Comprehensive Engineering Exhibit
Long Form of BNPFT-20030314BRS
Facility ID No. 139935

This Long Form application seeks to modify the facilities proposed in BNPFT-20030314BRS by changing the proposed location, channel, antenna type and height above ground. The applicant proposed to utilize 250 watts ERP, with a non-directional antenna mounted 100 meters above ground level, on a tower identified by ASR No. 1053747 on Channel 288 to serve as a fill-in translator for station WVOC-FM.

Below as Figure 1 is a spacing/clearance table from which it can be determined that the "Living Way" method is to be utilized to demonstrate no actual interference will be caused to, or received from proposed translator BNPFT-20030317AFG. As shown in Figure 2, in the vicinity of the location proposed herein, BNPFT-20030317AFG is predicted to have a signal of 73.5 dBu, thus the respective +40 dB interfering signal is 113.5 dBu. Figure 2 also shows that, in the vicinity of the location proposed by BNPFT-20030317AFG, this instant proposal is predicted to have a signal of 70.5 dBu, thus the respective +40 dB interfering signal is 110.5 dBu. No actual interference will be caused to BNPFT-20030317AFG due to the vertical directivity of the antenna and its height above ground, as shown in Figures 3. Figure 4 is an aerial image allowing determination that no habitable space is located near the antenna. In a similar manner, no actual interference will be received from BNPFT-20030317AFG due to the vertical directivity of the antenna and its height above ground proposed by BNPFT-20030317AFG, as shown in Figures 5. Figure 6 is an aerial image allowing determination that no habitable space is located near the antenna proposed by BNPFT-20030317AFG.

As shown in Figure 7, the entire 60 dBu contour fits within the 60 dBu contour of the primary station for which this translator is to be "fill-in". Figure 7 also demonstrates that the proposed 60 dBu contour overlaps that of the original application.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation."

The proposed antenna system is a Nicom BKG77, two-element, half-wave spaced antenna mounted 100 meters above ground. For purposes of this analysis the FM Model program has been set to calculate values for a worst case "Ring Stub" antenna element, operated with an effective radiated power of 0.250 Kilowatts in both the horizontal and vertical polarizations. At 2 meters above the surface, at 154 meters from the base of the tower, this proposal will contribute worst case, 0.21 microwatts per square centimeter, or 0.021 percent of the allowable ANSI limit for controlled exposure, and 0.105 percent of the allowable limit for uncontrolled exposure. This figure is less the 5% of the applicable FCC limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that his proposal is in compliance with OET Bulletin Number 65 as required by the FCC.
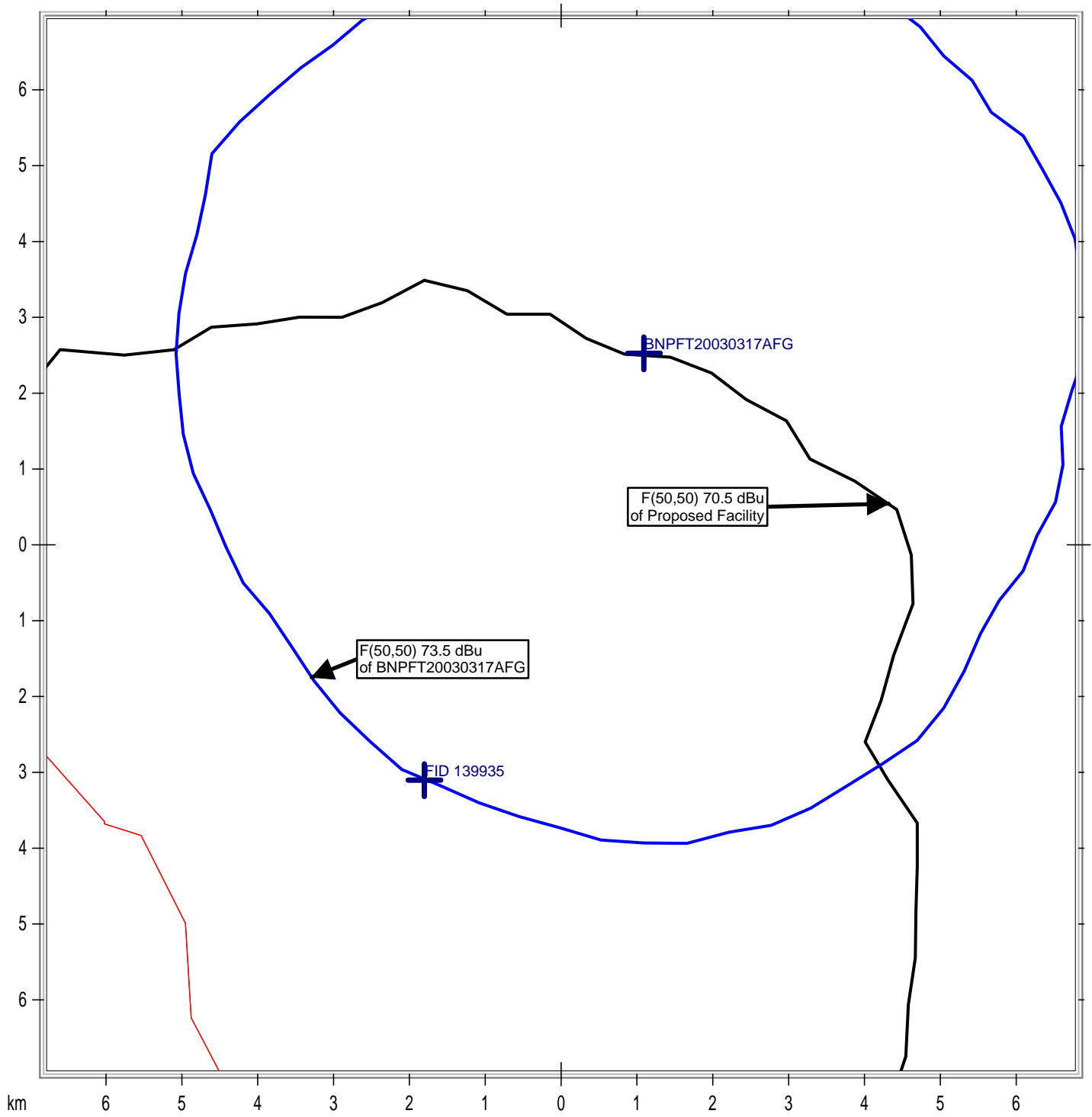
Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will

cooperate with other users of the tower to reduce power of the facility, or discontinue operation, was necessary to limit human exposure to levels less than specified by the FCC should anyone be required to climb the tower for maintenance or inspection.

Figure 1. Spacing/Clearance Table

Callsign	Channel	ERP_w	ARN	Class	Status	Dist_km	Sep	Clr	Clr Notes
NEW	286	99	BNPFT20030317AFG	D	APP	6.41	0	-16.44 dB	Living Way
WEKL	289	100000	BPH20130514AAA	C0	CP	100.29	0	1.57 dB	Clear
WEKL	289	100000	BMLH20090107AGS	C0	LIC	100.29	0	1.57 dB	Clear
WGFG	287	12500	BLH20091216ACT	C3	LIC	65.23	0	2.85 dB	Clear
WDAR-FM	288	17000	BLH199601115K	C3	LIC	109.26	0	9.54 dB	Clear
WLXM-LP	291	100	BPL20110511ACU	LP100	CP	21.8	6	11.64 dB	Clear
WCOO	288	50000	BLH20011012AAX	C2	LIC	173.3	0	20.71 dB	Clear
WOLS	291	21000	BLH20081014ADN	C2	LIC	99.51	0	21.55 dB	Clear
WOSF	287	51000	BLH20100429ADK	C1	LIC	151.62	0	22.35 dB	Clear
WCCP-FM	288	20000	BPH20130514AAZ	C3	CP	171.12	0	23.11 dB	Clear

Figure 2. Contour Map

BNPFT20030317AFG

F(50,50) 70.5 dBu
of Proposed Facility

F(50,50) 73.5 dBu
of BNPFT20030317AFG

FID 139935

— County Borders   — State Borders

Figure 3. Distance to Signal Contour – No Interference to BNPFT-20030317AFG

Proposed Antenna:	Nicom BKG77/2 2-Bay 1/2 wave spaced.		
Proposed Power:	0.25 kW	Fill in	
Antenna Height AGL:	100 meters	"yellow"	
Interference Contour:	113.5 dBu	cells	
Artificial Rcv Antenna Height:	2 meters		
Distance (Free Space) Equation:	=(10^((106.92-[desired dBu]+[ERP in dBk])/20))*1000		
Field Strength (dBu) Equation	"=106.92-(20*(LOG10[DistMeters]/1000)))+[ERPin dBk]		

Depression Angle Below Horizon	Antenna Relative Field	ERP in kW	ERP in dBk	Distance from Ant. to Interf Contour	Distance from Ant. to Artificial Plane	Field Strength in dBu @ Artificial Plane	Distance from Ant. to Ground Level	Field Strength in dBu @ Ground Level
0°	1.000	0.250	-6.02	234.41 m	infinite	---	infinite	---
-5°	0.988	0.244	-6.13	231.59 m	1124.42 m	99.78 dBu	1147.37 m	99.60 dBu
-10°	0.947	0.224	-6.49	221.98 m	564.36 m	105.40 dBu	575.88 m	105.22 dBu
-15°	0.871	0.190	-7.22	204.17 m	378.64 m	108.14 dBu	386.37 m	107.96 dBu
-20°	0.792	0.157	-8.05	185.65 m	286.53 m	109.73 dBu	292.38 m	109.55 dBu
-25°	0.682	0.116	-9.34	159.87 m	231.89 m	110.27 dBu	236.62 m	110.09 dBu
-30°	0.565	0.080	-10.98	132.44 m	196.00 m	110.10 dBu	200.00 m	109.92 dBu
-35°	0.496	0.062	-12.11	116.27 m	170.86 m	110.16 dBu	174.34 m	109.98 dBu
-40°	0.376	0.035	-14.52	88.14 m	152.46 m	108.74 dBu	155.57 m	108.56 dBu
-45°	0.273	0.019	-17.30	63.99 m	138.59 m	106.79 dBu	141.42 m	106.61 dBu
-50°	0.188	0.009	-20.54	44.07 m	127.93 m	104.24 dBu	130.54 m	104.07 dBu
-55°	0.131	0.004	-23.68	30.71 m	119.64 m	101.69 dBu	122.08 m	101.51 dBu
-60°	0.079	0.002	-28.07	18.52 m	113.16 m	97.78 dBu	115.47 m	97.60 dBu
-65°	0.047	0.001	-32.58	11.02 m	108.13 m	93.66 dBu	110.34 m	93.49 dBu
-70°	0.022	0.000	-39.17	5.16 m	104.29 m	87.38 dBu	106.42 m	87.21 dBu
-75°	0.010	0.000	-46.02	2.34 m	101.46 m	80.77 dBu	103.53 m	80.60 dBu
-80°	0.003	0.000	-56.48	0.70 m	99.51 m	70.48 dBu	101.54 m	70.31 dBu
-85°	0.001	0.000	-66.02	0.23 m	98.37 m	61.04 dBu	100.38 m	60.87 dBu
-90°	0.001	0.000	-66.02	0.23 m	98.00 m	61.07 dBu	100.00 m	60.90 dBu

Figure 4. Proposed Location Aerial Image

Figure 5. Distance to Signal Contour – No Interference from BNPFT-20030317AFG

Proposed Antenna:	SHI 1 bay 6812							
Proposed Power:	0.099	kW						
Antenna Height AGL:	122	meters		Fill in "yellow" cells				
Interference Contour:	110.5	dBu f(50:10)						
Artificial Rcv Antenna Height:	2	meters						

Distance (Free Space) Equation: =(10^((106.92-[desired dBu]+[ERP in dBk])/20))*1000

Field Strength (dBu) Equation "=106.92-(20*(LOG10[DistMeters]/1000)))+[ERPin dBk]

Depression Angle Below Horizon	Antenna Relative Field	ERP in kW	ERP in dBk	Distance from Ant. to Interf Contour	Distance from Ant. to Artificial Plane	Field Strength in dBu @ Artificial Plane	Distance from Ant. to Ground Level	Field Strength in dBu @ Ground Level
0°	1.000	0.099	-10.04	208.36 m	infinite	---	infinite	---
-5°	0.996	0.098	-10.08	207.53 m	1376.85 m	94.06 dBu	1399.79 m	93.92 dBu
-10°	0.985	0.096	-10.17	205.24 m	691.05 m	99.95 dBu	702.57 m	99.81 dBu
-15°	0.967	0.093	-10.34	201.49 m	463.64 m	103.26 dBu	471.37 m	103.12 dBu
-20°	0.942	0.088	-10.56	196.28 m	350.86 m	105.45 dBu	356.70 m	105.31 dBu
-25°	0.910	0.082	-10.86	189.61 m	283.94 m	106.99 dBu	288.68 m	106.85 dBu
-30°	0.871	0.075	-11.24	181.48 m	240.00 m	108.07 dBu	244.00 m	107.93 dBu
-35°	0.826	0.068	-11.70	172.11 m	209.21 m	108.80 dBu	212.70 m	108.66 dBu
-40°	0.774	0.059	-12.27	161.27 m	186.69 m	109.23 dBu	189.80 m	109.09 dBu
-45°	0.717	0.051	-12.93	149.40 m	169.71 m	109.39 dBu	172.53 m	109.25 dBu
-50°	0.654	0.042	-13.73	136.27 m	156.65 m	109.29 dBu	159.26 m	109.15 dBu
-55°	0.586	0.034	-14.69	122.10 m	146.49 m	108.92 dBu	148.93 m	108.77 dBu
-60°	0.514	0.026	-15.82	107.10 m	138.56 m	108.26 dBu	140.87 m	108.12 dBu
-65°	0.437	0.019	-17.23	91.05 m	132.41 m	107.25 dBu	134.61 m	107.10 dBu
-70°	0.357	0.013	-18.99	74.39 m	127.70 m	105.81 dBu	129.83 m	105.66 dBu
-75°	0.273	0.007	-21.32	56.88 m	124.23 m	103.71 dBu	126.30 m	103.57 dBu
-80°	0.186	0.003	-24.65	38.76 m	121.85 m	100.55 dBu	123.88 m	100.41 dBu
-85°	0.096	0.001	-30.40	20.00 m	120.46 m	94.91 dBu	122.47 m	94.76 dBu
-90°	0.001	0.000	-70.04	0.21 m	120.00 m	55.29 dBu	122.00 m	55.15 dBu

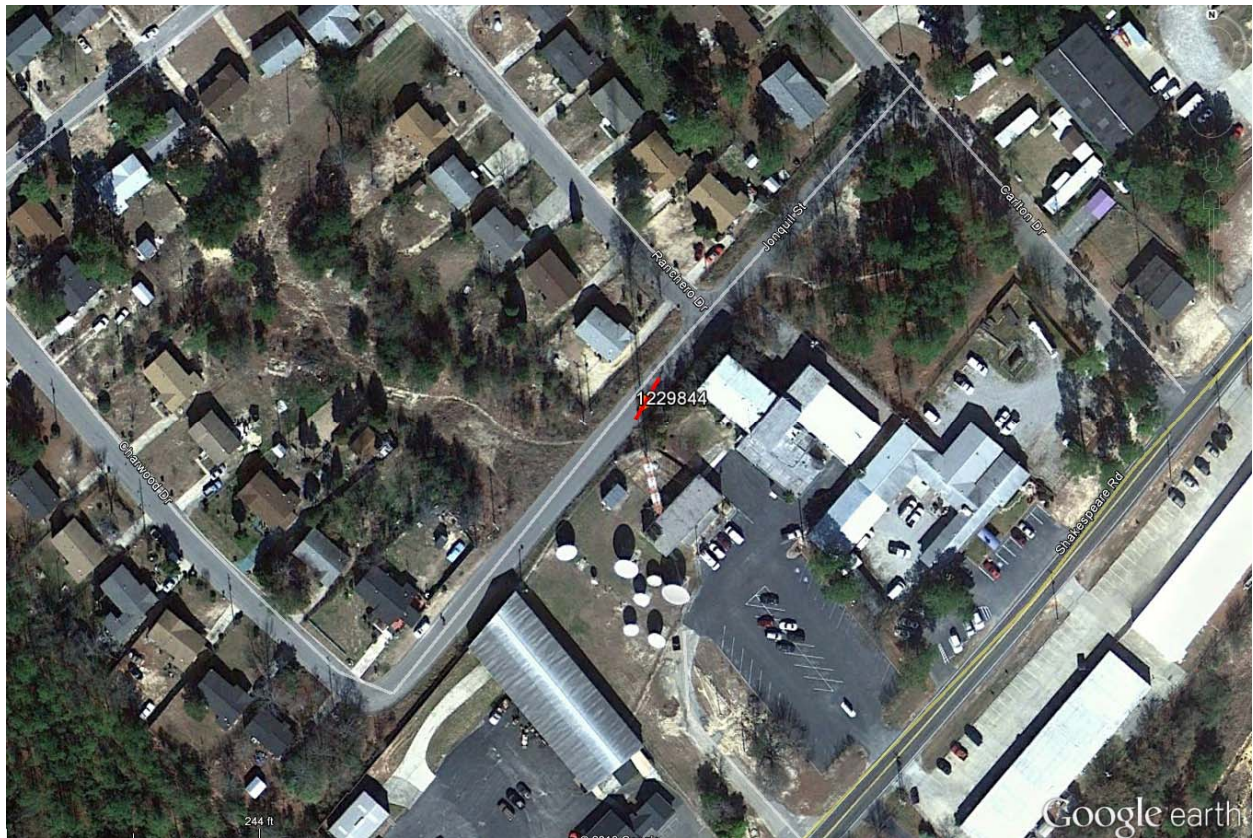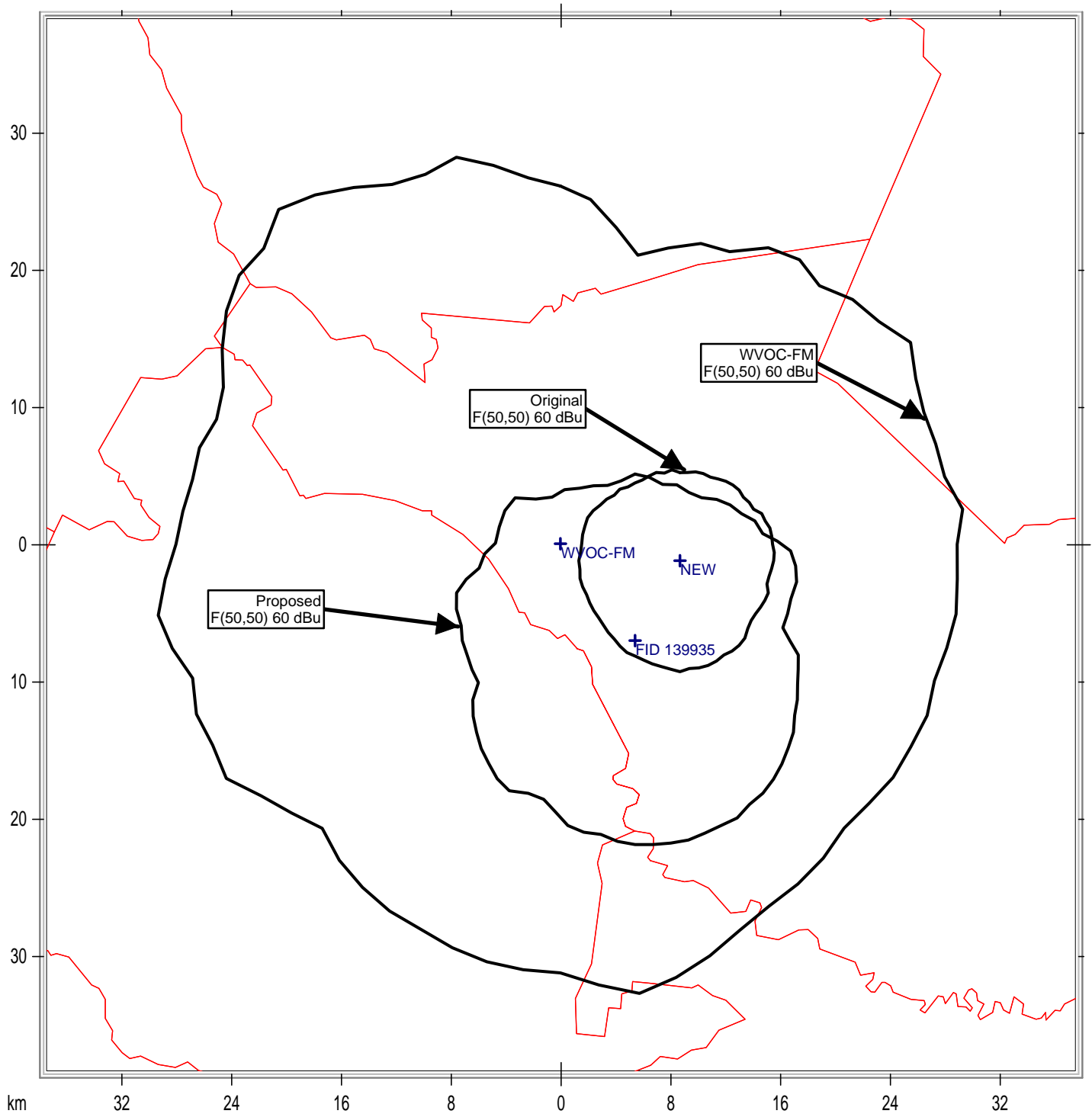**Figure 6. BNPFT-20030317AFG Proposed Location Aerial Image**

Figure 7. Map of 60 dBu Contours