

T Z SAWYER TECHNICAL CONSULTANTS

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CSN INTERNATIONAL, INC.

APPLICATION FOR  
AM CONSTRUCTION PERMIT TO  
REDUCE DAYTIME POWER

MINOR CHANGE APPLICATION

WTZE (AM) 1470 KHZ - CLASS D

HAS: 5.0 KW DAY ND  
PROPOSES: 1.0 KW DAY ND

NO OTHER CHANGES ARE SOUGHT

TAZEWELL, VA  
FACILITY ID: 64664

DECEMBER 2021

ENGINEERING EXHIBIT  
IN SUPPORT OF  
AN APPLICATION FOR AM CONSTRUCTION PERMIT  
STATION WTAZ (AM)  
TAZEWELL, VA

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to 1 kW, Nondirectional.

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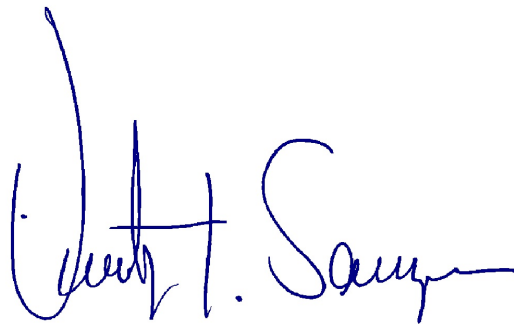
Figure 4 - Daytime Present and Proposed Service Contours,  
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## DECLARATION OF ENGINEER

I, Timothy Z. Sawyer, declare that I have provided RF engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer and principal with the firm of T Z Sawyer Technical Consultants, consulting radio telecommunications engineers with offices in Falls Church, Virginia.

This firm has been retained by CSN INTERNATIONAL, INC. to prepare this instant engineering exhibit in support of an application to make minor changes to the license authorization of Class D AM broadcast station WTZE, Tazewell, Virginia

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.



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Timothy Z. Sawyer  
December 22, 2021

ENGINEERING EXHIBIT

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Engineering Statement Narrative

This engineering statement (in narrative form) and the instant exhibit of which it is part has been prepared on behalf of CSN INTERNATIONAL INC., licensee of Class D AM broadcast Station WTZE, Tazewell, Virginia.

By means of the instant application, the applicant proposes to make minor changes to its station license. The applicant proposes to reduce its authorized daytime power from 5-kilowatts to 1-kilowatt. No other changes are proposed.

Engineering Discussion - Transmitter/Antenna Location

This is the existing antenna and site location of the station; as no physical changes will occur, a site map or plat of site is not required.

Figure 1 contains the results of the FCC/FAA tower to airport/landing area slope results. The existing tower is less than 61 meters in overall height above ground and

does not require FCC registration (FCC ASR) or notification to the FAA. No changes are reported, this is a reduction in operating power only.

#### Blanket Contour - 1000 mV/m GW

As no SITE changes are proposed, the maximum blanketing contour area is slightly reduced as a result of the reduction in power from a radius of 580 meters to 280 meters about the tower. The population within the proposed blanketing contour (1000 mV/m) is reduced to 19 persons from 94 persons. The proposal is in compliance with 47 CFR §73.24(g). A Google Earth satellite view of the site and the blanketing contour is provided in Figure 4C.

#### Antenna System - Vertical Sketch of Antenna.

Figure 2, A description of the radiator and the antenna ground system are described in the station's authorization. There are no changes to report. The antenna is a series fed, uniform cross-section guyed steel tower.

Details extract from the station license files BML-20130314ADM / BL-19940131AF		
Non-Directional Antenna Day	Radiator Height: 54.8 meters; 96.8 deg	Theoretical Efficiency: 310 mV/m/kw at 1km

Ground system consists of 120 equally spaced, buried, copper radials about the base of tower, each 51 meters in length.

#### Daytime Allocation Study

WTZE (AM) is licensed on 1470 kHz with a daytime power of 5-kilowatts, employing a non-directional antenna pattern (ND1).

Figures 3A includes the results (a 1470 kHz allocation map) of the proposed daytime operation on existing or pending facilities. The proposed operation is in compliance with the current rules regarding daytime contour groundwave overlap. It does not

cause increased prohibitive interference to any other facility (protected current/proposed or pending) as required by the Commission's Rules.

Grandfathered Contour Overlap (based on M3/R2 soil conductivities).

The proposal is for a reduction in radiated power; therefore, the area of any existing overlap of contours with other stations (domestic and foreign) would be reduced.

Protected and Interference Contours

0.5 mV/m protected to 0.025 mV/m - co-channel relationship

0.5 mV/m protected to 0.25 mV/m - 1<sup>st</sup>-adjacent channel relationship

Grandfather Contour Overlap Tabulation

(Interference in sq. km to/from facilities of concern)

DOMESTIC - CO CHANNEL	PRESENT (SQ.KM)	PROPOSED (SQ.KM)	REDUCTION (SQ.KM)
TO WTOE FROM WTZE	2554.4	171.62	-2382.78
FROM WTOE TO WTZE	3203.6	1676.2	-1527.4

DOMESTIC - 1 <sup>ST</sup> ADJ. CHANNEL	PRESENT (SQ.KM)	PROPOSED (SQ.KM)	REDUCTION (SQ.KM)
TO WEKB FROM WTZE	749.12	56.71	-692.4
FROM WEKB TO WTZE	849.35	198.27	-651.08

Daytime Service Contours

Figure 4 contains a series of maps in which the present and proposed daytime 5.0, 2.0, and 0.5 mV/m service contours (Figures 4A & 4B) have been drawn. The daytime blanketing contour (1000 mV/m) is shown in Figure 4C. Soil conductivity values obtained from the FCC M3 database (or R2 database, if appropriate) have been used to calculate and plot the contours in combination with the existing and proposed radiated power.

City of License Coverage

Figure 4B contains a map showing the corporate limits of TAZEWEEL, VIRGINIA. As can be seen from this figure, service to Tazewell is in full compliance with the Commission's rules, with 100 percent of the corporate area and 100 percent

of the population of Tazewell receiving 5.0 mV/m (or greater) groundwave daytime service.

Environmental Considerations:

The applicant believes its proposal will not significantly affect the environment for the following reasons:

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high-intensity white lights.

Furthermore, the operation of the facility will not involve the exposure of workers or the general public to levels of radiofrequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. The radiator is surrounded by a gated, and locked fence enclosure as required by the Commission's rules that restricts access to the tower at distances greater than the OET minimum recommended distances for a radiator at or about 96.8 electrical degrees (but less than 180 degrees) at 1470 kilohertz operating at 1-kilowatt of power.

Environmental Compliance

Multiple Use Site Evaluation

Station	Frequency	Power (kW)	Radiator	OET No 65 Compliance Dist. (meters) Public	Distance. (meters)	OK
WTZE	1470 kHz	1.0	96.8 Deg.	1	> 1	YES
				FM MPE = 0.20 mW/cm <sup>2</sup>	% of MPE	
W238DB	95.5 MHZ	0.25	53.0 m AGL	.00321 mW/cm <sup>2</sup>	1.61%	YES

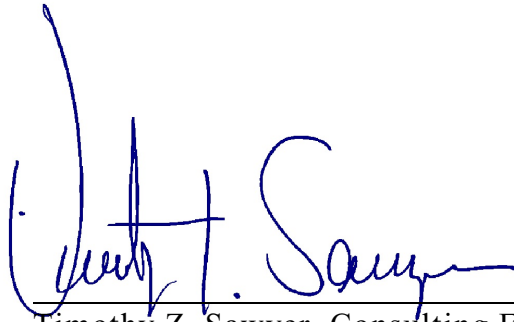
As noted in the above table, the proposal is within the Commission's maximum permissible exposure (MPE) or distance standards. The licensee/applicant will comply with the Commission's guidelines and standards.

Access to the tower is restricted, and suitable warning signs are posted. The applicant will reduce power or cease operation as necessary in coordination with any other site users during periods of maintenance or installation of equipment.

### Summary

The applicant proposes to REDUCE its daytime operating power of its existing station license from 5-kilowatts to 1-kilowatt. No physical changes at the site will occur. This is a reduction in power application only.

December 22, 2021



Timothy Z. Sawyer, Consulting Engineer

T Z Sawyer Technical Consultants  
2130 Hutchison Grove Court, Suite 100  
Falls Church, VA 22043  
Telephone: (703) 848-2130  
e-mail to: [tzsawyer@tzsawyer.com](mailto:tzsawyer@tzsawyer.com)



## EXISTING STRUCTURE - NO CHANGES ARE PROPOSED

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	37-07-57.0 north
Longitude	081-33-21.0 west
Measurements (Meters)	
Overall Structure Height (AGL)	56.1
Support Structure Height (AGL)	56.1
Site Elevation (AMSL)	797.1
Structure Type	
GTOWER - Guyed Structure Used for Communication Purposes	

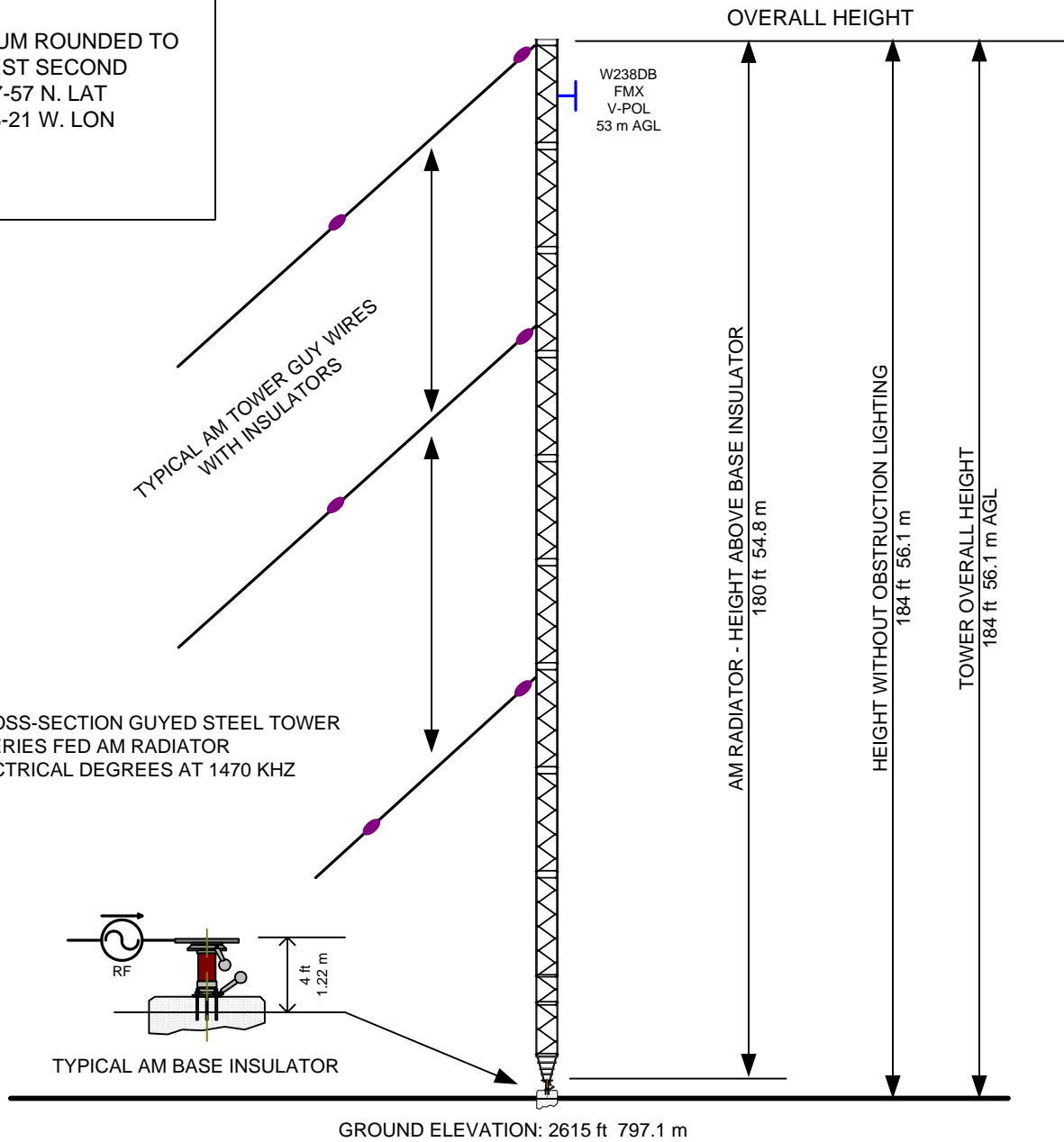
NO REGISTRATION REQUIRED STRUCTURE OVERALL HEIGHT IS LESS THAN 61 METERS

<b>T Z SAWYER TECHNICAL CONSULTANTS</b> Tel.: (703) 848-2130 www.tzsawyer.com	<b>FCC TOWER REGISTRATION IS NOT REQUIRED</b> <b>FAA NOTIFICATION IS NOT REQUIRED</b>			
	WTZE (AM) 1470 KHZ TAZEWEEL, VIRGINIA			<b>FIGURE 1</b>
FALL CHURCH, VIRGINIA 22043-2555	SIZE A	CAGE NO N/A	DWG NO 20211222WTZE.F1	REV
(c) 2021, ALL RIGHTS RESERVED	SCALE N/A	DECEMBER 2021	SHEET	

**WTZE AM TOWER**  
**FCC ASR # NOT**  
**REQUIRED**

NAD27 DATUM ROUNDED TO  
 NEAREST SECOND  
 37-07-57 N. LAT  
 81-33-21 W. LON

UNIFORM CROSS-SECTION GUYED STEEL TOWER  
 SERIES FED AM RADIATOR  
 96.8 ELECTRICAL DEGREES AT 1470 KHZ



**T Z SAWYER TECHNICAL**  
**CONSULTANTS**

Tel.: (703) 848-2130  
 www.tzsawyer.com

**WTZE AM TOWER**

**TAZEWELL, VIRGINIA**

**FIGURE**  
**2**

**FALL CHURCH, VIRGINIA 22043-2555**

SIZE  
 A

CAGE NO  
 N/A

DWG NO  
 20211222WTZE.F2

REV  
 NONE

**(c) 2021, ALL RIGHTS RESERVED**

SCALE  
 1" = 30 ft  
 Vertical only

DECEMBER 2021

SHEET

**WTZE - APP**

PROPOSED

FCC Facility ID: 64664

Freq: 1470 kHz

Class: D

NAD 27 Latitude: 37-07-57 N

NAD 27 Longitude: 081-33-21 W

Power: 1 kW

Antenna Mode: NDD

RMS: 310 mV/m @1km

**WTZE**

PRESENT

FCC Facility ID: 64664

Freq: 1470 kHz

Class: D

NAD 27 Latitude: 37-07-57 N

NAD 27 Longitude: 081-33-21 W

Power: 5 kW

Antenna Mode: NDD

RMS: 310 mV/m @1km

**CO-CHANNEL ALLOCATION 1470 KHZ**

STATIONS OF CONCERN

PRESENT AND PROPOSED PROTECTED AND  
INTERFERENCE CONTOURS FROM WTZE 1470 KHZ

FIGURE 3A

Present 0.025 mV/m

Proposed 0.025 mV/m

.025

.025

.5

WTZE - APP

**INTERFERENCE TO WTZE (CO-CHANNEL) - OVERLAP**

EXISTING (GREEN+RED) 3203.6 SQ. KM

PROPOSED (GREEN ONLY) 1676.2 SQ. KM

**INTERFERENCE TO WTOE (CO-CHANNEL) - OVERLAP**

EXISTING (GREEN+RED) 2554.4 SQ. KM

PROPOSED (GREEN ONLY) 171.62 SQ. KM

WTOE

0.025 mV/m From WTOE

**WTOE**

LICENSED

FCC Facility ID: 46322

Freq: 1470 kHz

Class: D

NAD 27 Latitude: 35-54-24 N

NAD 27 Longitude: 082-06-21 W

Power: 5 kW

Antenna Mode: ND1

RMS: 317.04 mV/m @1km

TZSTC

2021

DECEMBER

Scale 1:2,000,000

0 40 80 120 km

**1ST ADJ-CHANNEL ALLOCATION 1470 TO 1460 KHZ**  
STATIONS OF CONCERN

PRESENT AND PROPOSED PROTECTED AND  
INTERFERENCE CONTOURS FROM WTZE 1470 KHZ

FIGURE 3B

**INTERFERENCE TO WEKB (1ST ADJ-CHANNEL) - OVERLAP**

EXISTING (GREEN+RED) 749.12 SQ. KM  
PROPOSED (GREEN ONLY) 56.71 SQ. KM

0.25 mV/m From WEKB

0.5 mV/m From WEKB

WEKB +

**WEKB**

LICENSED  
FCC Facility ID: 32972  
Freq: 1460 kHz  
Class: D  
NAD 27 Latitude: 37-18-25 N  
NAD 27 Longitude: 082-19-53 W  
Power: 5 kW  
Antenna Mode: ND1  
RMS: 282 mV/m @1km

**WTZE - APP**

PROPOSED  
FCC Facility ID: 64664  
Freq: 1470 kHz  
Class: D  
NAD 27 Latitude: 37-07-57 N  
NAD 27 Longitude: 081-33-21 W  
Power: 1 kW  
Antenna Mode: NDD  
RMS: 310 mV/m @1km

**WTZE**

PRESENT  
FCC Facility ID: 64664  
Freq: 1470 kHz  
Class: D  
NAD 27 Latitude: 37-07-57 N  
NAD 27 Longitude: 081-33-21 W  
Power: 5 kW  
Antenna Mode: NDD  
RMS: 310 mV/m @1km

WTZE - APP +

Proposed 0.25 mV/m

Present 0.25 mV/m

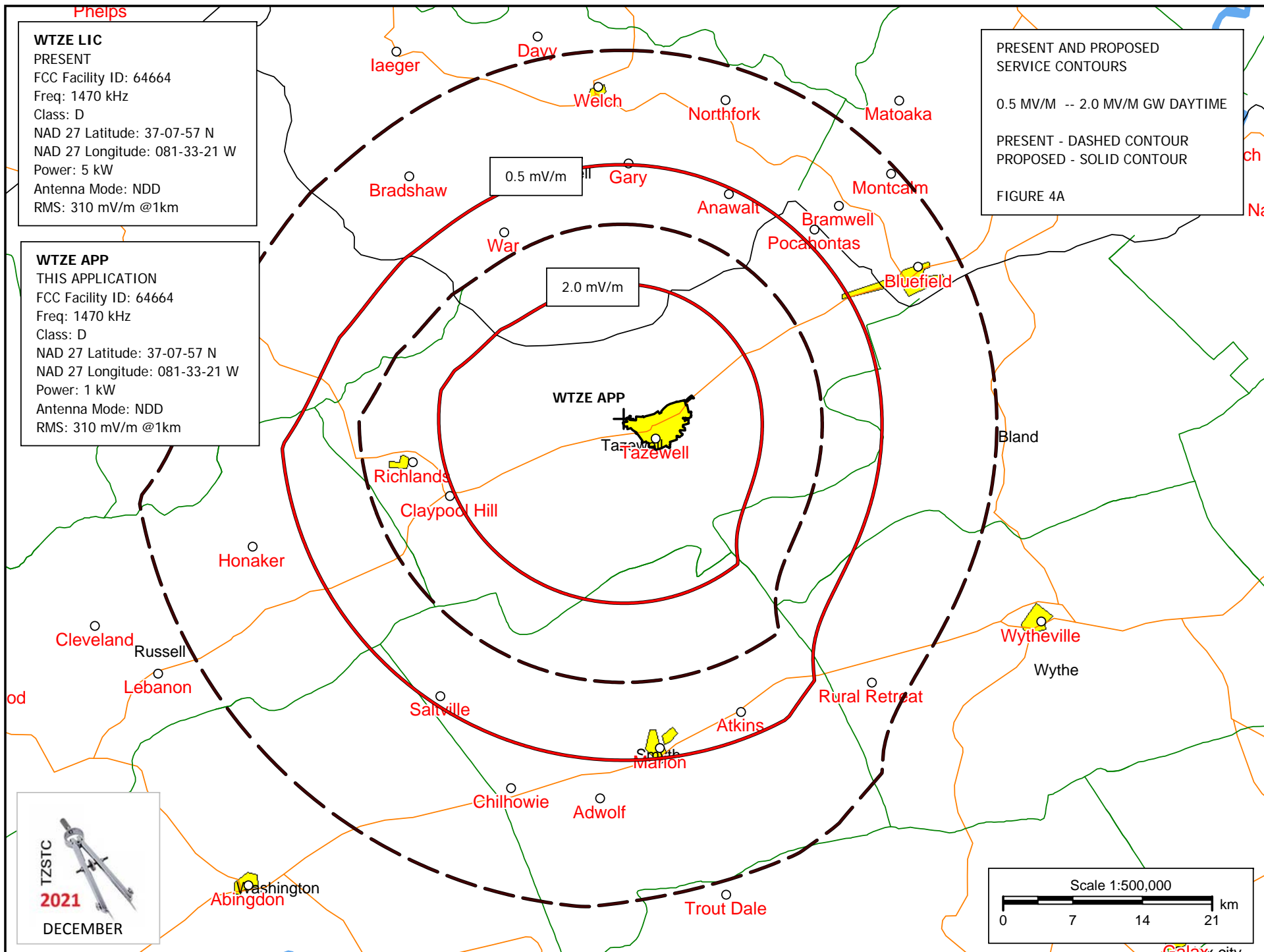
**INTERFERENCE TO WTZE FROM WEKB - OVERLAP**

EXISTING (GREEN+RED) 849.35  
PROPOSED (GREEN ONLY) 198.27 SQ. KM

TZSTC  
2021

Scale 1:1,000,000

0 20 40 60 km



**WTZE LIC**

PRESENT

FCC Facility ID: 64664

Freq: 1470 kHz

Class: D

NAD 27 Latitude: 37-07-57 N

NAD 27 Longitude: 081-33-21 W

Power: 5 kW

Antenna Mode: NDD

RMS: 310 mV/m @1km

**WTZE APP**

THIS APPLICATION

FCC Facility ID: 64664

Freq: 1470 kHz

Class: D

NAD 27 Latitude: 37-07-57 N

NAD 27 Longitude: 081-33-21 W

Power: 1 kW

Antenna Mode: NDD

RMS: 310 mV/m @1km

PRESENT AND PROPOSED  
SERVICE CONTOURS

CITY OF LICENSE SERVICE

5.0 MV/M GW DAYTIME

PRESENT - DASHED CONTOUR

PROPOSED - SOLID CONTOUR

FIGURE 4B

5.0 mV/m

WTZE APP

Tazewell

CITY OF LICENSE SERVICE  
100% AREA AND POPULATION  
TAZEWELL, VA

Richlands

Claypool Hill

Anawalt

Pocahontas

Montcalm

War

Bradshaw

TZSTC

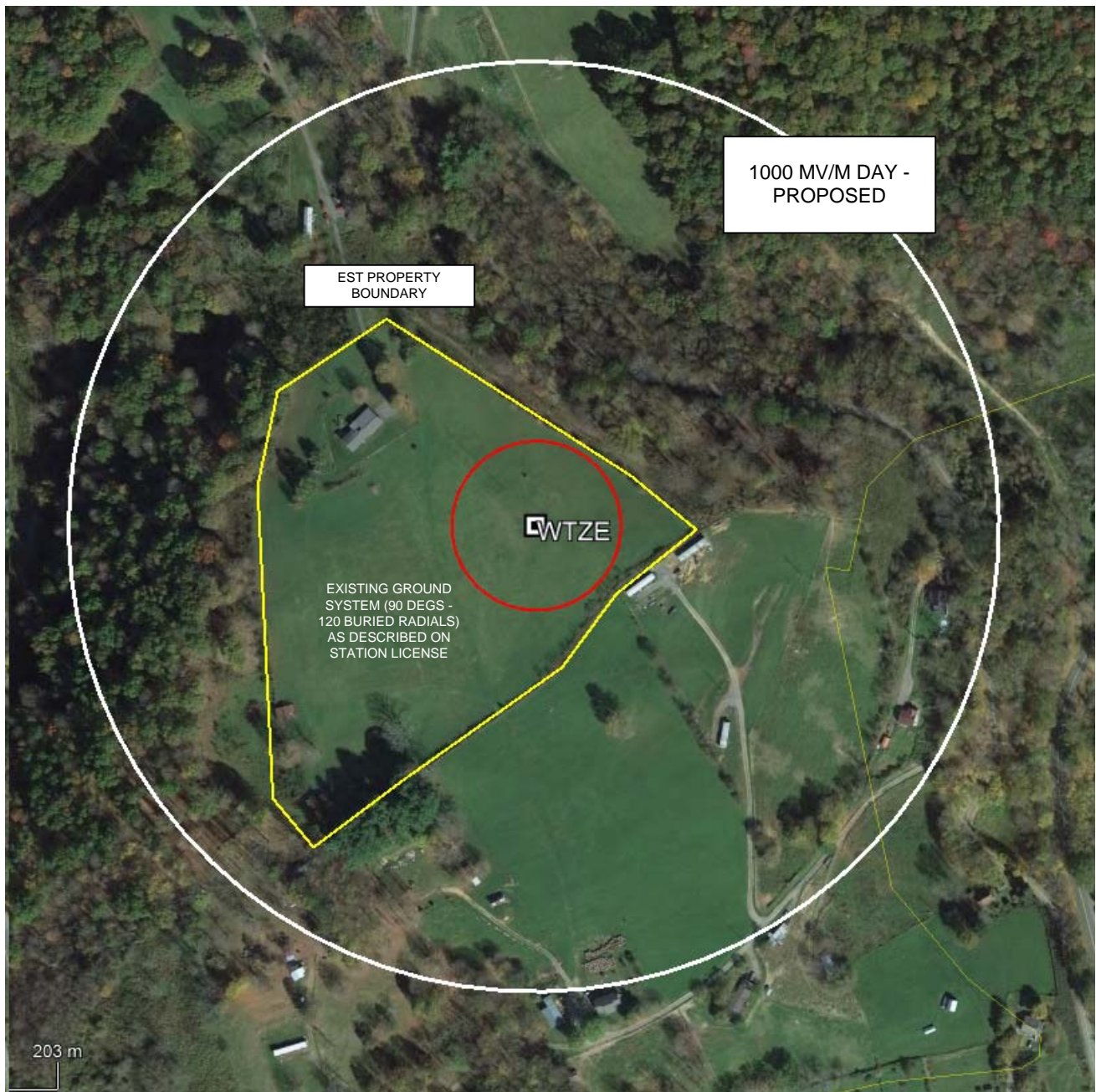
2021

DECEMBER

Scale 1:250,000

0 4 8 12 km





**NO CHANGE IN EXISTING SITE LOCATION - THIS IS A DAYTIME POWER REDUCTION**

The population within the proposed blanketing contour 1000 mV/m is 19 persons  
(Census 2010)

<b>T Z SAWYER TECHNICAL CONSULTANTS</b> Tel.: (703) 848-2130 www.tzsawyer.com	<b>BLANKET CONTOUR &amp; SITE PHOTOGRAPH</b> (IMAGERY DATE 10/18/2015)			
	<b>WZTE (AM) 1470 KHZ</b> <b>TAZEWELL, VA</b>			<b>FIGURE</b> <b>4C</b>
<b>FALL CHURCH, VIRGINIA 22043-2555</b>	SIZE A	CAGE NO N/A	DWG NO 20211222WZTE.F4	REV NONE
<b>(c) 2021, ALL RIGHTS RESERVED</b>	SCALE N/A	DECEMBER 2021		SHEET