

**Southport, North Carolina**

**Application for Minor Modification of FM Translator W244DH**

**On Channel 244**

**by**

**Friends of Public Radio, Inc.**

**Exhibit 13**

**Interference Analysis**

**September 2017**

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Timothy L. Warner, Inc.  
Post Office Box 8045  
Asheville, North Carolina 28814-8045  
(828) 258-1238  
twarner@tlwinc.net

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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 Friends of Public Radio, Inc., 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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Timothy L. Warner, P.E.  
Post Office Box 8045  
Asheville, North Carolina 28801  
(828) 258-1238  
[twarner@tlwinc.net](mailto:twarner@tlwinc.net)  
27 September 2017

### Narrative

This Exhibit supports a minor modification application for FM translator W244DH, on Channel 244 in Southport, North Carolina. Allocation details are provided in this exhibit. This proposal complies fully with the requirements of 74 C.F.R. §74.1204(a), with the exception of facilities protected under 47 C.F.R. §74.1204(d) by the Undesired to Desired (U/D) method described below. The proposed modified facilities create no mutual exclusivities with any licensed facilities, construction permits, or applications as shown in the allocation table in this exhibit. W244DH has licensed facilities and a pending silent STA, file number BLSTA-20170922ABI, due to antenna problems at the licensed site.

Figure 1 shows the licensed 60 dBu F(50,50) coverage area, the authorized 60 dBu F(50,50) coverage area, and the proposed 60 dBu F(50,50) coverage area. Figure 1 shows fill-in status confirmation. As shown on Figure 1, the proposed modification is a minor modification of the licensed facilities and of the authorized facilities.

The changes from file number BLFT-20170619ABH are a new site, a new omnidirectional antenna, and a decrease in elevation. The community designation is changed to Southport, North Carolina.

### Allocations

This application proposes service to Southport, North Carolina, on channel 244. 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 under §74.1204(a) contour protection 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. The allocations table was prepared using the GLOBE 30 terrain database which is described below.

Table 1: Allocations

Allocation Study Friends of Public Radio, Inc.												
REFERENCE		CH# 244D - 96.7 MHz, Pwr= 0.25 kw, HAAT= 47.0 M, COR= 53 M							DISPLAY DATES			
33 57 14.0 N.		Average Protected F(50-50)= 11.4 km							DATA 09-27-17			
78 01 40.0 W.		Omni-directional							SEARCH 09-27-17			
CH CITY	CALL	TYPE STATE	ANT	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap	*OUT* in km)	
247C1 Wilmington	WMNX	LIC NC	CX	335.1 155.1	11.98 BLH20090109AVP	34 03 06.0 78 04 57.0	100.000 269	9.5 276	69.5 Cumulus Licensing LLC	-5.6	-58.6*	
Protected by U/D ratio, see text and figures.												
244D Wilmington	W244DH!	LIC NC	V	17.9 197.9	16.81 BLFT20170619ABH	34 05 52.0 77 58 18.0	0.250	38.5 83	11.1 Friends of Public Radio, Inc	-30.2	-23.7	
Facility being modified.												
243C Laurinburg	WFLB	LIC NC	NCX	314.8 134.2	131.03 BMLH20120425ADF	34 46 49.0 79 02 45.0	100.000 318	107.6 368	74.1 Beasley Media Group, LLC	15.4	45.5	
298C2 Southport	WAZO	LIC NC	ZCX	344.8 164.7	33.32 BLH20130530AJH	34 14 37.0 78 07 24.0	21.000 234	0.0 243	0.0 Sunrise Broadcasting, LLC	14.5R	18.8M	
245C0 Goldsboro	WWPL	LIC NC	CX	356.5 176.5	160.83 BMLH20090708AEX	35 23 52.0 78 08 07.0	100.000 300	105.2 337	72.5 New Age Communications, Lt	47.5	76.8	
244D Myrtle Beach	W244AY	LIC SC	HN	249.1 68.6	86.52 BLFT19960322TA	33 40 23.0 78 54 05.0	0.027 73	22.1 80	6.6 Augusta Radio Fellowship I	55.3	49.7	
Translator For WLPG, Florence, SC												
241C2 Forestbrook	WKZQ-FM	LIC SC	NCX	247.1 66.6	102.61 BLH20081007ACQ	33 35 27.0 79 02 55.0	8.500 265	4.5 267	46.1 Alpha Media Licensee Llc	88.9	55.4	
243D Myrtle Beach	W243CT	LIC SC	V	260.3 79.8	75.00 BLFT20100708TSO	33 50 14.0 78 49 42.0	0.170 36	9.5 42	6.7 Truth Broadcasting Corpora	56.5	56.5	
245C Charleston	WIWF	LIC SC	DCY	234.0 53.1	192.74 BLH19860905KA	32 55 28.0 79 41 58.0	100.000 539	121.4 543	81.7 Radio License Holding Cbc,	62.2	96.4	
Terrain database is GLOBE 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. Call signs with exclamation marks need not be protected.												
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.												
« = Station meets FCC minimum distance spacing for its class.												

**Table 2: Facilities Protected by U/D Method**

Facility	WMNX Wilmington, North Carolina
Relationship	247C1, third adjacent
Distance (km)	11.98
Bearing (degrees)	355.1
ERP (kW, on azimuth)	100.0
HAAT (m, on azimuth)	263.5
Ratio	40
Signal Strength (dBu)	95.95
Translator Signal Strength	135.95
Translator distance (km)	.018

**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 a Shively 6832-2 antenna. The elevation pattern is shown in Figure 2. The elevation of the 135.95 dBu contour is shown in Figure 3.

The WMNX field strength calculated at ground level at the proposed W244DH site is 95.95 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 135.95 dBu field strength distance is .018 kilometers in the horizontal plane. The proposed antenna location is 45 meters above ground. Since the free space interference contour only goes 17 meters from the antenna, it remains at least 28 meters (91 feet) above ground level. As Figure 3 shows, the 135.95 dBu signal level, calculated using the antenna elevation pattern, does not reach ground level.

Figure 4 is a topographic map of the transmitter site, showing that the site is on a flat terrain. Figure 5 is an aerial photograph of the site. The interference contour, at only 18 meters, remains within the fenced area around the water tank, and is not shown. There is no

population within the predicted interference area and therefore this facility is permitted under §74.1204(d).

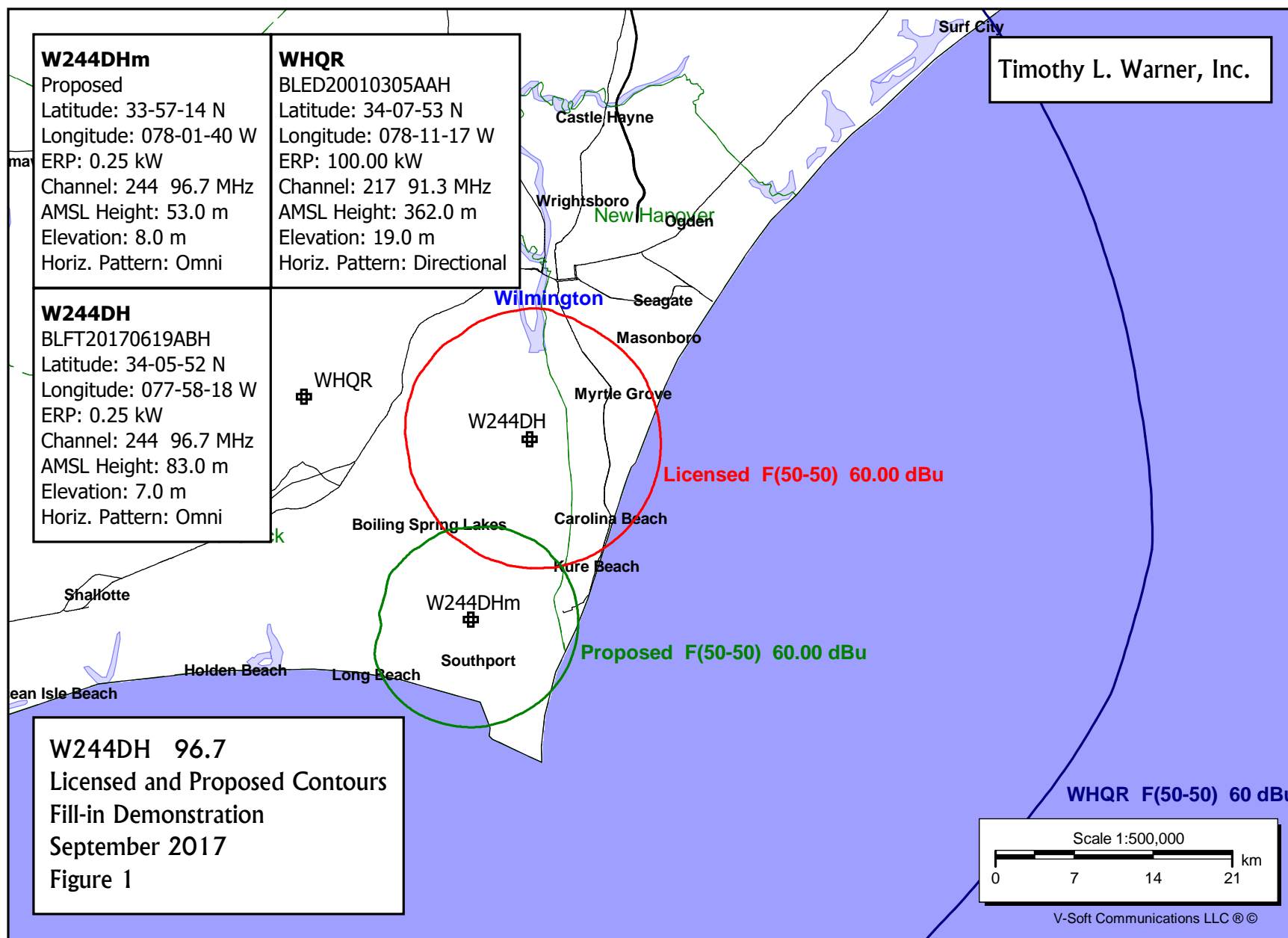
The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would 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 evaluated using terrain extracted from the GLOBE 30 arcsecond terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

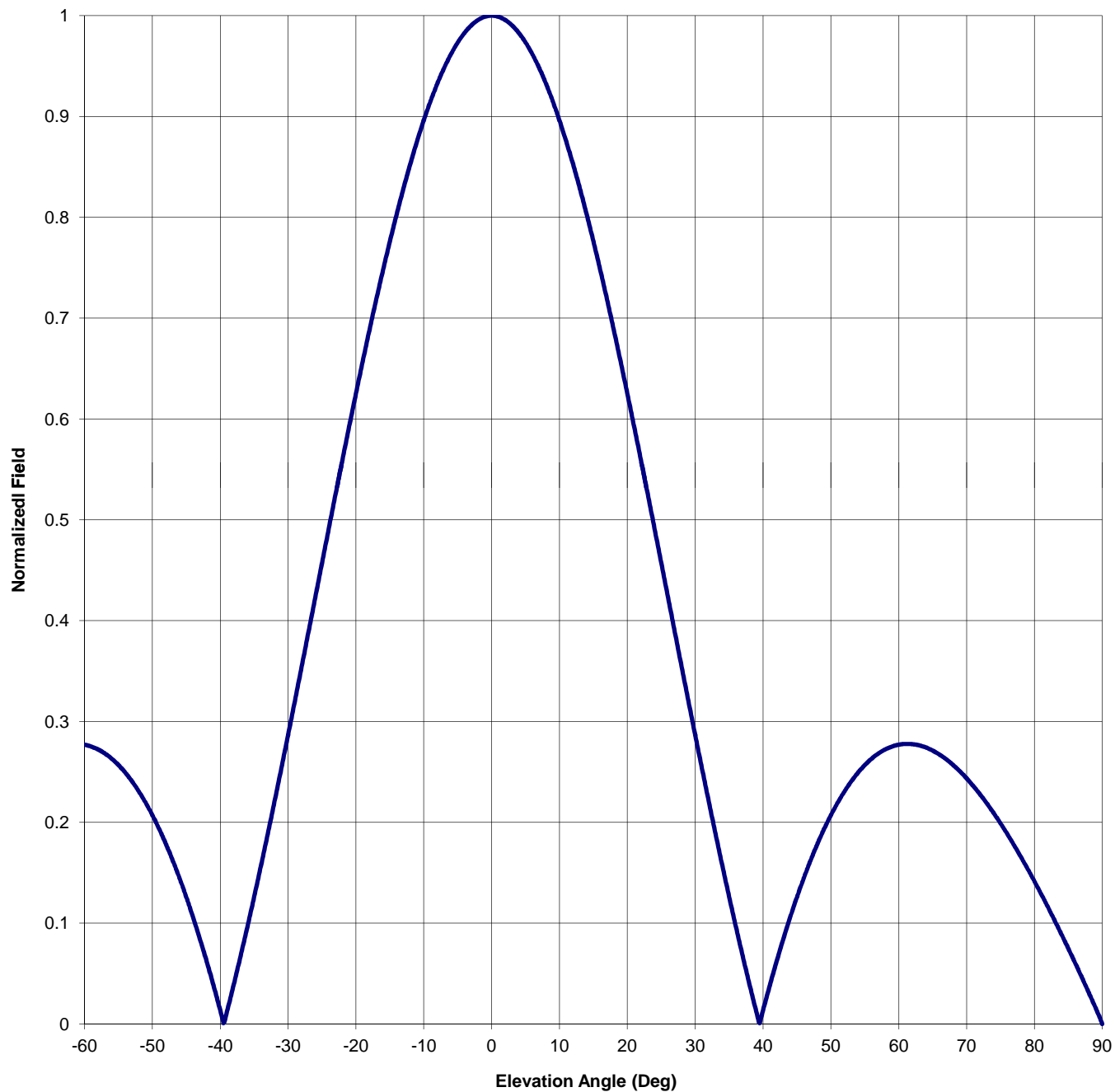


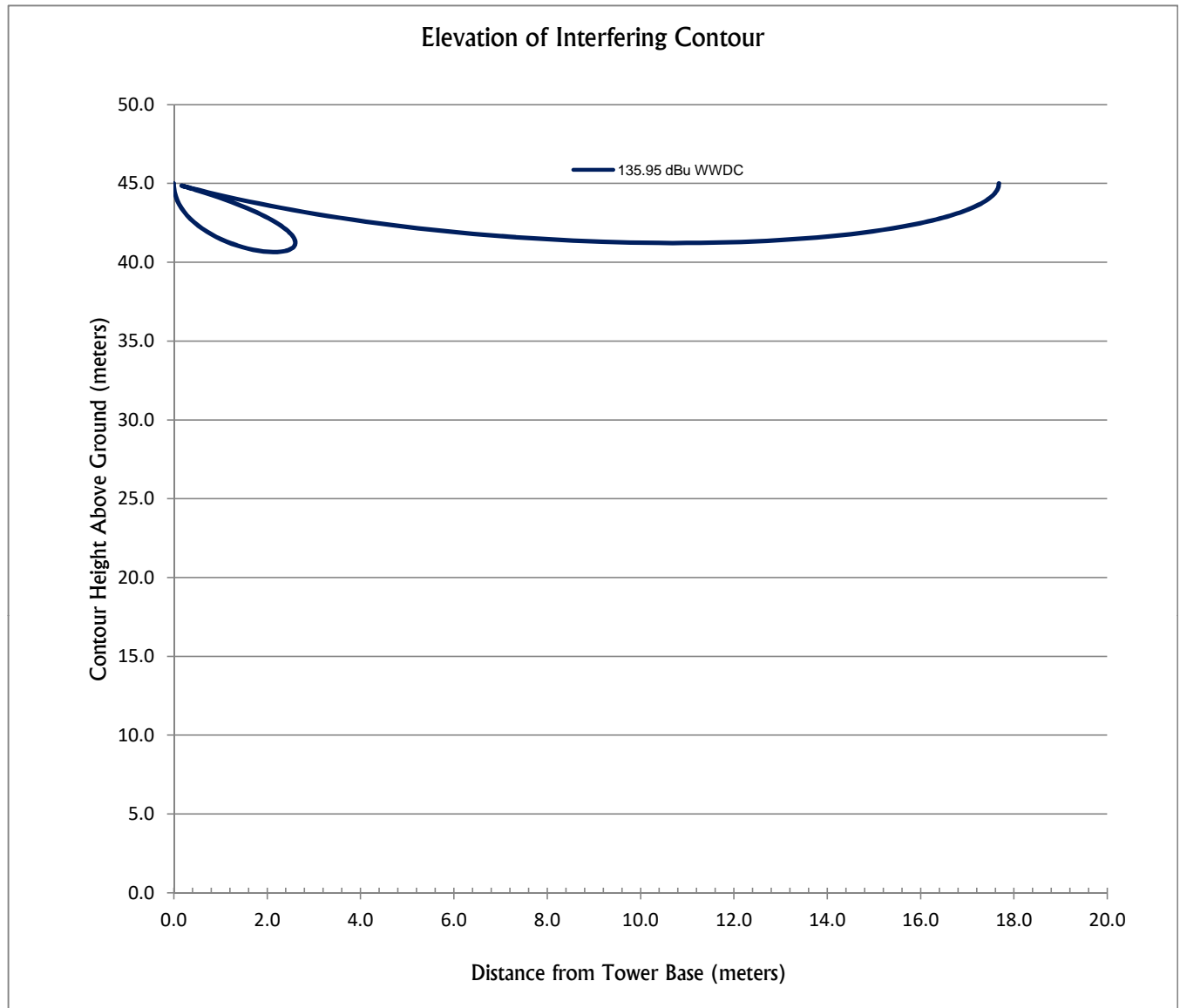


Antenna Mfg.: Shively  
Antenna Type: 6832-2  
Station: W244DH  
Frequency: 96.7  
Channel #: 244  
Figure: 2

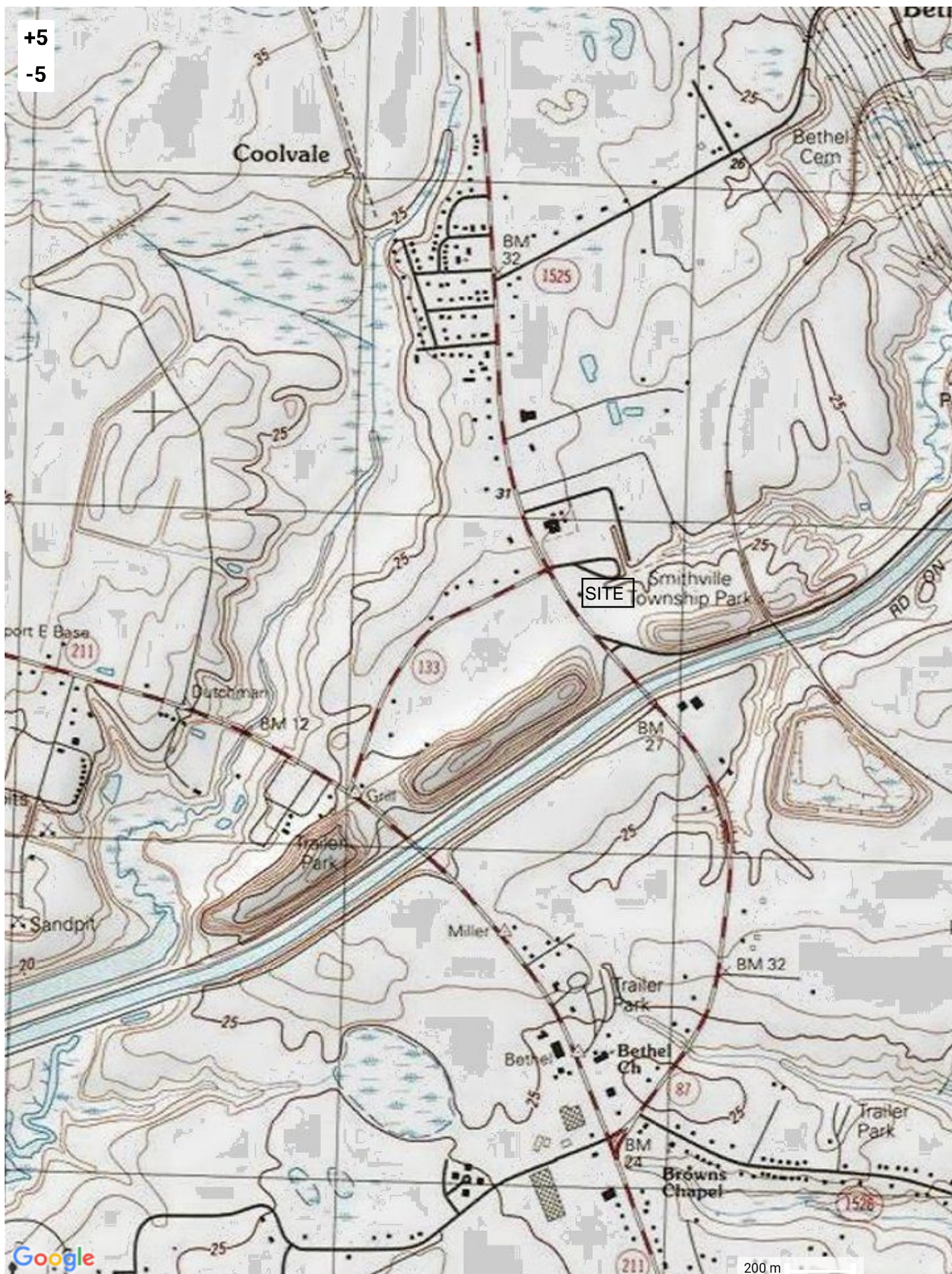
Date: 9/27/2017

Beam Tilt	0	
Gain (Max)	0.981	-0.085 dB
Gain (Horizon)	0.981	-0.085 dB










Topographic Map, Figure 4



# W244DH

Aerial Photograph of Proposed Site  
September 2017  
Figure 5

## Legend

 W244DM Proposed Site

 W244DH Proposed Site

Dosher Cutoff SE  
133

87

River Rd SE

700 ft

N

Google earth

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