

**MINOR CHANGE APPLICATION**  
**MODIFICATION OF BNPFT-20130828AFU**  
**GLORY COMMUNICATIONS, INC.**  
**W286CT FM TRANSLATOR STATION**  
**CH 286D - 105.1 MHZ - 0.099 KW**  
**COLUMBIA, SOUTH CAROLINA**  
**August 2014**

**EXHIBIT C1**

**Interference Study for W286CT Using Proposed Site as Reference**

REFERENCE		CH# 286D - 105.1 MHz, Pwr= 0.099 kW, HAAT= 155.1 M, COR= 235 M								DISPLAY DATES	
34 02 38.0 N.		Average Protected F(50-50)= 12.8 km								DATA 08-19-14	
80 59 51.0 W.		Omni-directional								SEARCH 08-19-14	
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*
284C1 Columbia	WNOK	LIC	DCX SC	34.1 214.1	14.36 BLH20031030AAR	34 09 03.0 80 54 36.0	90.000 315	10.1 419	72.7 Capstar Tx Llc	-7.6<	-59.1*<
286D Columbia	W286CT	CP	C SC	48.3 228.3	2.09 BNPFT20130828AFU	34 03 23.0 80 58 50.0	0.099 163	44.2 247	13.4 Glory Communications, Inc.	-53.9*	-51.2*
286C3 Coward	WPDT	LIC	CX SC	97.3 278.0	107.79 BLH20100709AHP	33 54 54.0 79 50 19.0	18.000 117	108.0 142	38.1 Glory Communications, Inc.	-12.3*<	28.9
288D Columbia	W288CX	CP	C SC	197.4 17.4	4.53 BNPFT20130822AFE	34 00 18.0 81 00 44.0	0.250 103	1.1 173	11.6 Capstar Tx Limited Partner	-10.4*<	-7.8*<
287C3 Branchville	WGFG	LIC	ZCX SC	165.0 345.1	69.14 BLH20091216ACT	33 26 35.0 80 48 16.0	12.500 141	55.9 194	36.9 Miller Communications, Inc	-0.8<	11.0
287C1 Gaffney	WOSF	LIC	CX SC	353.3 173.2	147.80 BLH20100429ADK	35 21 51.0 81 11 13.0	51.000 395	109.3 644	74.2 Gaffney Broadcasting, Inco	26.5	55.8
289C0 Augusta	WSCG	LIC	CX GA	228.6 48.1	104.10 BLH20140620AAQ	33 25 17.0 81 50 19.0	100.000 371	10.7 454	75.1 Capstar Tx Llc	80.4	28.3
286D Aiken	W286CG	CP	C SC	231.3 50.9	83.75 BNPFT20130312ADH	33 34 15.0 81 42 11.0	0.016 120	24.4 245	7.3 Edgewater Broadcasting, In	46.5	33.6

Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 Contour distances are on direct line to and from reference station. Reference Zone= East Zone, Co to 3<sup>rd</sup> adjacent.  
 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 protected contour.  
 < = Contour Overlap

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**EXHIBIT C2**

**Interference Study for W286CT Using Proposed Site as Reference**

As noted on Exhibit C1, W286CT is within the predicted 60 dBu contour of second adjacent station WNOK, Channel 284C1, Columbia, South Carolina. Due to the relationship between W286CT and WNOK, a 40 db ratio of the protected and interfering contours applies. We have, therefore, calculated the level of signal of WNOK at the proposed site for W286CT site. A map showing the WNOK contour at the proposed W286CT site is attached as Exhibit C3. The WNOK contour at the proposed W286CT site is 93.8 dBu (50/50), and the corresponding interfering contour for W286CT is 133.8 dBu (50/10). Due to the relatively low power of the proposed W286CT and by using a Shively 6832-1 single bay antenna, the 133.7 dBu interfering contour of the proposed W286CT is limited and extends no farther than 14.2 meters from the antenna. This interference contour, which is tabulated in Exhibit C4, does not reach ground level or any building structure. As such, WNOK will not receive interference from the W286CT.



**W286CT - Columbia, SC - Proposed**  
Latitude: 34-02-38 N / Longitude: 080-59-51 W  
ERP: 0.099 kW / Channel: 286 / Freq: 105.1 MHz  
AMSL Height: 235.0 m

**WNOK - Columbia, SC - BLH20031030AAR**  
Latitude: 34-09-03 N / Longitude: 080-54-36 W  
ERP: 90.00 kW / Channel: 284 / Freq: 104.7 MHz  
AMSL Height: 419.0 m

**GRAHAM BROCK, INC.**  
BROADCAST TECHNICAL CONSULTANTS

W286CT

**EXHIBIT C3**  
**MINOR CHANGE APPLICATION**  
**MODIFICATION OF BNPFT-20130828AFU**  
**GLORY COMMUNICATIONS, INC.**  
**W286CT FM TRANSLATOR STATION**  
**CH 286D - 105.1 MHZ - 0.099 KW**  
**COLUMBIA, SOUTH CAROLINA**  
**August 2014**

■ WNOK 93.8 dbu (50/50)  
■ W286CT Proposed 133.8 dBu (50/10)

Scale 1:24,000  
0 0.33 0.67 1.0 km

V-Soft Communications LLC ©

Interference to:	WNOK	CALL:	W286CT	Antenna	Shively 6832-1
Contour at tower:	93.8 dBu - FCC 50/50	POWER (Watts):	99	Azimuth:	Worst Case
Interference Ratio:	40 db	ANTENNA AGL (m):	119	Relative field:	1.000
		Desired Contour (dBu - FCC 50/10)	133.8	ERP (Watts) at Azimuth:	99

DEPRESSION ANGLE	ANTENNA RELATIVE FIELD FROM MFG	ERP (WATTS)		DISTANCE TO INTERFERING CONTOUR (m)	HORIZONTAL DISTANCE FROM TOWER (m)	VERTICAL DISTANCE FROM GROUND (m)
0	1.000	99.0	-10.04	14.2	14.2	119.0
5	1.000	99.0	-10.04	14.2	14.2	117.8
10	1.000	99.0	-10.04	14.2	14.0	116.5
15	1.000	99.0	-10.04	14.2	13.7	115.3
20	1.000	99.0	-10.04	14.2	13.4	114.1
25	1.000	99.0	-10.04	14.2	12.9	113.0
30	1.000	99.0	-10.04	14.2	12.3	111.9
35	1.000	99.0	-10.04	14.2	11.6	110.8
40	1.000	99.0	-10.04	14.2	10.9	109.9
45	1.000	99.0	-10.04	14.2	10.1	108.9
50	1.000	99.0	-10.04	14.2	9.1	108.1
55	1.000	99.0	-10.04	14.2	8.2	107.4
60	1.000	99.0	-10.04	14.2	7.1	106.7
65	1.000	99.0	-10.04	14.2	6.0	106.1
70	1.000	99.0	-10.04	14.2	4.9	105.6
75	1.000	99.0	-10.04	14.2	3.7	105.3
80	1.000	99.0	-10.04	14.2	2.5	105.0
85	1.000	99.0	-10.04	14.2	1.2	104.8
90	1.000	99.0	-10.04	14.2	0.0	104.8

WORST CASE HEIGHT AGL (m)

104.8

**EXHIBIT C4**  
**MINOR CHANGE APPLICATION**  
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**EXHIBIT C5**

**Interference Study for W286CT Using Proposed Site as Reference**

As noted on Exhibit C1, the proposed W286CT is within the predicted 60 dBu contour of second adjacent translator station W288CX, Channel 288D, Columbia, South Carolina. Due to the relationship between the proposed W286CT and W288CX, a 40 db ratio of the protected and interfering contours applies. We have, therefore, calculated the level of signal of W288CX at the proposed W286CT new site. A map showing the W288CX contour at the proposed W286CT's site is attached as Exhibit C6. The W288CX contour at the proposed W286CT's site is 76 dBu (50/50), and the corresponding interfering contour for W286CT is 116 dBu (50/10). By using a Shively 6832-1 single bay antenna and due to the relatively low power of the translator, the 116 dBu interfering contour of the proposed W286CT is limited and extends no farther than 110.4 meters from the antenna. This interference contour, which is tabulated in Exhibit C7, does not reach ground level or any building structure. As such, W288CX will not receive interference from the proposed W286CT.

Similarly noted on Exhibit C1, the proposed W286CT's predicted 60 dBu contour encompasses second adjacent translator station site for W288CX, Channel 288D, Columbia, South Carolina. Due to the relationship between the proposed W286CT and W288CX, a 40 db

ratio of the protected and interfering contours applies. We have, therefore, calculated the level of signal of the proposed W286CT at the W288CX translator's site. A map showing the proposed W286CT contour at the W288CX translator site is attached as Exhibit C8. The proposed W286CT contour at the W288CX site is 78.6 dBu (50/50), and the corresponding interfering contour for W288CX is 118.6 dBu (50/10). W288CX utilizes a Nicom BKG778/2, two bay, half wavelength spaced antenna. Due to the relatively low power of W288CX, the 118.6 dBu interfering contour is limited and extends no farther than 130.0 meters from the antenna. Also, due to the vertical radiation characteristics of this antenna, the interference contour, which is tabulated in Exhibit C9, does not reach ground level or any building structure. As such, the proposed W286CT will not receive interference from W288CX.

Exhibit C10 is a tabulation of the proposed new translator's interference and service contours.



**W286CT - Columbia, SC - Proposed**

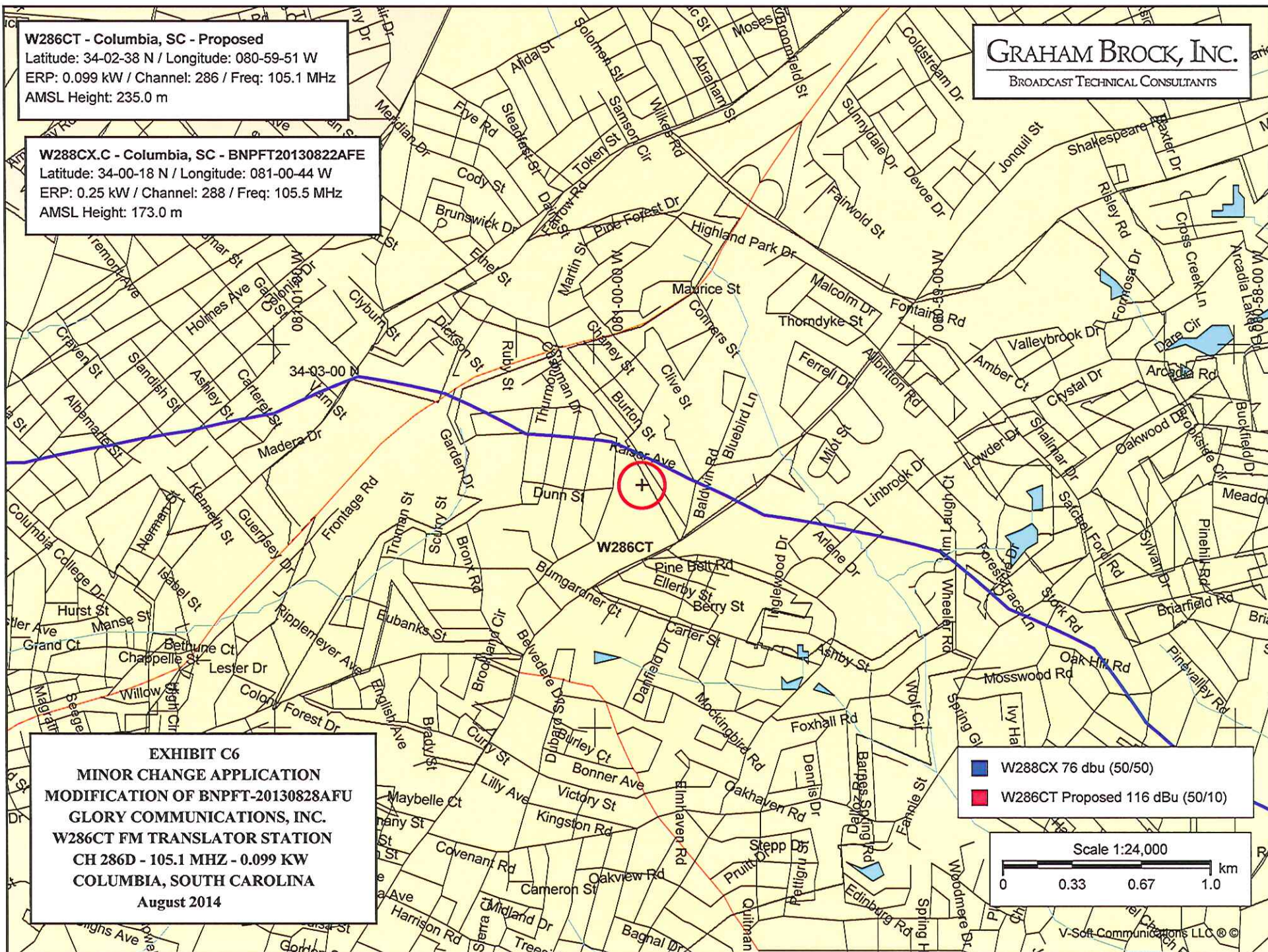
Latitude: 34-02-38 N / Longitude: 080-59-51 W  
ERP: 0.099 kW / Channel: 286 / Freq: 105.1 MHz  
AMSL Height: 235.0 m

**W288CX.C - Columbia, SC - BNPFT20130822AFE**

Latitude: 34-00-18 N / Longitude: 081-00-44 W  
ERP: 0.25 kW / Channel: 288 / Freq: 105.5 MHz  
AMSL Height: 173.0 m

**GRAHAM BROCK, INC.**

BROADCAST TECHNICAL CONSULTANTS



**EXHIBIT C6**

**MINOR CHANGE APPLICATION  
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GLORY COMMUNICATIONS, INC.  
W286CT FM TRANSLATOR STATION  
CH 286D - 105.1 MHZ - 0.099 KW  
COLUMBIA, SOUTH CAROLINA**

August 2014

■ W288CX 76 dbu (50/50)  
■ W286CT Proposed 116 dBu (50/10)

Scale 1:24,000

0 0.33 0.67 1.0 km

V-Soft Communications LLC ©

Interference to: W288CX  
 Contour at tower: 76 dBu - FCC 50/50  
 Interference Ratio: 40 db

CALL: W286CT  
 POWER (Watts): 99  
 ANTENNA AGL (m): 119  
 Desired Contour (dBu - FCC 50/10): 116

Antenna Shively 6832-1  
 Azimuth: Worst Case  
 Relative field: 1.000  
 ERP (Watts) at Azimuth: 99

DEPRESSION ANGLE	ANTENNA RELATIVE FIELD FROM MFG	ERP (WATTS)	dBk	DISTANCE TO INTERFERING CONTOUR (m)	HORIZONTAL DISTANCE FROM TOWER (m)	VERTICAL DISTANCE FROM GROUND (m)
0	1.000	99.0	-10.04	110.4	110.4	119.0
5	1.000	99.0	-10.04	110.4	109.9	109.4
10	1.000	99.0	-10.04	110.4	108.7	99.8
15	1.000	99.0	-10.04	110.4	106.6	90.4
20	1.000	99.0	-10.04	110.4	103.7	81.3
25	1.000	99.0	-10.04	110.4	100.0	72.4
30	1.000	99.0	-10.04	110.4	95.6	63.8
35	1.000	99.0	-10.04	110.4	90.4	55.7
40	1.000	99.0	-10.04	110.4	84.5	48.1
45	1.000	99.0	-10.04	110.4	78.0	41.0
50	1.000	99.0	-10.04	110.4	70.9	34.5
55	1.000	99.0	-10.04	110.4	63.3	28.6
60	1.000	99.0	-10.04	110.4	55.2	23.4
65	1.000	99.0	-10.04	110.4	46.6	19.0
70	1.000	99.0	-10.04	110.4	37.7	15.3
75	1.000	99.0	-10.04	110.4	28.6	12.4
80	1.000	99.0	-10.04	110.4	19.2	10.3
85	1.000	99.0	-10.04	110.4	9.6	9.1
90	1.000	99.0	-10.04	110.4	0.0	8.6

WORST CASE HEIGHT AGL (m)

8.6

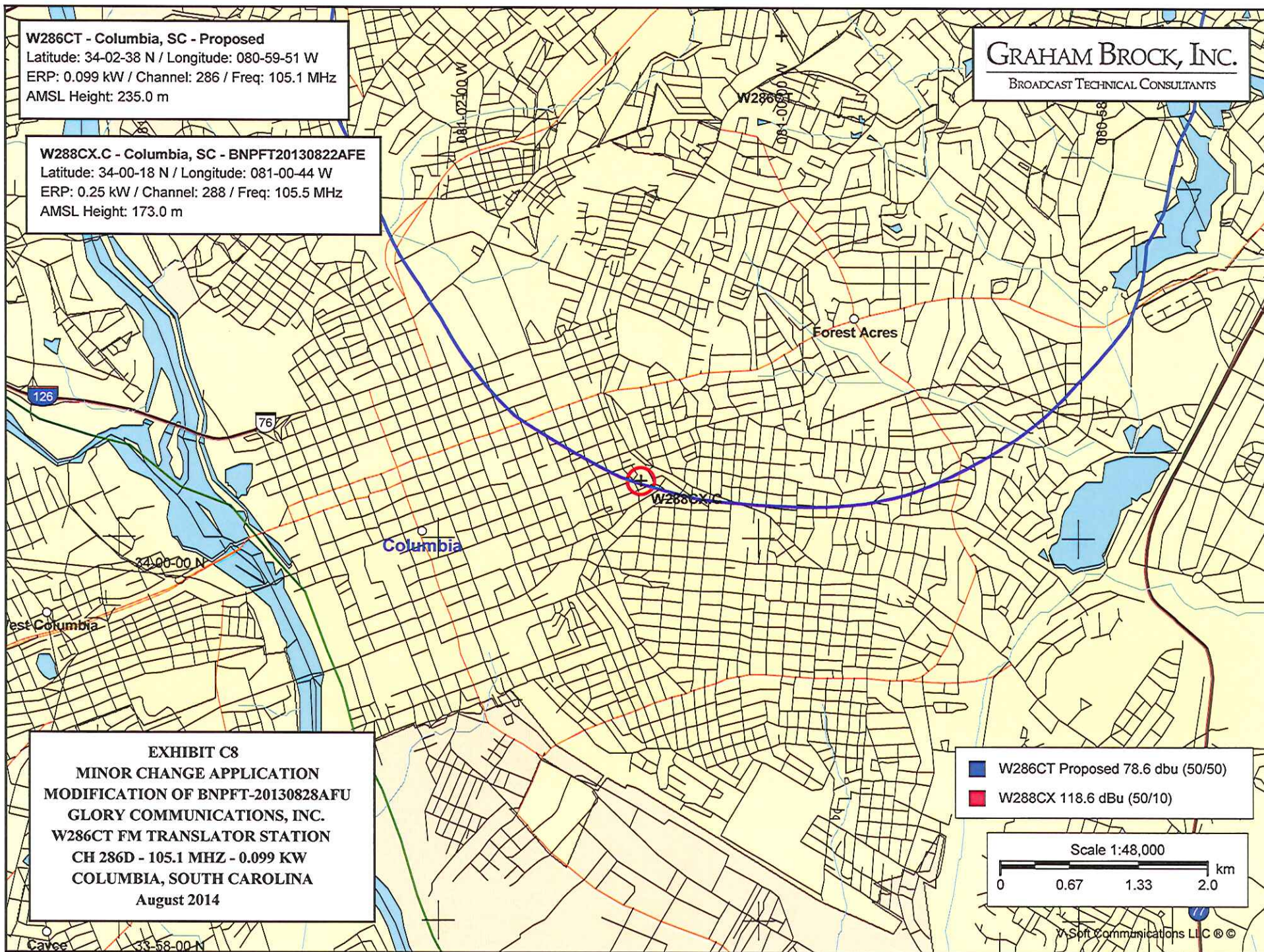
**EXHIBIT C7**  
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**W286CT - Columbia, SC - Proposed**  
Latitude: 34-02-38 N / Longitude: 080-59-51 W  
ERP: 0.099 kW / Channel: 286 / Freq: 105.1 MHz  
AMSL Height: 235.0 m

**W288CX.C - Columbia, SC - BNPFT20130822AFE**  
Latitude: 34-00-18 N / Longitude: 081-00-44 W  
ERP: 0.25 kW / Channel: 288 / Freq: 105.5 MHz  
AMSL Height: 173.0 m

**GRAHAM BROCK, INC.**  
BROADCAST TECHNICAL CONSULTANTS



**EXHIBIT C8**  
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**August 2014**

■ W286CT Proposed 78.6 dbu (50/50)  
■ W288CX 118.6 dBu (50/10)

Scale 1:48,000  
0 0.67 1.33 2.0 km

WSoft Communications LLC ©



Interference to:	W286CT - Proposed	CALL:	W288CX	Antenna	Nicom BKG77/2 2 Bay 1/2 Wave Spaced
Contour at tower:	78.6 dBu - FCC 50/50	POWER (Watts):	250	Azimuth:	Worst Case
Interference Ratio:	40 db	ANTENNA AGL (m):	100	Relative field:	1.000
		Desired Contour (dBu - FCC 50/10)	118.6	ERP (Watts) at Azimuth:	250

DEPRESSION ANGLE	ANTENNA RELATIVE FIELD FROM MFG	ERP (WATTS)		DISTANCE TO INTERFERING CONTOUR (m)	HORIZONTAL DISTANCE FROM TOWER (m)	VERTICAL DISTANCE FROM GROUND (m)
0	1.000	250.0	-6.02	130.0	130.0	100.0
5	0.988	244.0	-6.13	128.4	128.0	88.8
10	0.947	224.2	-6.49	123.1	121.2	78.6
15	0.871	189.7	-7.22	113.2	109.4	70.7
20	0.792	156.8	-8.05	103.0	96.8	64.8
25	0.682	116.3	-9.34	88.7	80.4	62.5
30	0.565	79.8	-10.98	73.5	63.6	63.3
35	0.496	61.5	-12.11	64.5	52.8	63.0
40	0.376	35.3	-14.52	48.9	37.4	68.6
45	0.273	18.6	-17.30	35.5	25.1	74.9
50	0.188	8.8	-20.54	24.4	15.7	81.3
55	0.131	4.3	-23.68	17.0	9.8	86.0
60	0.079	1.6	-28.07	10.3	5.1	91.1
65	0.047	0.6	-32.58	6.1	2.6	94.5
70	0.022	0.1	-39.17	2.9	1.0	97.3
75	0.010	0.0	-46.02	1.3	0.3	98.7
80	0.003	0.0	-56.48	0.4	0.1	99.6
85	0.001	0.0	-66.02	0.1	0.0	99.9
90	0.001	0.0	-66.02	0.1	0.0	99.9

WORST CASE HEIGHT AGL (m)

62.5

**EXHIBIT C9**  
**MINOR CHANGE APPLICATION**  
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**EXHIBIT C10**

N. Lat. = 34 02 38- Tabulated Protected and Interfering Contour Data  
W. Lng. = 80 59 51 - W286CT FM Translator - Columbia, South Carolina

HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Fld	133.8-F1	116-F1	100-F1	60-F5	54-F1	40-F1
000	96.1	138.9	0.0990	-10.04	1.000	0.01	0.11	0.70	12.03	17.77	40.58
010	103.2	131.8	0.0990	-10.04	1.000	0.01	0.11	0.70	11.71	17.19	39.69
020	101.0	134.0	0.0990	-10.04	1.000	0.01	0.11	0.70	11.81	17.37	39.97
030	102.8	132.2	0.0990	-10.04	1.000	0.01	0.11	0.70	11.73	17.23	39.74
040	99.6	135.4	0.0990	-10.04	1.000	0.01	0.11	0.70	11.88	17.49	40.16
050	101.8	133.2	0.0990	-10.04	1.000	0.01	0.11	0.70	11.78	17.31	39.87
060	89.3	145.7	0.0990	-10.04	1.000	0.01	0.11	0.70	12.34	18.32	41.41
070	88.8	146.2	0.0990	-10.04	1.000	0.01	0.11	0.70	12.36	18.36	41.47
080	85.0	150.0	0.0990	-10.04	1.000	0.01	0.11	0.70	12.54	18.65	41.92
090	95.2	139.8	0.0990	-10.04	1.000	0.01	0.11	0.70	12.08	17.85	40.70
100	93.7	141.3	0.0990	-10.04	1.000	0.01	0.11	0.70	12.14	17.97	40.88
110	97.3	137.7	0.0990	-10.04	1.000	0.01	0.11	0.70	11.98	17.67	40.43
120	92.3	142.7	0.0990	-10.04	1.000	0.01	0.11	0.70	12.21	18.08	41.05
130	70.8	164.2	0.0990	-10.04	1.000	0.01	0.11	0.70	13.18	19.74	43.58
140	66.1	168.9	0.0990	-10.04	1.000	0.01	0.11	0.70	13.37	20.06	44.10
150	57.3	177.7	0.0990	-10.04	1.000	0.01	0.11	0.70	13.72	20.64	45.09
160	50.9	184.1	0.0990	-10.04	1.000	0.01	0.11	0.70	13.95	21.03	45.82
170	47.8	187.2	0.0990	-10.04	1.000	0.01	0.11	0.70	14.05	21.21	46.16
180	52.6	182.4	0.0990	-10.04	1.000	0.01	0.11	0.70	13.89	20.93	45.63
190	52.3	182.7	0.0990	-10.04	1.000	0.01	0.11	0.70	13.90	20.95	45.66
200	53.3	181.7	0.0990	-10.04	1.000	0.01	0.11	0.70	13.86	20.89	45.54
210	58.8	176.2	0.0990	-10.04	1.000	0.01	0.11	0.70	13.66	20.55	44.93
220	64.0	171.0	0.0990	-10.04	1.000	0.01	0.11	0.70	13.46	20.21	44.35
230	76.0	159.0	0.0990	-10.04	1.000	0.01	0.11	0.70	12.94	19.35	42.97
240	78.1	156.9	0.0990	-10.04	1.000	0.01	0.11	0.70	12.85	19.19	42.73
250	78.1	156.9	0.0990	-10.04	1.000	0.01	0.11	0.70	12.85	19.19	42.74
260	70.1	164.9	0.0990	-10.04	1.000	0.01	0.11	0.70	13.21	19.79	43.66
270	71.1	163.9	0.0990	-10.04	1.000	0.01	0.11	0.70	13.16	19.71	43.53
280	73.7	161.3	0.0990	-10.04	1.000	0.01	0.11	0.70	13.05	19.52	43.24
290	76.5	158.5	0.0990	-10.04	1.000	0.01	0.11	0.70	12.92	19.31	42.92
300	67.4	167.6	0.0990	-10.04	1.000	0.01	0.11	0.70	13.32	19.97	43.95
310	74.0	161.0	0.0990	-10.04	1.000	0.01	0.11	0.70	13.03	19.50	43.20
320	87.1	147.9	0.0990	-10.04	1.000	0.01	0.11	0.70	12.44	18.49	41.67
330	97.5	137.5	0.0990	-10.04	1.000	0.01	0.11	0.70	11.97	17.66	40.41
340	104.6	130.4	0.0990	-10.04	1.000	0.01	0.11	0.70	11.66	17.09	39.52
350	100.3	134.7	0.0990	-10.04	1.000	0.01	0.11	0.70	11.84	17.43	40.06

AMSL= 235 M