

ENGINEERING STATEMENT  
CONSTRUCTION PERMIT MODIFICATION  
OF FCC FILE NO. BNPTTL-20000831AYX  
ON BEHALF OF  
RED RIVER BROADCAST CO., LLC  
**BADGER, SOUTH DAKOTA CHANNEL 35(+) 13.4 KW MAX ERP**

MARCH 2003

COHEN, DIPPELL AND EVERIST, P.C.  
CONSULTING ENGINEERS  
RADIO AND TELEVISION  
WASHINGTON, D.C.

### INTRODUCTION

This engineering statement has been prepared on behalf of Red River Broadcast Co., LLC ("Red River") in support of its request to make a modification to its construction permit with FCC File No. BNPTTL-20000831AYX. This application simply proposes to change the antenna from an Andrew ALP12L2-HSOC to an Andrew AL-12. Slight changes in ERP will result from this change, but no other changes are proposed at this time.

### ANTENNA SITE

The proposed low power television station will be mounted to an existing tower with FCC Antenna Structure Registration No. 1053765. The site is located at 1.4 miles west of Badger, South Dakota. The geographic coordinates of the site follow below:

North Latitude: 44° 29' 15"

West Longitude: 97° 14' 20"

NAD-27

### ELEVATION DATA

Elevation of site above mean sea level	541.3 Meters
Center of radiation of antenna above ground	103.2 Meters
Center of radiation of antenna above mean sea level	644.5 Meters
Overall height above ground of the existing antenna structure (including appurtenances)	106.7 Meters
Overall height above mean sea level of the existing antenna structure (including appurtenances)	648.0 Meters

EQUIPMENT DATA

Transmitter:	Type-approved
Transmission Line:	Andrew HJ7-50A, or equivalent; length of 103.6 meters and 66.2% efficient
Antenna:	Andrew AL-12 or equivalent; 1.25 degrees beam tilt, 20.40 numeric power gain

POWER DATA

Transmitter Output	1.00 kW	0.00 dBk
Transmission line efficiency & loss	0.662	-1.79 dB
Input power to the antenna	0.662 kW	-1.79 dBk
Antenna Gain	20.40	13.10 dB
Maximum ERP in the Main Beam	13.4 kW	11.27 dBk
Maximum ERP at the Radio Horizon	11.9 kW	10.76 dBk

The elevation pattern of the proposed antenna has been included as Figure A-1(a,b).

Figure A-2 of this report is a coverage map showing the extent of the 74dBu Protected Contour for the proposed operation on Channel 35.

ALLOCATION SITUATION

All full service television, digital television, low-power television and television translator stations in the Commission's Consolidated Database System (CDBS) dated December 20, 2002 in possession of a construction permit or license are protected by this proposal from prohibited contour overlap with the exception of an application with FCC Application Reference No. BNPTT-20000831BVW. This application is part of the settlement agreement reached between Red River and Trinity Broadcasting Network. As part of the agreement Trinity will

have the FCC delete their application (BNPTT-20000831BVW) in exchange for other considerations that were laid out in the agreement. Therefore, the prohibited contour overlap has been ignored for the purposes of the allocation study of this proposal. Additionally the proposed changes cause the proposed 74 dBu protected contour to remain wholly within that which is currently authorized. Therefore, any potential for additional prohibited contour overlap has effectively been eliminated.

#### OTHER BROADCAST FACILITIES

There are not any other TV or FM facilities within a 500-meter radius of the proposal and there are not any AM stations within five kilometers. No adverse technical effects are expected due to the operation of the proposal; however, if any objectionable situation is encountered then Red River will install filters or take other measures to eliminate the problem provided the problem is proven to be caused by the operation of this proposal.

#### RADIO FREQUENCY FIELD ANALYSIS

Due to the antenna change, the effective downward radiation is decreased in addition to the ERP reduction; therefore, a radio frequency field level analysis has not been completed for the scope of this application.

However, Red River does certify that an environmental assessment is categorically excluded under §1.1307 of the FCC Rules and Regulations since it indicates:

- (a)(1) The existing site is not located in an officially designated wilderness area.
- (a)(2) The existing site is not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.

- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering or culture.
- (a)(5) The existing site is not located near any known Indian religious sites.
- (a)(6) The existing site is not located in a flood plain.
- (a)(7) The installation of the new antenna on the tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) It is not proposed to change the current lighting on the tower.
- (b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines. Authorized personnel will be alerted to areas of the antennas where potential radiation is in excess of the FCC guidelines.

# APPENDIX A

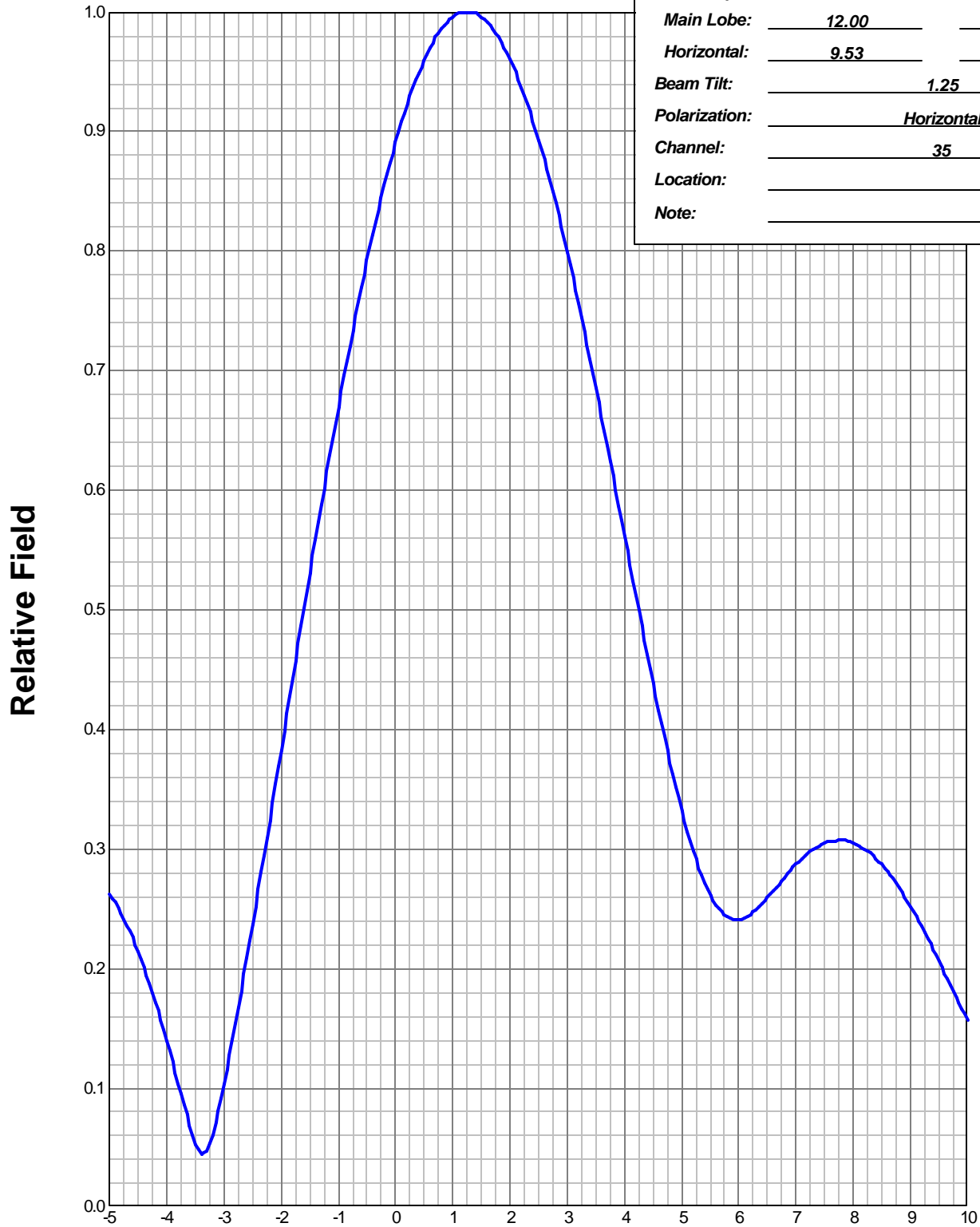
## TECHNICAL EXHIBITS

Figure A-1a



# **ANDREW®** **ELEVATION PATTERN**

Type:	AL12	
Directivity:	Numeric	dBd
Main Lobe:	12.00	10.79
Horizontal:	9.53	9.79
Beam Tilt:	1.25	
Polarization:	Horizontal	
Channel:	35	
Location:		
Note:		



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Figure A-1b

**ANDREW®****ELEVATION TABULATED DATA**Type: AL12Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5.00	0.262	-11.63	6.50	0.259	-11.73	42.00	0.073	-22.73	88.00	0.015	-36.48
-4.75	0.241	-12.36	6.75	0.273	-11.28	43.00	0.055	-25.19	89.00	0.008	-41.94
-4.50	0.214	-13.39	7.00	0.287	-10.84	44.00	0.031	-30.17	90.00	0.000	0.00
-4.25	0.180	-14.92	7.25	0.298	-10.52	45.00	0.028	-31.06			
-4.00	0.140	-17.08	7.50	0.305	-10.31	46.00	0.050	-26.02			
-3.75	0.095	-20.45	7.75	0.308	-10.24	47.00	0.069	-23.22			
-3.50	0.053	-25.51	8.00	0.305	-10.31	48.00	0.077	-22.27			
-3.25	0.054	-25.35	8.25	0.299	-10.50	49.00	0.072	-22.85			
-3.00	0.103	-19.74	8.50	0.287	-10.84	50.00	0.057	-24.88			
-2.75	0.167	-15.52	8.75	0.272	-11.32	51.00	0.035	-29.12			
-2.50	0.237	-12.51	9.00	0.252	-11.97	52.00	0.021	-33.56			
-2.25	0.310	-10.19	9.25	0.230	-12.77	53.00	0.037	-28.64			
-2.00	0.383	-8.34	9.50	0.206	-13.72	54.00	0.058	-24.73			
-1.75	0.458	-6.79	9.75	0.181	-14.85	55.00	0.074	-22.62			
-1.50	0.531	-5.50	10.00	0.157	-16.08	56.00	0.081	-21.83			
-1.25	0.602	-4.41	11.00	0.104	-19.66	57.00	0.078	-22.16			
-1.00	0.670	-3.48	12.00	0.147	-16.65	58.00	0.066	-23.61			
-0.75	0.734	-2.69	13.00	0.177	-15.04	59.00	0.048	-26.38			
-0.50	0.792	-2.03	14.00	0.158	-16.03	60.00	0.026	-31.70			
-0.25	0.845	-1.46	15.00	0.102	-19.83	61.00	0.014	-37.08			
0.00	0.891	-1.00	16.00	0.064	-23.88	62.00	0.031	-30.17			
0.25	0.930	-0.63	17.00	0.097	-20.26	63.00	0.053	-25.51			
0.50	0.960	-0.35	18.00	0.126	-17.99	64.00	0.071	-22.97			
0.75	0.982	-0.15	19.00	0.119	-18.49	65.00	0.084	-21.51			
1.00	0.996	-0.03	20.00	0.083	-21.62	66.00	0.091	-20.82			
1.25	1.000	0.00	21.00	0.048	-26.38	67.00	0.093	-20.63			
1.50	0.996	-0.03	22.00	0.069	-23.22	68.00	0.090	-20.92			
1.75	0.982	-0.15	23.00	0.098	-20.18	69.00	0.082	-21.72			
2.00	0.961	-0.35	24.00	0.102	-19.83	70.00	0.071	-22.97			
2.25	0.931	-0.63	25.00	0.079	-22.05	71.00	0.058	-24.73			
2.50	0.893	-0.98	26.00	0.045	-26.94	72.00	0.043	-27.33			
2.75	0.849	-1.42	27.00	0.045	-26.94	73.00	0.029	-30.75			
3.00	0.799	-1.95	28.00	0.074	-22.62	74.00	0.016	-35.92			
3.25	0.745	-2.56	29.00	0.089	-21.01	75.00	0.010	-40.00			
3.50	0.686	-3.27	30.00	0.081	-21.83	76.00	0.017	-35.39			
3.75	0.625	-4.09	31.00	0.055	-25.19	77.00	0.026	-31.70			
4.00	0.562	-5.01	32.00	0.032	-29.90	78.00	0.033	-29.63			
4.25	0.500	-6.03	33.00	0.049	-26.20	79.00	0.039	-28.18			
4.50	0.439	-7.15	34.00	0.073	-22.73	80.00	0.043	-27.33			
4.75	0.383	-8.34	35.00	0.081	-21.83	81.00	0.044	-27.13			
5.00	0.332	-9.58	36.00	0.071	-22.97	82.00	0.044	-27.13			
5.25	0.291	-10.72	37.00	0.047	-26.56	83.00	0.042	-27.54			
5.50	0.261	-11.67	38.00	0.028	-31.06	84.00	0.039	-28.18			
5.75	0.245	-12.22	39.00	0.043	-27.33	85.00	0.034	-29.37			
6.00	0.241	-12.36	40.00	0.066	-23.61	86.00	0.029	-30.75			
6.25	0.247	-12.15	41.00	0.077	-22.27	87.00	0.022	-33.15			



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10500 W. 153rd Street  
Orland Park, Illinois U.S.A 60462



