OWL ENGINEERING & EMC TEST LABS, INC.

CONSULTING COMMUNICATIONS ENGINEERS · EMC TEST LABORATORIES

5844 Hamline Avenue North, Shoreview, MN 55126
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ENGINEERING EXHIBIT FOR AN APPLICATION FOR A CONSTRUCTION PERMIT WUPG-FM1 REPUBLIC, MI

CHANNEL 244 0.1 KW (H&V) 13 METERS HAAT

March 28, 2023

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TABLE OF CONTENTS

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ENGINEERING STATEMENT

This engineering exhibit, of which this Statement is a part, was prepared in accordance with the Rules and Regulations of the Federal Communications Commission and pursuant to the provisions of Section III-B of FCC Form 349 on behalf of AMC Partners, Escanaba (hereafter "AMC") in support of an application for authority to modify an existing FM broadcast facility (WUPG-FM1) operating on channel 244 (96.7 MHz) at Republic, MI. The purpose of this application is to change the Booster antenna location, effective radiated power to 0.1 KW, both in the horizontal and vertical plane, and the antenna center of radiation to 43 meters above the average terrain. This power/height combination is the maximum allowable facility permitted under the current rules and regulations.

"AMC**"** proposes to operate from a site uniquely described by the geographic coordinates:

(NAD 83)
46° 32' 42.4" North Latitude
87° 26' 40.1" West Longitude

Notification to the FAA is not required since tower has an ASR registration #1007590 and the height has not been increased.

Engineering Figure 1 is a portion of the Marquette, MI 7.5 minute USGS map that shows the exact location of the tower.

Figure 2 shows an aerial view of the proposed site and that the surrounding area is rural. Because the area is a business district, there is not expected to be any problem with

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blanketing interference. The applicant is aware of the provisions of Section 73.318 of the FCC's Rules and the requirement for satisfying all complaints of blanketing interference that are received within a one-year period. The main studio for the station is located in the Republic area.

ALLOCATION CONSIDERATIONS

The instant proposal is for a modification of an existing booster facility. The proposed 60 dBuV contour is enclosed within the existing main facility contour. The contour that exceeds the main contour is all over water.

COVERAGE CONTOURS

The three-to-sixteen-kilometer average terrain elevations were derived from the Defense Mapping Agency 3-second topography database.

DISTANCE TO CONTOURS

DISTANCES TO CONTOURS (Kilometers):
Antenna COR elevation (AMSL): 301 meters Average HAAT: 13 meters
Frequency: 96.7000 MHz
Coordinates: N 46° 32 42.40 W 87° 26 40.10
F(50,50) Curves Number of Contours: 1

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBuV): 60.0
0.0	110	0.0610	9.6
45.0	116	0.0610	9.9
90.0	117	0.0610	9.9
135.0	81	0.0610	8.2
180.0	-69	0.0610	5.0
225.0	-105	0.0610	5.0
270.0	-128	0.0610	5.0
315.0	-22	0.0610	5.0

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The effective antenna radiation center height for each of the eight standard 45-degree spaced radials was used in conjunction with the F(50,50) metric curves of Figure 1 of Section 73.333 of the Rules to determine the distances to the 60 dBuV coverage contours. The contours drawn from the data are depicted on the map included as Engineering Figure 3. This figure shows the existing and proposed new 60 dBuV coverage.

ANSI Power Density Calculations

The power density at the base of the tower was calculated using the following formula from OST Bulletin Number 65, August, 1997:

$$S = \frac{(0.64)(1.64)(ERP)(1000)(milliwatts/watt)}{pi(R)^2}$$

where: S = power density in milliwatts per square centimeter

ERP = effective radiated power in watts

R = distance to radiation source in centimeters

pi = 3.14

Using this formula and the values shown below, a power density of mW/cm^2 is found to exist at the base of the tower. This predicted value is 0.75% of the public exposure maximum limit of 0.2 mW/cm^2.

ERP = 0.2 KW

R = 3,000 cm.

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ENVIRONMENTAL IMPACT STATEMENT

The instant proposal is categorically excluded from environmental processing since none of the conditions of Section 1.1306(b)(2) and (3) would be involved for the following reasons:

1) The site proposed is not in or near any location referenced in Section 1.1306(b)(1) as being of environmental interest.

2) The provisions of Section 1.1306(b)(2) relating to the use of high intensity strobe lighting do not apply since this tower is not utilizing this type of lighting.

3) Compliance to Section 1.1306(b)(3) regarding human exposure to RF radiation was examined for multiple sources. A search was made about the proposed site coordinates to locate any additional sources of RF radiation and none were found.

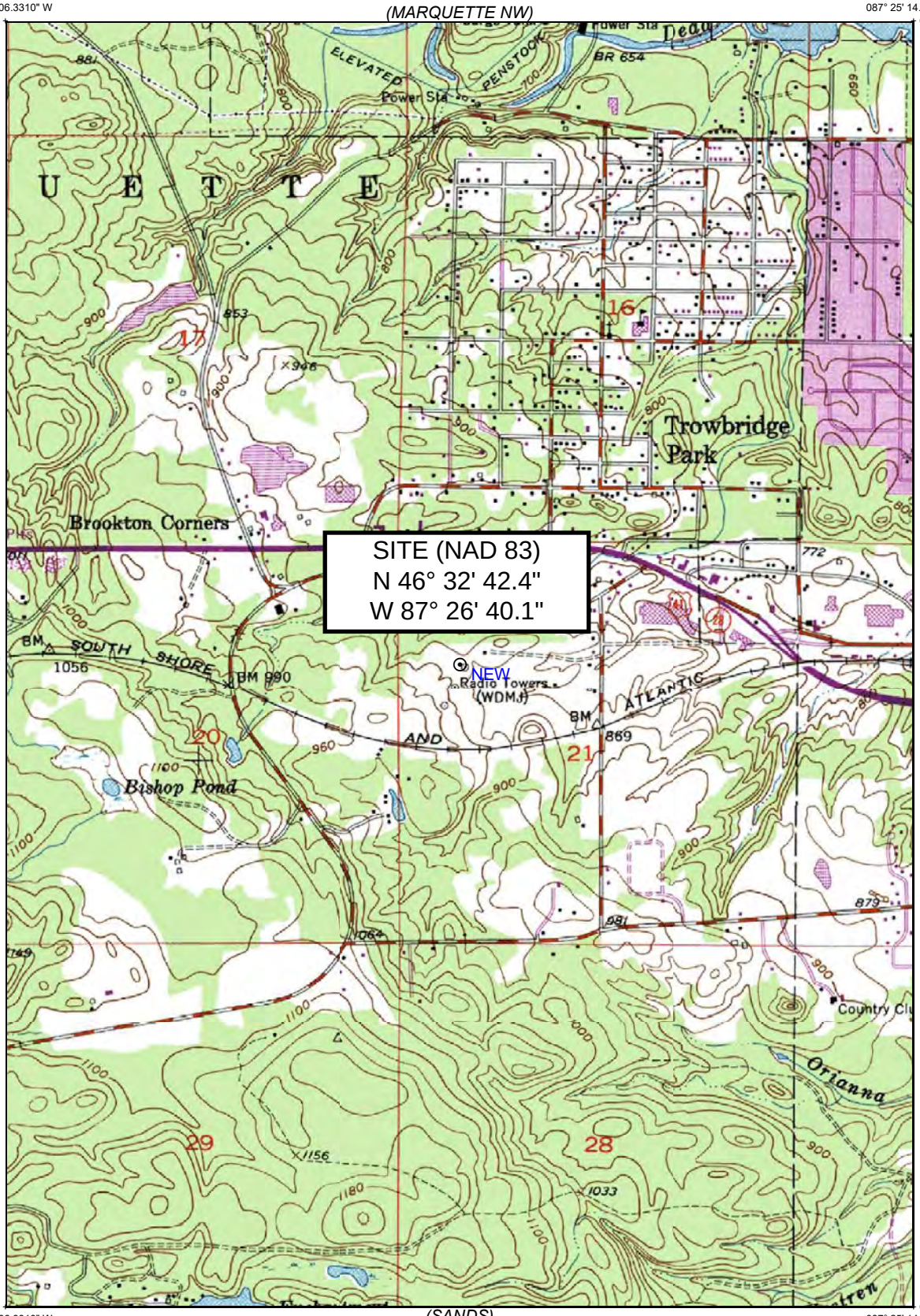
Garrett G. Lysiak, P.E.
March 28, 2023

MARQUETTE QUADRANGLE
MICHIGAN
TOPOGRAPHIC SERIES

(BUCKROE) (MARQUETTE NW) (Unavailable)

087° 28' 06.3310" W
046° 34' 05.7501" N

087° 25' 14.3042" W
046° 34' 05.7501" N



(NEGAUNEE) (Unavailable)

046° 31' 18.1475" N
087° 28' 06.3310" W

(SANDS)

046° 31' 18.1475" N
087° 25' 14.3042" W

(PALMER) (HARVEY)

Declination
MN
GN
GN 0° 19' W
MN 5° 01' W

SCALE 1:24000

0 1
Mile

0 1000
Yards

0 1
Kilometer

CONTOUR INTERVAL 20 FT
[BASE MAP VERTICAL DATUM]

MARQUETTE, MI
JAN 1, 1975

FIGURE 1 - SITE MAP

FIGURE 2 - AERIAL VIEW

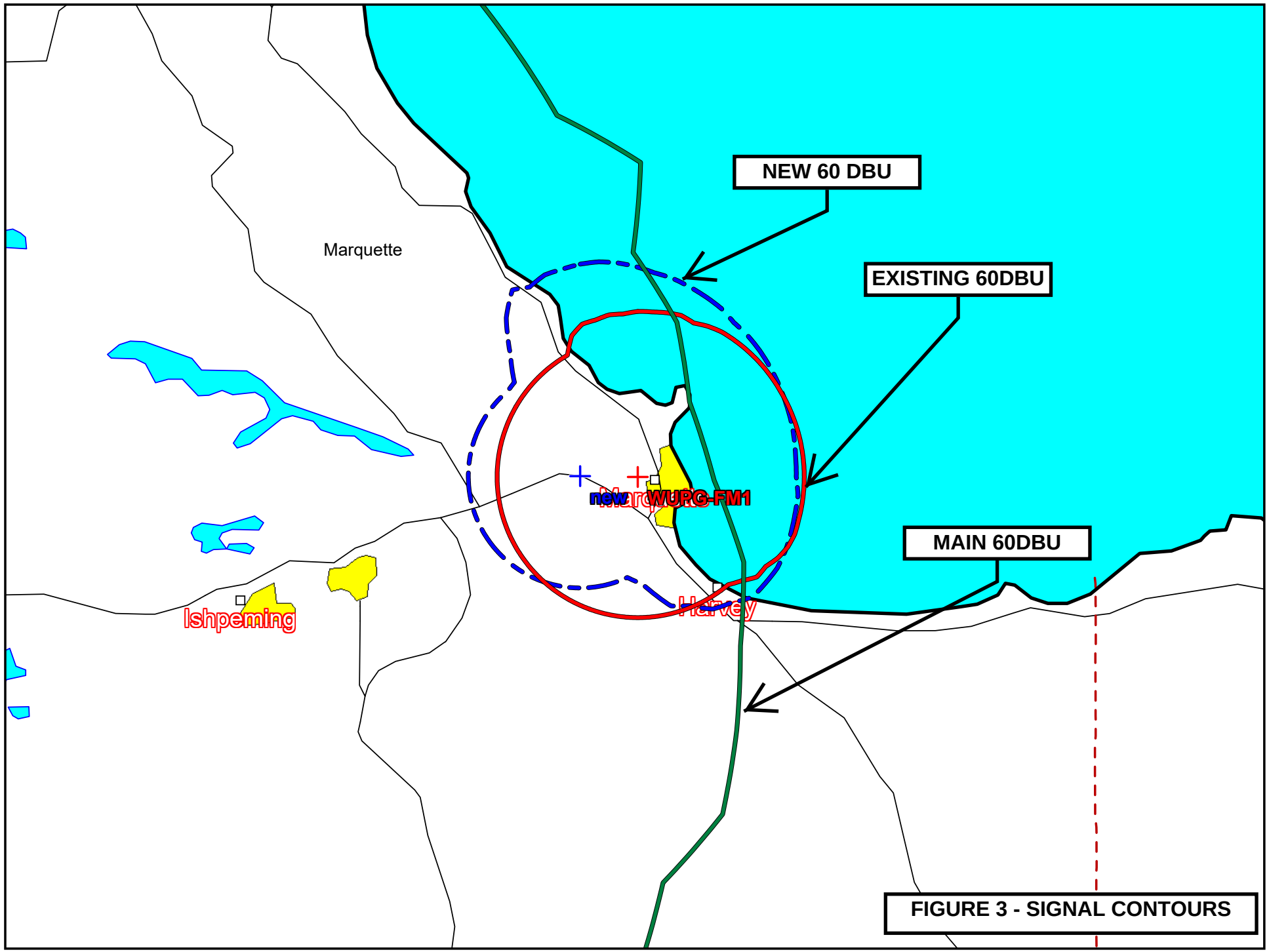


FIGURE 3 - SIGNAL CONTOURS