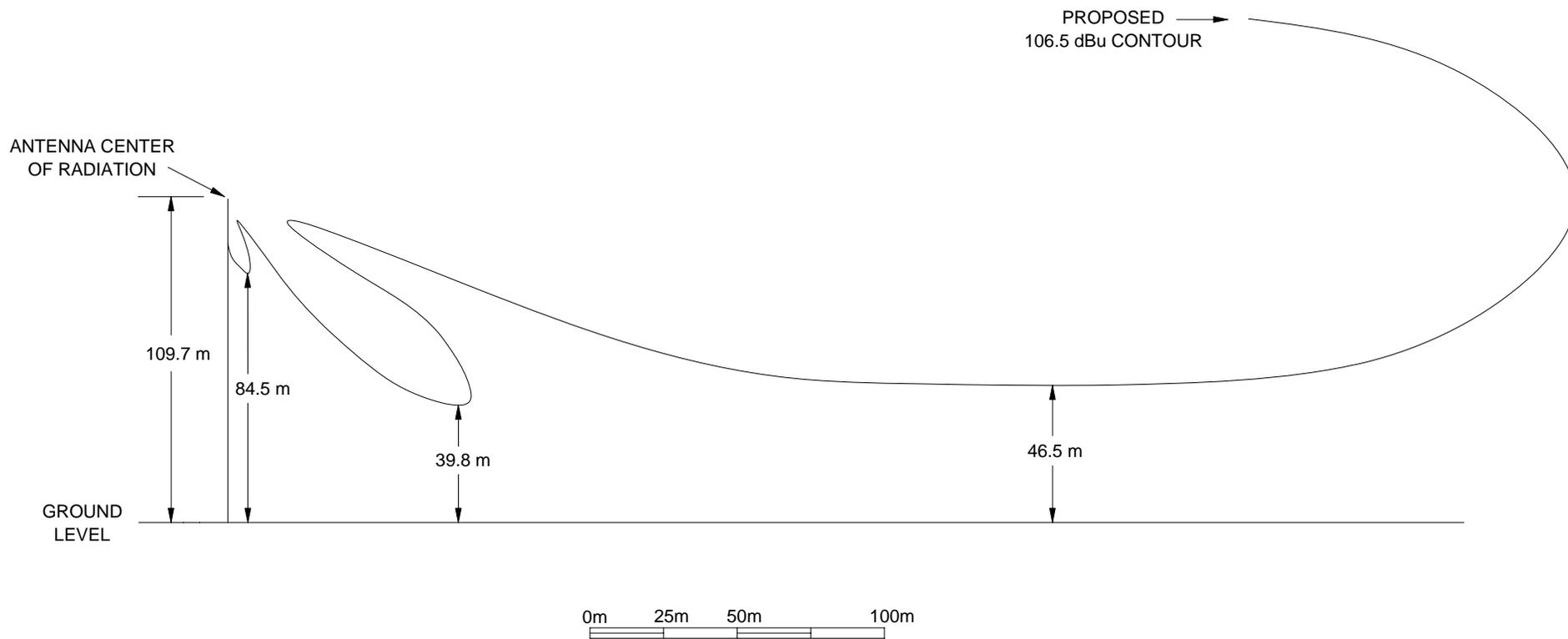


FIG. 13.2

PROPOSED 106.5 dBu CONTOUR

BOARD OF TRUSTEES,  
MICHIGAN STATE UNIVERSITY  
EAST LANSING, MI

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TABLE 13.3

FM ALLOCATION STUDY - CHANNEL 233A (94.5 MHz) - EAST LANSING, MI

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 BOARD OF TRUSTEES, MICHIGAN STATE UNIVERSITY  
 EAST LANSING, MI

STUDY COORDINATES: 42/42/07 84/24/48

STATION	LOCATION	CHANNEL	CLASS	SPACING (km)	REQUIRED SPACING*	NOTES
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WMGC-FM	DETROIT, MI	286	B	106.22	15.0	
WKHM-FM	BROOKLYN, MI	287	A	60.89	10.0	

\* Required Spacing Per Section 73.207 of The FCC Rules

## Notes:

- |                                      |                                  |
|--------------------------------------|----------------------------------|
| 1 - Applied For Under Section 73.215 | 7 - Pending Application          |
| 2 - Construction Permit              | 8 - Petition For Reconsideration |
| 3 - Channel Deletion Proposed        | 9 - Proposed Rulemaking          |
| 4 - Move From This Channel Ordered   | 10 - Rulemaking Petition         |
| 5 - Move to This Channel Ordered     | 11 - Short-Spaced                |
| 6 - One Step Reference Site          | 12 - Vacant Allotment            |