

## **SECOND-ADJACENT CHANNEL WAIVER REQUEST**

Bishop England High School, licensee of Low Power FM Station WBEI-LP, Channel 275, 102.9 MHz, Charleston, South Carolina, hereby respectfully requests a waiver of Section 73.807 of the FCC's Rules with respect to a second adjacent channel station. WBEI-LP herein proposes to relocate its transmitter site to a location on its school campus which is located 11.3 kilometers from the licensed facilities of FM Broadcast Station WXLY, North Charleston, South Carolina (BMLH-20080521AAJ) on channel 273C1. This Exhibit supports an antenna location change for an existing Low Power FM station. The application proposes a move from the current licensed location to 32-51-25.70N, 79-54-59.04W (NAD83). Allocation details are provided in this exhibit.

### Narrative

Figure 1 indicates the interference contours with regards to WXLY-FM not considering the vertical elevation fields. Both the licensed and proposed 60 dBu contours for WBEI-LP are shown in figure 2.

Figure 3 is a topographic map of the proposed WBEI-LP transmitter site showing little to no change in elevation contours. Figure 4 is an aerial view of the same location..

WBEI-LP plans to install the current licensed 1 bay non-directional FM antenna.

Using the FCC FM Model webpage the worst case RF Exposure is 5.1 meters from antenna with 11.14 microwatts/cm<sup>3</sup> of ionizing radiation. This would be well below the limit of 200 microwatts /cm<sup>3</sup>. The FM Model is shown in Figure 5.

Figure 6 indicates there are no 3<sup>rd</sup> adjacent (or less) licensed facilities within 2 km of the proposed WBEI-LP antenna site supplying input signal to translators or boosters. This meets the intent of 73.827(a).

Figure 7 shows the vertical elevation fields for WBEI-LP to WXLY.

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### **Allocations**

This application proposes service to Charleston, South Carolina, on channel 275. An updated Allocations Table is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied.

All facilities are protected by this application under distance protection requirements of 47 C.F.R. §73.807, with the exception of facilities which are listed in Table 2 below. Those facilities are protected by the Desired to Undesired (D/U) Ratio method which is described below..

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WBIE-LP at Bishop England HS HAAT21m  
Bishop England High School

REFERENCE	CLASS = L1	DISPLAY DATES
32 51 25.70 N.		DATA 12-27-19
79 54 59.04 W.	Current Spacings to 2nd Adj.	SEARCH 12-27-19
----- Channel 275 - 102.9 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
WXLY	LIC 273C1	North Charleston	SC 120.0	8.72	72.5	-63.8
		Protected by D/U study. See text and numbers				
WBEI-LP	LIC 275L1	Charleston	SC 224.9	13.12	23.5	-10.4
		Current licensed facility				
WQKI-FM	LIC 275A	Orangeburg	SC 308.5	105.29	66.5	38.8
WVSC	LIC-N 276C3	Port Royal	SC 231.6	112.16	66.5	45.7

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All separation margins include rounding

Table 2: Facilities Protected by U/D Method

Facility	WXLY North Charleston, South Carolina	
Relationship	273C1, second adjacent	
Distance (km)	8.72	
Bearing (degrees)	120.0	
ERP (kW, on azimuth)	100	
HAAT (m, on azimuth)	199.5	
Ratio	40	
Signal Strength (dBu)	99.02	
Ratio Signal Strength	139.020	
Ix contour distance (km)	.009	

In using the 1 bay Shively 6812-B antenna, the interference levels in regards to WXLY-FM the closest to any occupied structure the WBEI-LP signal would interfere with is 17.1 meters from ground level at a distance of 3.8 meters from tower.

These figures were obtained from V-Soft X-Field report (figure 7)

**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 NED 03 SEC arc second terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

Desired to undesired figures come from V-Softs X-Field software.

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WBEI-LP WXLY Contour overlap  
Bishop England High School

FMCommander Single Allocation Study - 12-22-2019 - NED 03 SEC  
WBEI-LP's Overlaps (In= 0.0 km, Out= 0.0 km)

WBEI-LP CH 275 L1  
Lat= 32 51 25.70, Lng= 79 54 59.04  
0.1 kW 30 m HAAT, 33.7 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

WXLY CH 273 C1 BMLH20080521AAJ  
Lat= 32 49 04.60, Lng= 79 50 08.30  
100.0 kW 201 m HAAT, 202 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

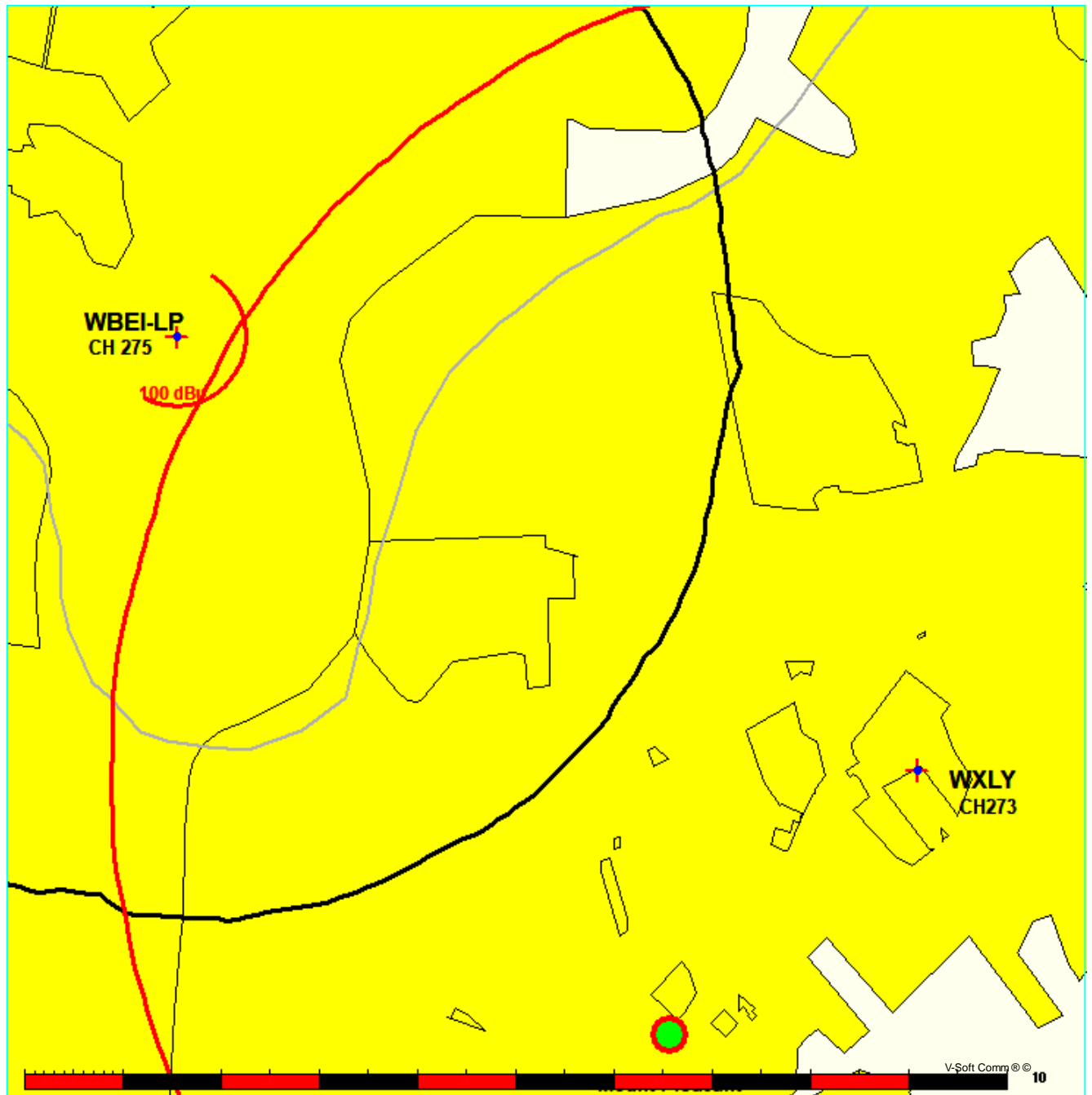


Figure 1

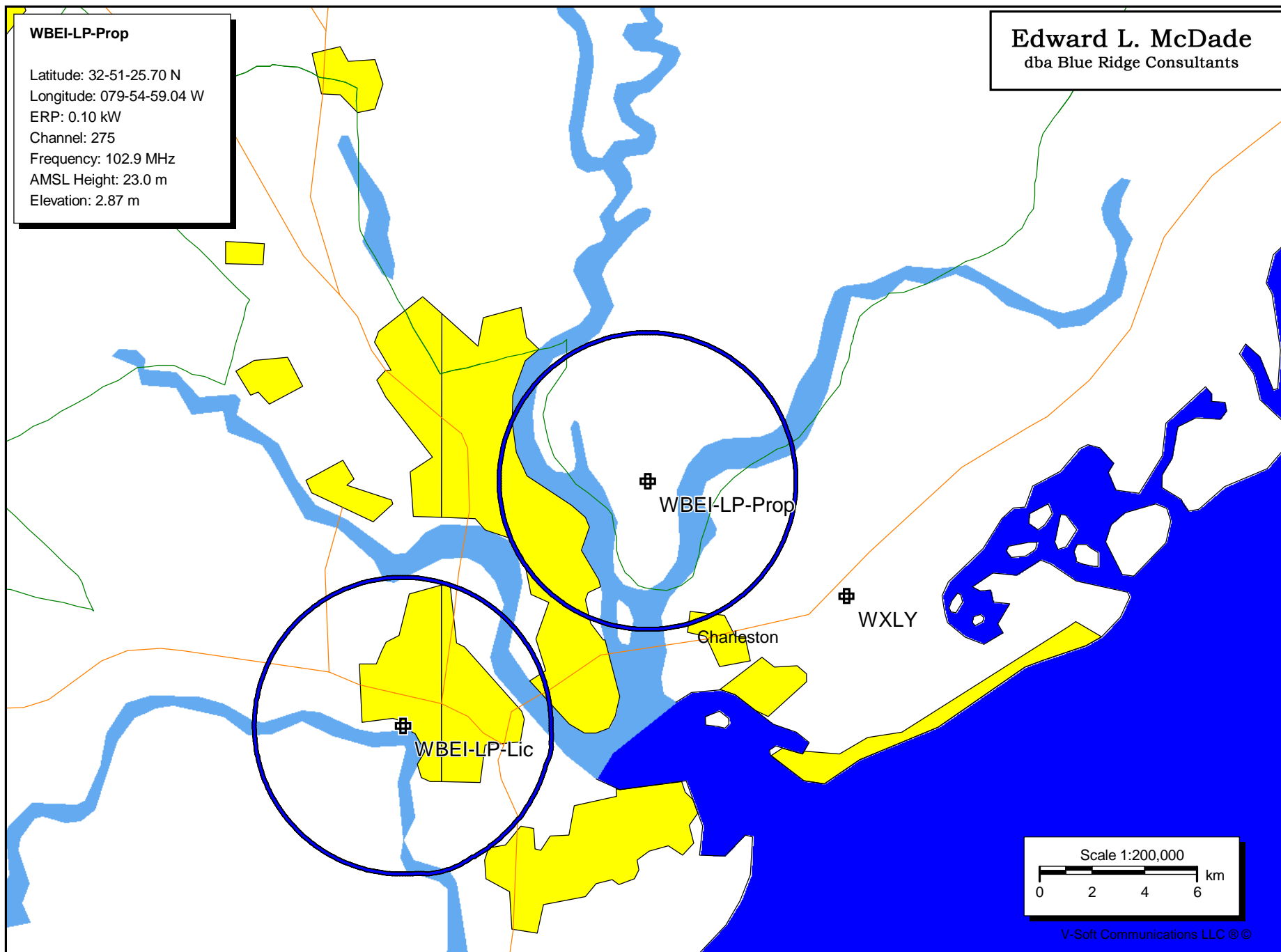


Figure 2



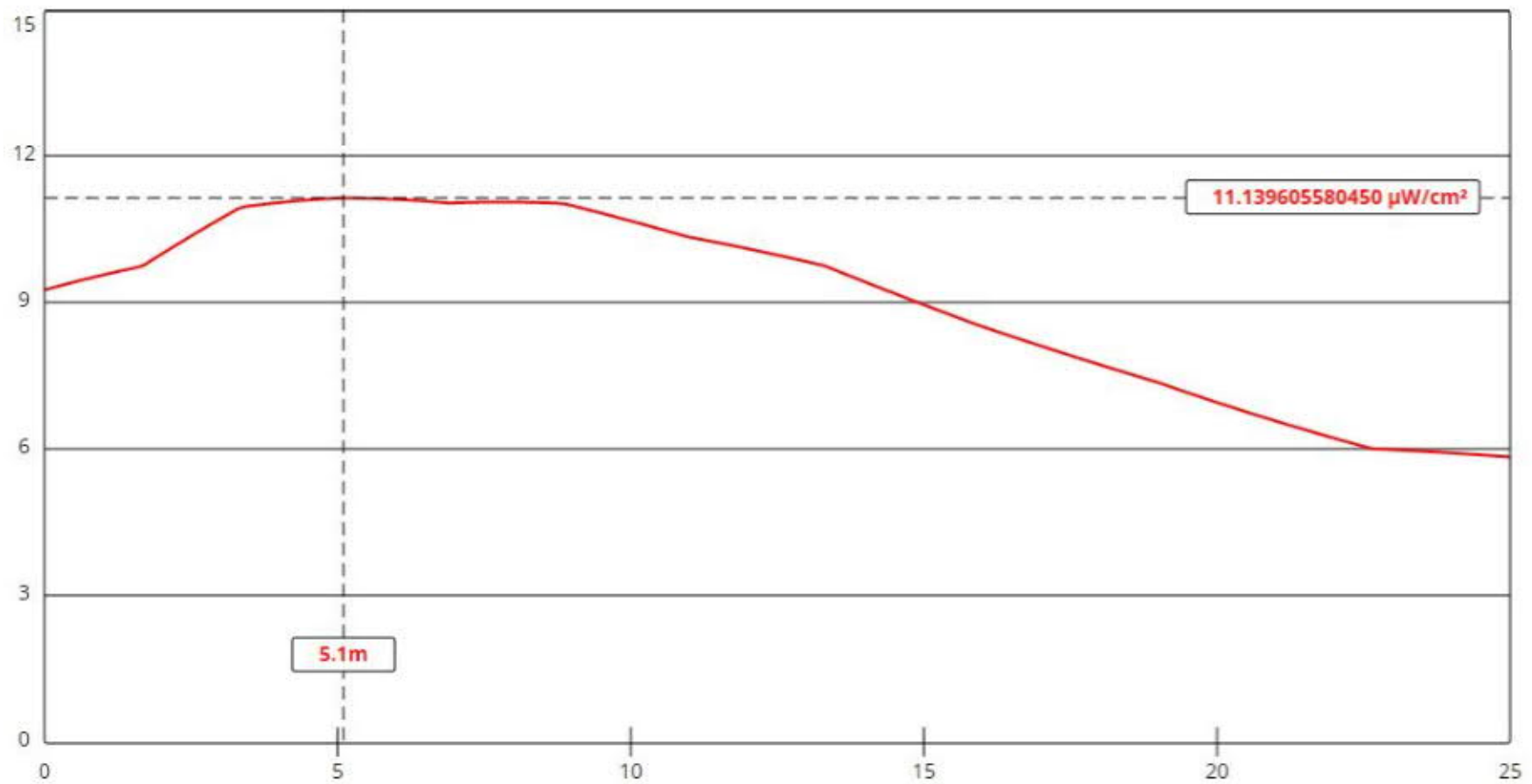


Figure 3





Figure 4



[View Tabular Results +](#)

Channel Selection	Channel 275 (102.9 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	<input type="text" value="21"/>	Distance (m)	<input type="text" value="25"/>
ERP-H (W)	<input type="text" value="100"/>	ERP-V (W)	<input type="text" value="100"/>
Num of Elements	<input type="text" value="1"/>	Element Spacing ( $\lambda$ )	<input type="text" value="1"/>
Num of Points	<input type="text" value="250"/>	<input type="button" value="Apply"/>	

Figure 5



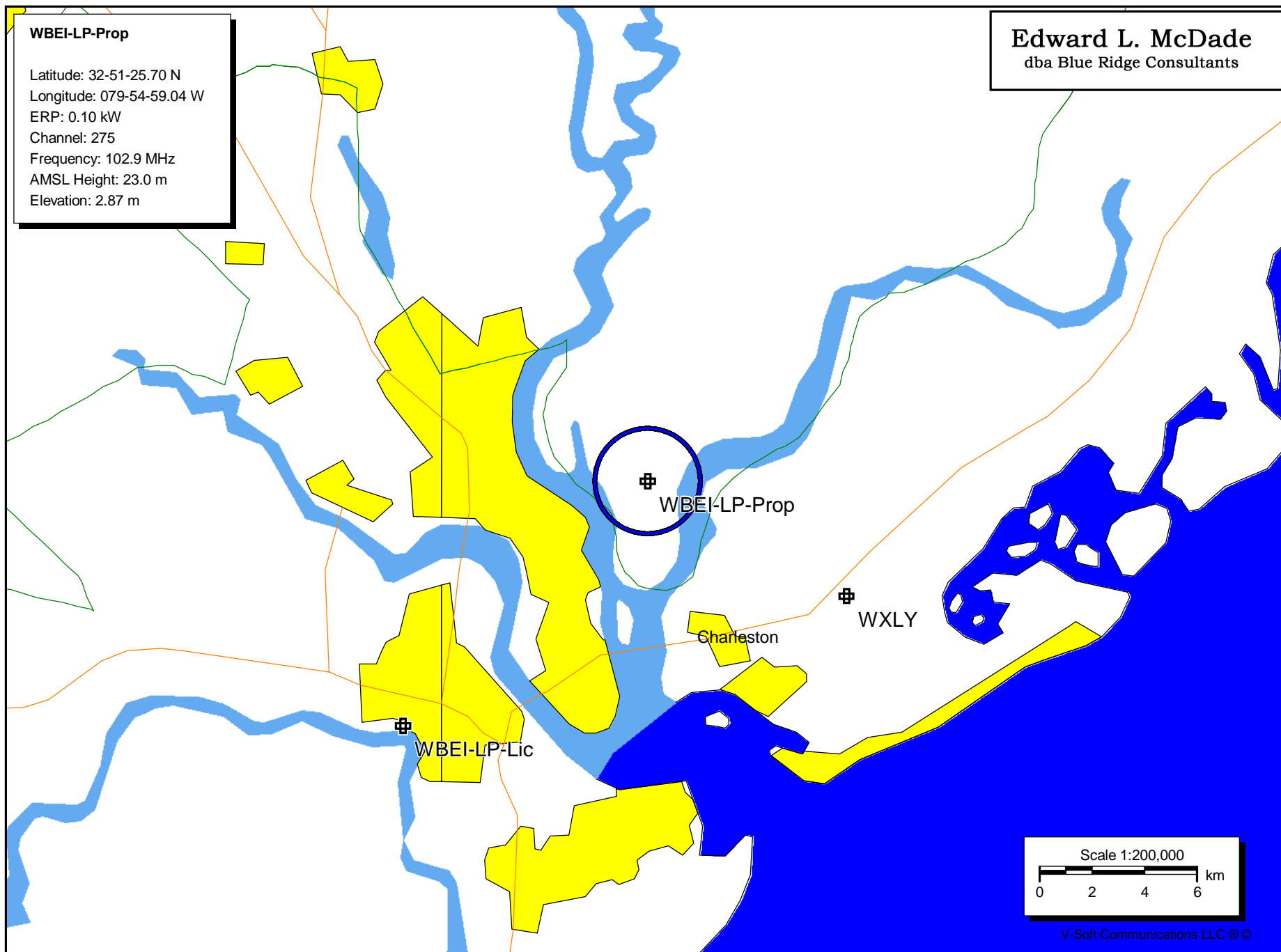
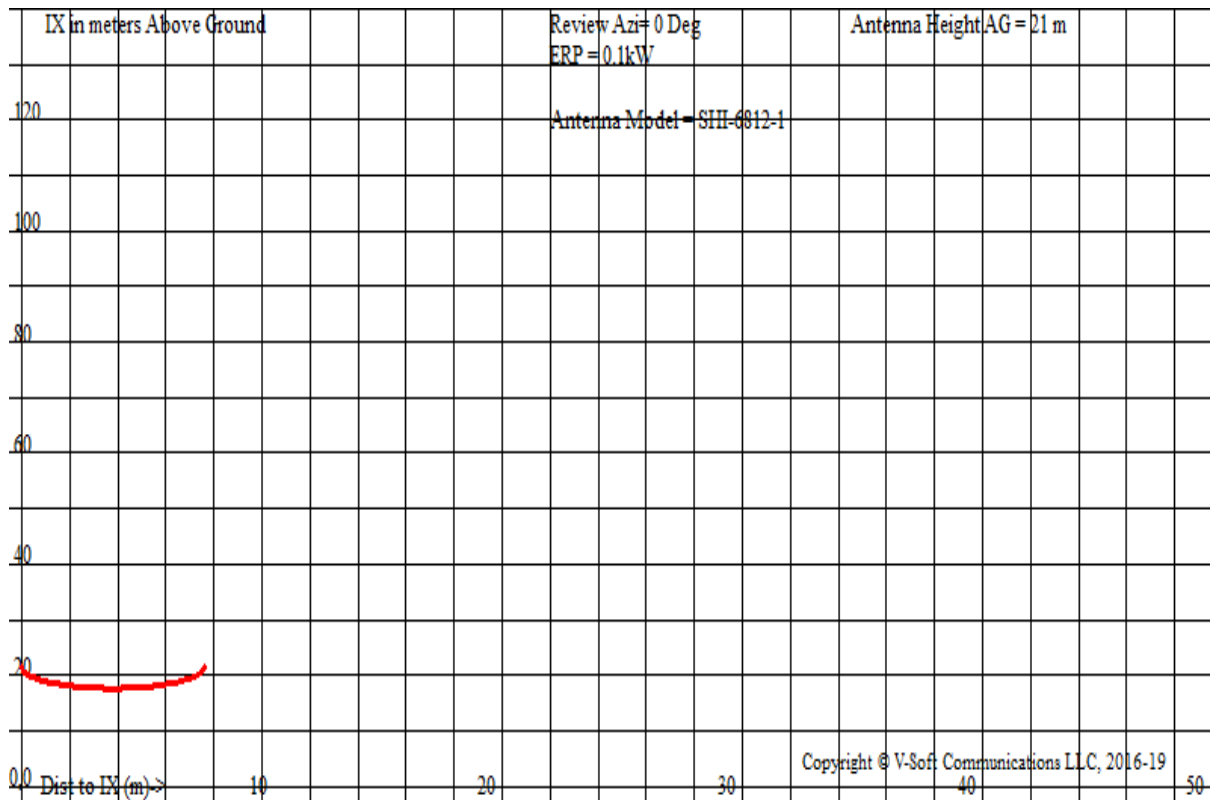


Figure 6



WBEI-LP , , Showing Protection to WXLV , Channel: 273  
 Geographic Coordinates: N. 32 51 25.700 W. 79 5 4 59.040  
 74.1204(d) Study - Using NGDC 30 SEC Terrain Database  
 Translator or LPFM Maximum Licensed ERP = 0.1 kW, Channel: 275  
 Translator or LPFM Antenna Height AG = 21 meters  
 WBEI-LP Antenna Model = SHI-6812-1

Protected Station's Contour = 99.1208 dBu  
 Translator's or LPFM's full Interference contour 139.1208

Review Azimuth = 0 Degrees True  
 Relative Field on the horizontal at Review Azimuth = 1.000  
 Translator/LPFM ERP on the horizontal at Review Azimuth = 0.1 kW  
 Distance between stations = 8.7 km  
 Protected Station= WXLV, 100 kW, 202 M meters COR AMSL

Depression Angle From Horiz. (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.0	1.0	1.0	0.1000	007.7618	007.7618	021.000
01.0	1.0	1.0	0.1000	007.7618	007.7606	020.865
02.0	0.999	1.0	0.0998	007.7540	007.7493	020.729
03.0	0.999	1.0	0.0998	007.7540	007.7434	020.594
04.0	0.998	1.0	0.0996	007.7462	007.7274	020.460
05.0	0.996	1.0	0.0992	007.7307	007.7013	020.326
06.0	0.995	1.0	0.0990	007.7229	007.6806	020.193
07.0	0.993	1.0	0.0986	007.7074	007.6500	020.061
08.0	0.991	1.0	0.0982	007.6919	007.6170	019.929
09.0	0.988	1.0	0.0976	007.6686	007.5742	019.800
10.0	0.985	1.0	0.0970	007.6453	007.5292	019.672
11.0	0.982	1.0	0.0964	007.6220	007.4820	019.546
12.0	0.979	1.0	0.0958	007.5988	007.4327	019.420
13.0	0.975	1.0	0.0951	007.5677	007.3738	019.298
14.0	0.971	1.0	0.0943	007.5367	007.3128	019.177
15.0	0.967	1.0	0.0935	007.5056	007.2499	019.057
16.0	0.963	1.0	0.0927	007.4746	007.1850	018.940
17.0	0.958	1.0	0.0918	007.4358	007.1109	018.826
18.0	0.953	1.0	0.0908	007.3970	007.0349	018.714
19.0	0.948	1.0	0.0899	007.3581	006.9573	018.604
20.0	0.942	1.0	0.0887	007.3116	006.8706	018.499
21.0	0.936	1.0	0.0876	007.2650	006.7825	018.396
22.0	0.930	1.0	0.0865	007.2184	006.6928	018.296
23.0	0.924	1.0	0.0854	007.1719	006.6017	018.198
24.0	0.917	1.0	0.0841	007.1175	006.5022	018.105
25.0	0.910	1.0	0.0828	007.0632	006.4014	018.015
26.0	0.903	1.0	0.0815	007.0089	006.2995	017.928

27.0	0.895	1.0	0.0801	006.9468	006.1896	017.846
28.0	0.887	1.0	0.0787	006.8847	006.0788	017.768
29.0	0.879	1.0	0.0773	006.8226	005.9672	017.692
30.0	0.871	1.0	0.0759	006.7605	005.8548	017.620
31.0	0.862	1.0	0.0743	006.6906	005.7350	017.554
32.0	0.854	1.0	0.0729	006.6285	005.6213	017.487
33.0	0.845	1.0	0.0714	006.5587	005.5006	017.428
34.0	0.835	1.0	0.0697	006.4811	005.3730	017.376
35.0	0.826	1.0	0.0682	006.4112	005.2518	017.323
36.0	0.816	1.0	0.0666	006.3336	005.1240	017.277
37.0	0.806	1.0	0.0650	006.2560	004.9962	017.235
38.0	0.796	1.0	0.0634	006.1784	004.8686	017.196
39.0	0.785	1.0	0.0616	006.0930	004.7351	017.166
40.0	0.774	1.0	0.0599	006.0076	004.6021	017.138
41.0	0.763	1.0	0.0582	005.9222	004.4696	017.115
42.0	0.752	1.0	0.0566	005.8368	004.3376	017.094
43.0	0.741	1.0	0.0549	005.7515	004.2064	017.078
44.0	0.729	1.0	0.0531	005.6583	004.0703	017.069
45.0	0.717	1.0	0.0514	005.5652	003.9352	017.065
46.0	0.705	1.0	0.0497	005.4720	003.8012	017.064
47.0	0.693	1.0	0.0480	005.3789	003.6684	017.066
48.0	0.680	1.0	0.0462	005.2780	003.5317	017.078
49.0	0.667	1.0	0.0445	005.1771	003.3965	017.093
50.0	0.654	1.0	0.0428	005.0762	003.2629	017.111
51.0	0.641	1.0	0.0411	004.9753	003.1310	017.133
52.0	0.628	1.0	0.0394	004.8744	003.0010	017.159
53.0	0.614	1.0	0.0377	004.7657	002.8681	017.194
54.0	0.600	1.0	0.0360	004.6571	002.7373	017.232
55.0	0.586	1.0	0.0343	004.5484	002.6088	017.274
56.0	0.572	1.0	0.0327	004.4397	002.4827	017.319
57.0	0.558	1.0	0.0311	004.3311	002.3589	017.368
58.0	0.544	1.0	0.0296	004.2224	002.2375	017.419
59.0	0.529	1.0	0.0280	004.1060	002.1147	017.480
60.0	0.514	1.0	0.0264	003.9895	001.9948	017.545
61.0	0.499	1.0	0.0249	003.8731	001.8777	017.612
62.0	0.484	1.0	0.0234	003.7567	001.7637	017.683
63.0	0.469	1.0	0.0220	003.6403	001.6526	017.757
64.0	0.453	1.0	0.0205	003.5161	001.5413	017.840
65.0	0.437	1.0	0.0191	003.3919	001.4335	017.926
66.0	0.422	1.0	0.0178	003.2755	001.3323	018.008
67.0	0.406	1.0	0.0165	003.1513	001.2313	018.099
68.0	0.390	1.0	0.0152	003.0271	001.1340	018.193
69.0	0.373	1.0	0.0139	002.8951	001.0375	018.297
70.0	0.357	1.0	0.0127	002.7709	000.9477	018.396
71.0	0.341	1.0	0.0116	002.6468	000.8617	018.497
72.0	0.324	1.0	0.0105	002.5148	000.7771	018.608
73.0	0.307	1.0	0.0094	002.3829	000.6967	018.721
74.0	0.290	1.0	0.0084	002.2509	000.6204	018.836
75.0	0.273	1.0	0.0075	002.1190	000.5484	018.953
76.0	0.256	1.0	0.0066	001.9870	000.4807	019.072
77.0	0.239	1.0	0.0057	001.8551	000.4173	019.192
78.0	0.221	1.0	0.0049	001.7153	000.3566	019.322
79.0	0.204	1.0	0.0042	001.5834	000.3021	019.446
80.0	0.186	1.0	0.0035	001.4437	000.2507	019.578
81.0	0.168	1.0	0.0028	001.3040	000.2040	019.712
82.0	0.151	1.0	0.0023	001.1720	000.1631	019.839
83.0	0.133	1.0	0.0018	001.0323	000.1258	019.975
84.0	0.114	1.0	0.0013	000.8848	000.0925	020.120
85.0	0.096	1.0	0.0009	000.7451	000.0649	020.258
86.0	0.078	1.0	0.0006	000.6054	000.0422	020.396
87.0	0.059	1.0	0.0003	000.4579	000.0240	020.543
88.0	0.040	1.0	0.0002	000.3105	000.0108	020.690
89.0	0.021	1.0	0.0000	000.1630	000.0028	020.837
90.0	0.001	1.0	0.0000	000.0078	000.0000	020.992

Figure 7