Application ID 639865

Southern Pines, North Carolina

Long Form Application for New FM Translator

BNPFT-20030314BRI

On Channel 260

by

Fayetteville State University

Exhibit 13

Interference Analysis

December 2015

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 13, Interference Analysis, for Fayetteville State University, and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.

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10 December 2015

Narrative

This Exhibit supports a long form application in response to a filing window[1] for FM translator file number BNPFT-20030314BRI, CDBS application ID 639865, on Channel 260 in Southern Pines, North Carolina. Allocation details are provided in this exhibit. The application proposes minor modification changes from the tech box filing. Specifically, the site is changed, power is decreased, and the elevation is increased.

This proposal creates no new mutual exclusivities with any Auction 83 Tech Box filings. The technical portion of this application is being prepared as a coordinated pair of applications for MX Group 23. Each application will show that it neither causes interference to nor receives interference from the other at the facilities proposed in the Long Form applications. This technical showing should remove the mutual exclusivity between this application and the other application in MX Group 23. In light of this information, it is believed that this application and the other MX'ed application in Group 23 can each be granted as "singleton" applications without a need for a comparative analysis.

Figure 1 shows the tech box 60 dBu F(50,50) coverage area, and the proposed 60 dBu F(50,50) coverage area, and the primary station 60 dBu F(50,50) service contour. This application proposed a minor modification of the Tech Box facilities. Coverage area and population are shown on Figure 1.

[1] *Media Bureau Announces Auction 83 Filing Window and Processing Procedures for Mutually Exclusive Noncommercial Educational FM Translator Tech Box Proposals; December 16, 2015 Deadline Set for FCC Form 349 Applications,* DA15-1313, released November 16, 2015.

Allocations

This application proposes service to Southern Pines, North Carolina, on channel 260. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected by this application, with the exception of facilities protected by the Undesired to Desired (U/D) method Facilities protected by the U/D method are listed in Table 2. Note that no protection is shown to the Engineering Proposal of the other application in the MX group. The two applicants are cooperating on coordinated long form applications which will protect each other. This application provides complete outgoing and incoming interference protection from the proposed long form application of the other facility in the mutually exclusive group.

Table 1: Allocations

Allocation Study
Fayetteville State University

REFERENCE — CH# 260D - 99.9 MHz, Pwr= 0.01 kW, HAAT= 152.4 M, COR= 274 M — DISPLAY DATES
35 10 35.0 N. — Average Protected F(50-50)= 7.2 km — DATA 12-10-15
79 24 53.0 W. — Omni-directional — SEARCH 12-10-15

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
260C2	WCMC-FM	LIC	NCX	54.8	97.22	35 40 35.0	26.500	131.0	52.4	-41.4*	19.2
Holly Springs			NC	235.3	BLH20100423ACB	78 32 08.0	206	297	Wcmc-fm, Llc		
260D	1564731	APP	C	244.0	6.38	35 09 04.4	0.038	19.6	5.9	-20.3*	-24.8*
Southern Pines			NC	64.0	BNPFT20030317KNJ	79 28 39.9	54	178	Triad Family Network, Inc		
Engineering proposal for other application in MX group. See proposed facilities below.											
260D	639865	APP	C	243.9	6.39	35 09 04.0	0.013	22.2	6.7	-22.9*	-24.2*
Southern Pines			NC	63.9	BNPFT20030314BRI	79 28 40.0	115	239	Fayetteville State University		
Engineering proposal for which this is the long form application.											
262D	1564731mo	APP	D	0.0	0.00	35 10 35.0	0.013	0.2	5.0	-7.1*	-5.2*
Southern Pines			NC	0.0	Proposed	79 24 53.0	99	221	Triad Family Network, Inc		
Long Form proposal from the other application in the MX group. Protected by U/D study, see text and figures											
258C	WMAG	LIC	DCX	333.6	86.12	35 52 13.0	100.000	12.4	85.4	67.0	0.7
High Point			NC	153.4	BMLH20110207AEO	79 50 25.0	456	681	Capstar Tx Llc		
260D	W260CG	LIC	DC	328.6	71.66	35 43 33.8	0.250	53.4	16.6	11.6	32.1
Asheboro			NC	148.3	BLFT20151112XLX	79 49 45.4		367	Rcr Of Randolph County, Lt		
262C	WMKS	LIC	CN	337.3	95.48	35 58 09.0	100.000	10.7	75.0	78.1	20.4
High Point			NC	157.1	BLH19880805LB	79 49 29.0	316	554	Capstar Tx Llc		
259C1	WRFX	LIC	DCX	276.4	117.26	35 17 14.0	84.000	77.5	52.6	33.0	54.5
Kannapolis			NC	95.7	BMLH20081103AAM	80 41 45.0	322	522	Capstar Tx Llc		
260L1	WEHF-LP	LIC		201.9	68.50	34 36 12.7	0.100			42.3	37.3
Bennettsville			SC	21.8	BLL20150724AIC	79 41 40.3	15	57	Bennettsville Community Ra		
260D	W260BG	CP	DC	316.3	114.50	35 55 02.0	0.250	64.2	21.0	43.6	70.7
Lexington			NC	135.7	BMPFT20141229AGC	80 17 38.0		489	Davidson County Broadcasti		
260D	W260BG	LIC	DC	316.3	114.50	35 55 02.0	0.250	64.2	21.0	43.6	70.7
Lexington			NC	135.7	BLFT20150825AAM	80 17 38.0	257	489	Davidson County Broadcasti		
260C2	WKXB	LIC	NCX	131.8	178.39	34 05 51.7	26.000	127.0	49.7	43.7	102.9
Boiling Spring Lake			NC	312.7	BLH20140417ABG	77 58 18.2	177	184	Sunrise Broadcasting, Llc		
263C3	WHLZ	LIC	ZCX	190.4	88.64	34 23 26.0	25.000	3.7	36.0	77.5	52.2
Marion			SC	10.3	BLH20021101ABR	79 35 25.0	100	122	Cumulus Licensing Llc		
257D	W257CS	LIC	DC	42.3	92.09	35 47 13.0	0.250	0.3	8.1	84.3	80.1
Morrisville			NC	222.7	BLFT20140411AAW	78 43 38.0		269	Wdnc-am, Llc		
261A	WWFN-FM	LIC	CX	195.2	137.91	33 58 36.0	3.300	42.7	28.0	87.7	99.5
Lake City			SC	15.0	BMLH20090601AKK	79 48 32.0	132	160	Cumulus Licensing Llc		
261D	W261BZ	LIC	DC	283.3	115.39	35 24 29.0	0.250	18.7	12.6	90.0	93.3
Huntersville			NC	102.6	BLFT20151020AJQ	80 39 05.0		294	Radio Training Network, In		
260C	WKSF	LIC	C	276.2	305.24	35 25 32.0	53.000	206.2	97.4	92.3	184.9
Old Fort			NC	94.3	BLH20140717ABM	82 45 25.0	786	1784	Capstar Tx Llc		

Terrain database is FCC NGDC 30 Sec,
R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference Zone= East Zone, Co to 3rd adj.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

Table 2: Facilities Protected by U/D Method

Facility	1564731mod Southern Pines, North Carolina
Relationship	262 D, second adjacent
Distance (km)	0
Bearing (degrees)	0
ERP (kW, on azimuth)	.013
HAAT (m, on azimuth)	89.3
Ratio	40
Signal Strength (dBu)	114.1
Translator Signal Strength	154.1
Translator distance (km)	.001

Undesired to Desired Method under §74.1204(d)

Protection to some facilities is provided through the use of Undesired to Desired Signal Strength Ratio (U/D) calculations. Table 2 lists the parameters studied. The proposed antenna is an SWR FMEC/1 single level antenna.

The 1564731mod field strength calculated at the proposed 639865 site is 114.1 dBu, using the FM Curves calculator on the FCC web site. For the proposed translator interference contour, free space calculations are used. The corresponding 154.1 dBu field strength distance is .001 kilometers in the horizontal plane. The proposed antenna location is 107 meters above ground. The interference contour will therefore not reach the ground. When the elevation pattern of the antenna is considered, the distance to the interference contour in the vertical plane is less. Both facilities are proposed on the same tower. With two facilities of equal power on second adjacent channels, there is no way to generate signal levels where one signal is 40 dB greater than the other. In this case, the other application is at slightly lower elevation on the same tower, with 13 Watts ERP (+1.1 dB) and a directional antenna that produces lower power in the suppressed direction (-4.0 dB). At the relevant distances for interference

contours, free space path loss calculations will be used. The signal levels will vary by direction from +1.1 dB to -4.0 dB, in each direction far less than the +40 dB level which is defined as the second adjacent channel interference level.

Figure 2 is a topographic map of the transmitter site. The site is flat, with other towers in the vicinity. Figure 3 is an aerial photograph of the site, with a 30 meter radius circle, which is at least 30 times the interference contour. There is no population within the predicted interference area and therefore this facility is permitted under §74.1204(d).

Using the U/D method, the proposed facilities will neither cause nor receive interference from the other coordinated application in this MX group. The 30 meter interference radius from each facility contains no population, and therefore is permitted under §74.1204(d).

The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would require Commission authorization, may require that the translator cease operation except for brief equipment tests, or may require filtering at the receivers which report interference.

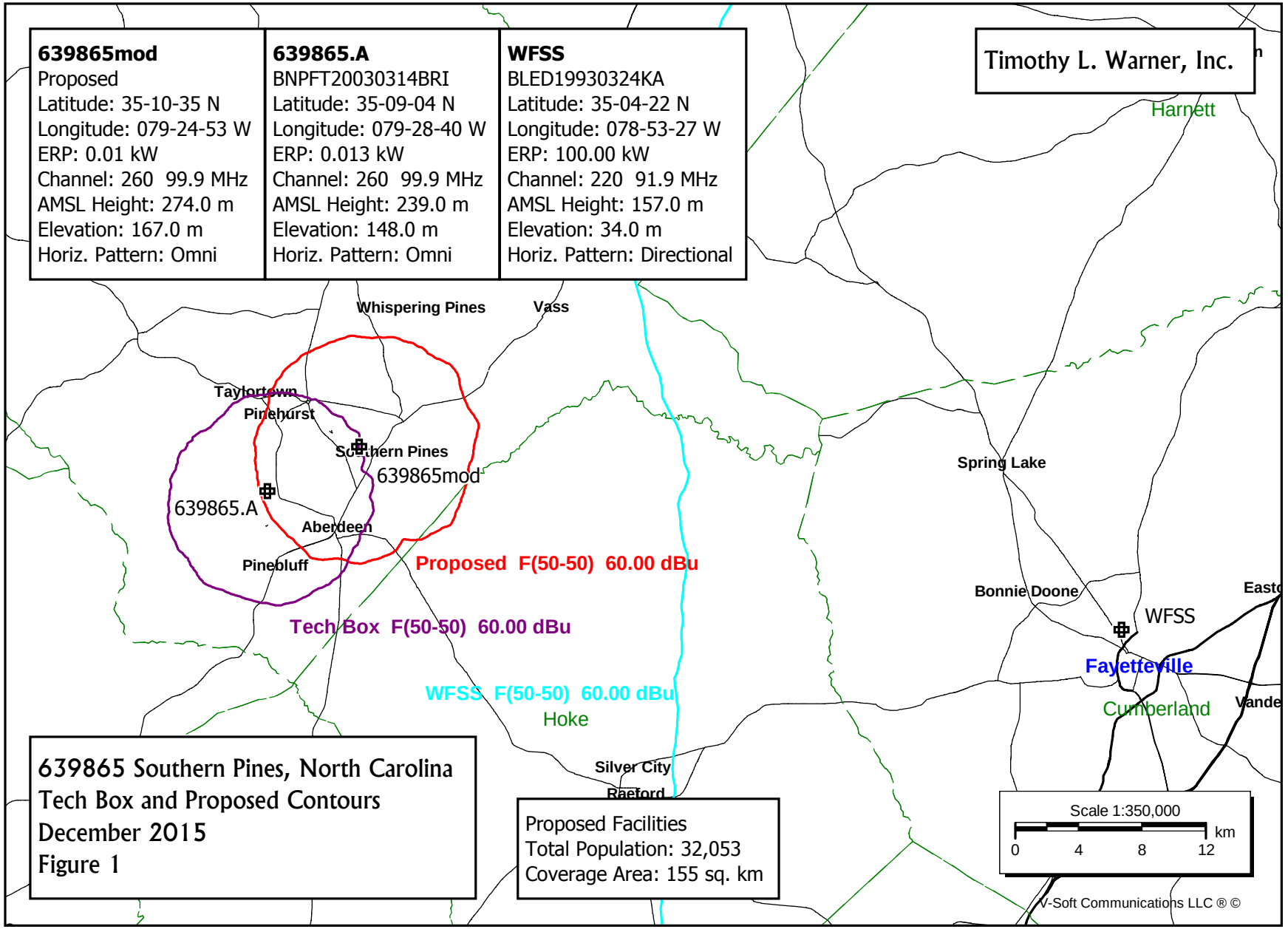
Source of Data

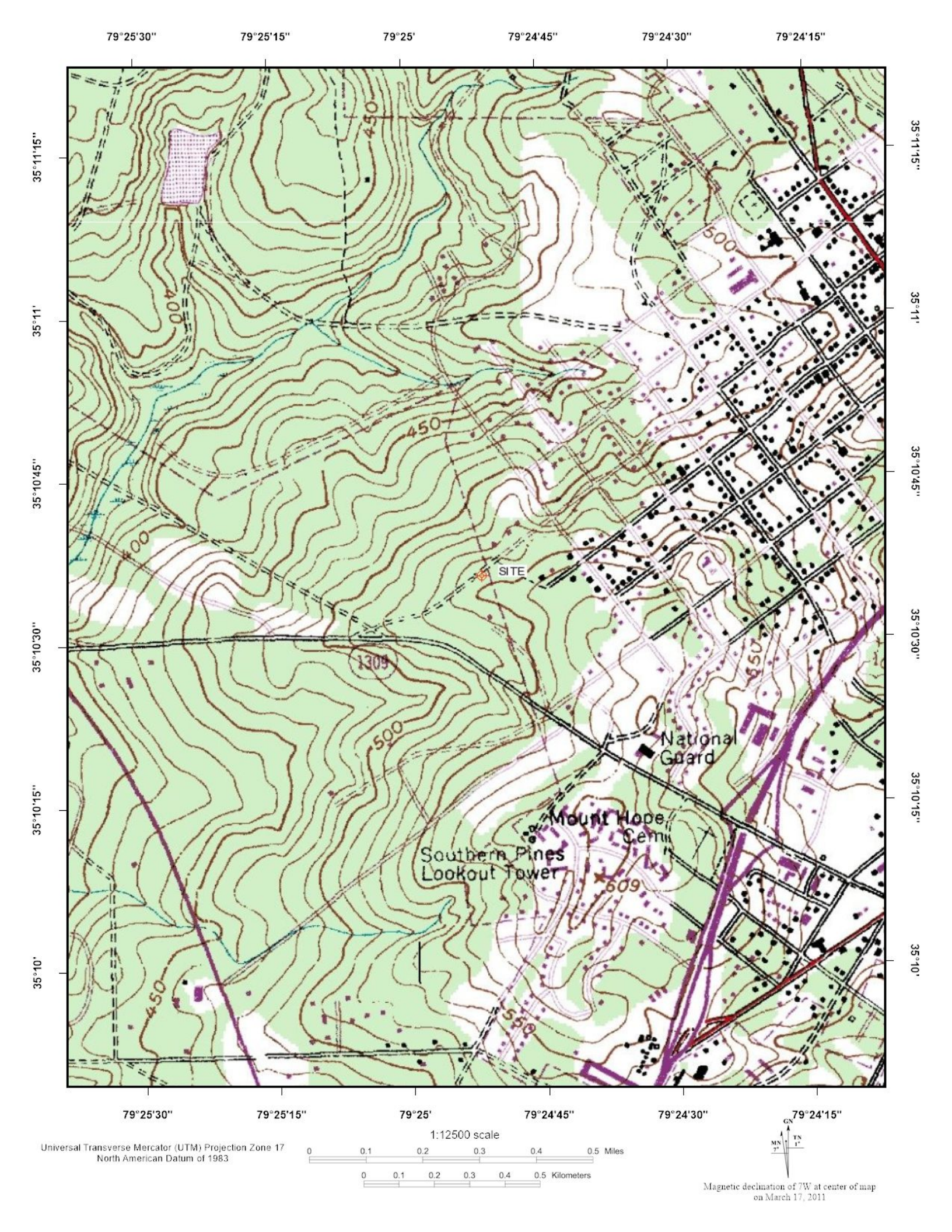
Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were calculated using terrain extracted from the V-Soft Communications FCC NGDC 30 arcsecond terrain database. The FCC NGDC 30 database is derived from the NGDC 30 arcsecond terrain database, modified to match the terrain database in use at the Commission.

Contours for the proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments. The program Probe 4© by V-Soft Communications, L.L.C., was used.

All population data is from 2010 U.S. Census PL data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.


639865mod
Proposed
Latitude: 35-10-35 N
Longitude: 079-24-53 W
ERP: 0.01 kW
Channel: 260 99.9 MHz
AMSL Height: 274.0 m
Elevation: 167.0 m
Horiz. Pattern: Omni
639865.A
BNPFT20030314BRI
Latitude: 35-09-04 N
Longitude: 079-28-40 W
ERP: 0.013 kW
Channel: 260 99.9 MHz
AMSL Height: 239.0 m
Elevation: 148.0 m
Horiz. Pattern: Omni
WFSS
BLED19930324KA
Latitude: 35-04-22 N
Longitude: 078-53-27 W
ERP: 100.00 kW
Channel: 220 91.9 MHz
AMSL Height: 157.0 m
Elevation: 34.0 m
Horiz. Pattern: Directional
Timothy L. Warner, Inc.
Harnett
Whispering Pines
Vass
Taylortown
Pinehurst
Southern Pines
639865mod
639865.A
Aberdeen
Pinebluff
Spring Lake
Proposed F(50-50) 60.00 dBu
Tech Box F(50-50) 60.00 dBu
WFSS F(50-50) 60.00 dBu
Hoke
Bonnie Doone
WFSS
Fayetteville
Cumberland
Silver City
Raeford
639865 Southern Pines, North Carolina
Tech Box and Proposed Contours
December 2015
Figure 1
Proposed Facilities
Total Population: 32,053
Coverage Area: 155 sq. km
Scale 1:350,000
km
0 4 8 12
V-Soft Communications LLC ® ©


79°25'30"
79°25'15"
79°25'
79°24'45"
79°24'30"
79°24'15"
35°11'15"
35°11'
35°10'45"
35°10'30"
35°10'15"
35°10'
SITE
1309
National Guard
Mount Hope Cem
Southern Pines Lookout Tower
609
450
500
550
400
1:12500 scale
Universal Transverse Mercator (UTM) Projection Zone 17
North American Datum of 1983
0 0.1 0.2 0.3 0.4 0.5 Miles
0 0.1 0.2 0.3 0.4 0.5 Kilometers
GN
MN 7°
TN 1°
Magnetic declination of 7W at center of map
on March 17, 2011

Aerial Photograph

Proposed Site with 30 Meter Circle
December 2015
Figure 3

Legend

639865mod (260) - Circle: Radius = 0.03 km