OWL ENGINEERING & EMC TEST LABS, INC.

CONSULTING COMMUNICATIONS ENGINEERS · EMC TEST LABORATORIES

5844 Hamline Avenue North, Shoreview, MN 55126
651-784-7445 • Fax 651-784-7541

ENGINEERING EXHIBIT FOR AN

APPLICATION FOR A CONSTRUCTION PERMIT

KJBL CHANNEL 243 C1

ARMADA MEDIA-MC COOK, INC

JULESBURG, CO

FACILITY ID# 84864

CHANNEL 243 100 KW (H&V) 255 METERS HAAT

February 6, 2023

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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 301 on behalf of Armada Media-Mc Cook, Inc (hereafter "**Armada**") in support of an application for authority to modify an existing FM broadcast facility KJBL operating on channel 243 (96.5 MHz) at Julesburg, CO. The purpose of this application is to change the Class, increase output power and center of radiation. This power/height combination is an allowable Class C1 facility permitted under the current rules and regulations.

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

(NAD 27)
41° 00' 03" North Latitude
101° 59' 55" West Longitude

(NAD 83)
41° 00' 03" North Latitude
101° 59' 56'7" West Longitude

Notification to the FAA was previously made under study# 2019-ACE-2699-OE and was issued a determination of no hazard. Since the tower was not constructed in a timely manner a new study has been submitted, Study #2023-ACE-637 was assigned. The environmental study has been submitted to a firm and are awaiting the results of the study.

Engineering Figure 1 is a portion of the Brule, NE 7.5 minute USGS map that shows the exact location of the tower. A search was performed for the presence of any other communications facilities located nearby and none were found.

Figure 2 shows an aerial view of the proposed site and that the surrounding area is rural. Because the area is rural, there is not expected to be any problem with blanketing interference. The applicant is aware of the provisions of §73.318 of the FCC's Rules and

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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 Julesburg area and complies with §73.1125.

ALLOCATION CONSIDERATIONS

A review of allotments and assignments on channel 243, on the three immediately upper adjacent, the three immediately lower adjacent channels and the two channels removed by 53 and 54 channels (296 & 297) shows that the site proposed would be in full compliance with §73.207. The allocation study results:

REFERENCE
41 00 03.00 N.
101 59 56.70 W.

CLASS = C1
Current Spacings to 3rd Adj.

DISPLAY DATES
DATA 02-01-23
SEARCH 02-06-23

Channel 243 - 96.5 MHz

Call	Channel	Location		Azi	Dist	FCC	Margin
KJBL	LIC 243A	Julesburg	CO	266.5	22.22	200.0	-177.8
KELN	LIC 246C1	North Platte	NE	75.9	112.61	82.0	30.6
KRGI-FM	LIC 243C1	Grand Island	NE	91.7	303.77	245.0	58.8

COVERAGE CONTOURS

The three-to-sixteen-kilometer average terrain elevations were derived from the NGDC 30-second topography database.

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 §73.333 of the Rules to determine the distances to the 70 dBuV and 60 dBuV coverage contours.

DISTANCE TO CONTOURS

DISTANCES TO CONTOURS (Kilometers):
Antenna COR elevation (AMSL): 1325 meters Average HAAT: 255 meters
Frequency: 96.5000 MHz
Coordinates: N 41° ‘0 03” W 101° 59’ 55”
F(50,50) Curves Number of Contours: 2

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBuV): 70.0	60.0
0.0	276	100.0000	48.5	70.3
45.0	304	100.0000	50.3	72.4
90.0	257	100.0000	47.2	68.8
135.0	251	100.0000	46.7	68.3
180.0	224	100.0000	44.8	66.0
225.0	209	100.0000	43.6	64.7
270.0	248	100.0000	46.5	68.0
315.0	271	100.0000	48.2	69.9

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The contours drawn from the data are depicted on the map included as Engineering Figure 3. As is readily evident, all of Julesburg, CO is included within the proposed 70-dBuV coverage contour as required by the rules. The contours drawn from the data are depicted on the map included as Engineering Figure 3. As is readily evident, all of Julesburg, CO is included within the proposed 70-dBuV coverage contour as required by the rules.

POPULATION AND AREA DATA

Based on the 2020 U.S. Census of Population, the numbers of persons enclosed by the proposed 60-dBuV coverage contour are 26,891 persons. The population count was made through the employment of a computer program containing a database including the geographic coordinates of the centroids of population groupings. The area within the proposed 60-dBuV coverage contour is 14,817 square kilometers. A computerized integration program determined this area.

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:

$$S = \frac{0.64 \times 1.64 \times ERP \times 1000}{\pi\left(R^2\right)}$$

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

The site is considered to be a controlled site since access to the tower area is restricted by a fence.

Using:

ERP = 200 kW (100 KW Vertical & 100 KW Horizontal)
R = 22,900 cm. (229 meters)

Using this formula and the values shown below, a power density of 127.4 μW/cm^2 is predicted to exist at the base of the tower. This predicted value is 63.7**%** for the Public exposure limit of 200 μW/cm^2 and 12.7% of the controlled exposure maximum limit of 1,000 μW/cm^2.A perimeter fence that will surround the tower and limits access to the public will restrict access to RF circuitry. Signs will be posted warning of the potential danger. When persons require access to the site, tower or antenna for maintenance

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purposes, the transmitter power will be reduced or eliminated to comply with ANSI guidelines. Hence, the conditions of §1.1306(b) (3) would not be involved.

ENVIRONMENTAL IMPACT STATEMENT

The instant proposal is categorically excluded from environmental processing since none of the conditions of §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 §1.1306(b)(1) as being of environmental interest.

2) The provisions of §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 §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.

CONCLUSIONS

Based on the engineering studies provided, the following conclusions can be derived:

(1) Implementation of the instant proposal will continue to provide Julesburg with a full time aural broadcast service.

(2) 26,851persons in 14,817 square kilometers would have an available signal strength of 60 dBuV or greater from the proposed construction location.

(3) All of Julesburg would be served with a signal of 70 dBuV or greater from the proposed construction site.

(4) The proposal is in complete conformance with all technical rules of the Federal Communications Commission.

Garrett G. Lysiak, P.E.
February 6, 2023

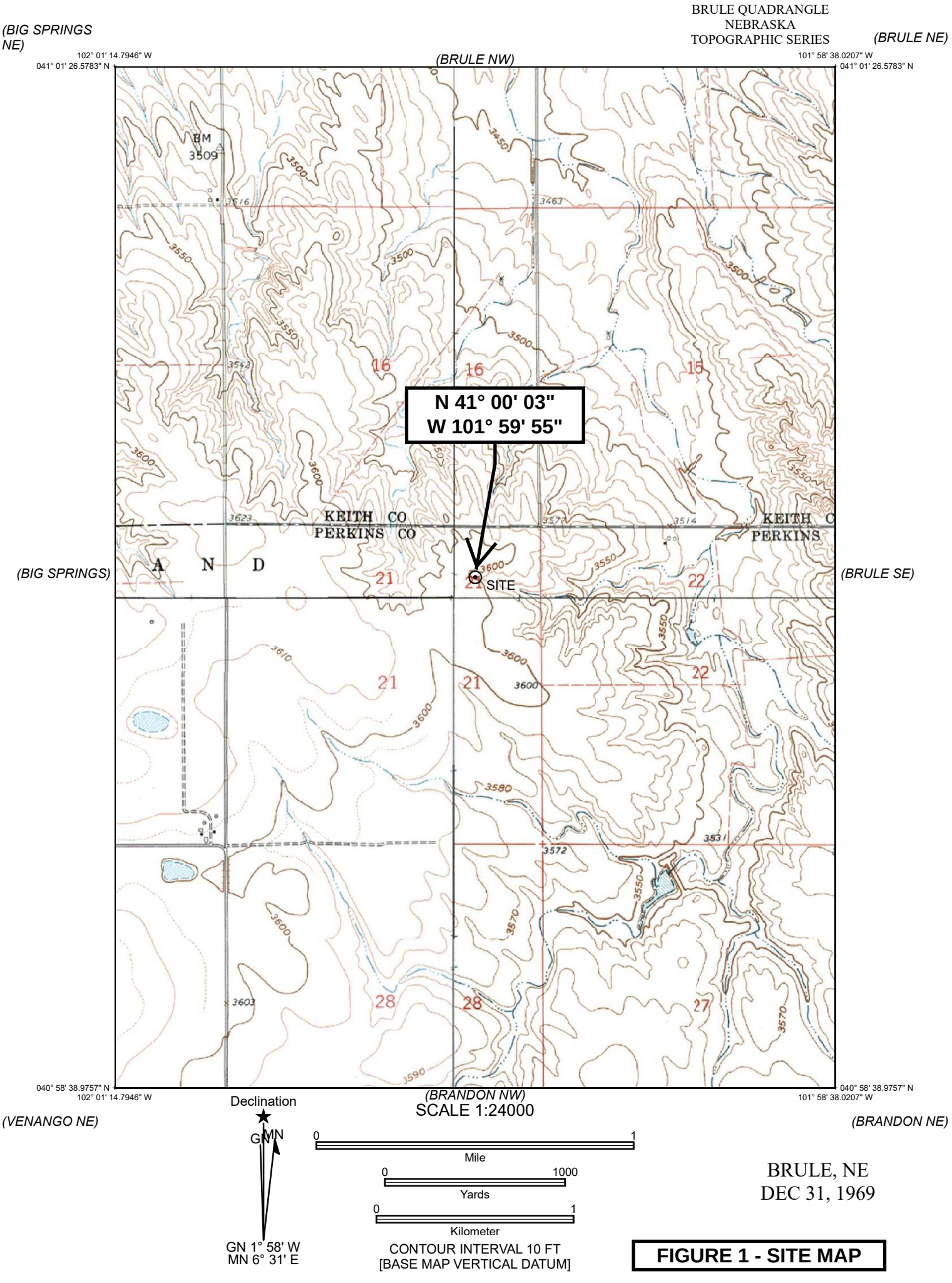

FIGURE 1 - SITE MAP

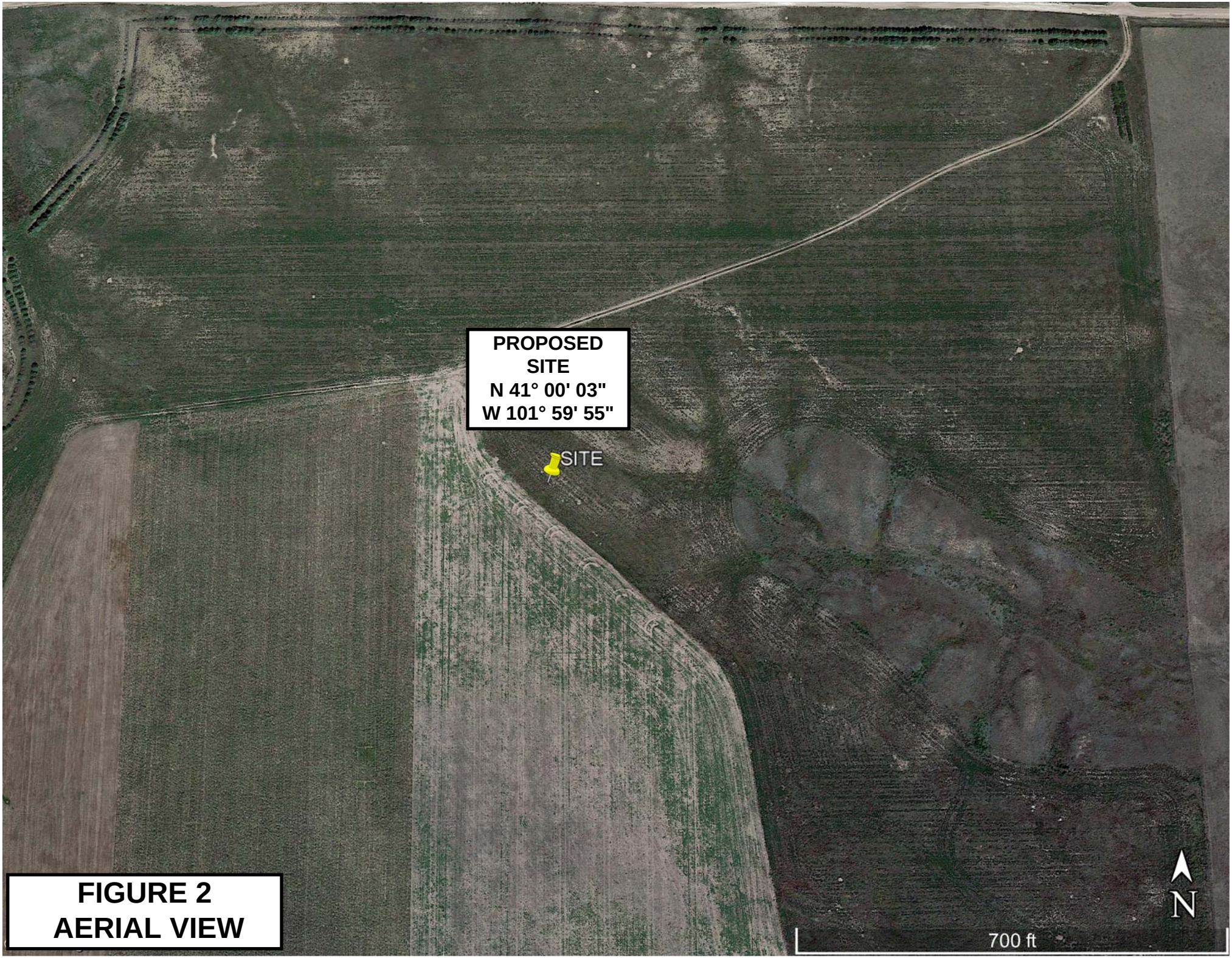

FIGURE 2
AERIAL VIEW

FIGURE 3 - COVERAGE MAP