

**WOGB(FM) MINOR MODIFICATION  
CHANGING CITY OF LICENSE TO  
REEDSVILLE, WI**

This technical report has been developed in support of an application for a minor modification to Station WOGB on Channel 276C3 at Kaukauna, WI seeking a change in city of license to provide a first local service at Reedsville, WI. §307(b) exhibits are provided separately in Exhibit 35.

The following exhibits are provided for the Form 301 application:

- E1 WOGB spacing study
- E2 WOGB 70 dBu coverage of Maribel
- E2A Longley-Rice 70 dBu tabulation
- E3 ASR
- E4 WOGB reference point spacing study
- E5 WOGB reference point 70 dBu
- E6 Reference point map

**WOGB allocation analysis:**

WOGB is fully spaced at its licensed site and therefore qualifies as a §73.207 facility on Channel 276C3. A channel study provided as E1 shows full clearances to all facilities.

Exhibit E-2 shows the proposed facility will place a 70 dBu contour completely over the Reedsville, WI city boundary using the Longley-Rice “first occurrence” contour calculated with the V-Soft Probe 4 software and the FCC 30 second terrain database. Probe 4 is based on the NTIA Longley-Rice algorithm, and its use has been regularly accepted by the Commission in allocation proceedings in the past.

Use of Longley-Rice is permitted based on Commission policy and the recent Hardinsburg, KY ruling, 25 FCC Rcd 13204 (2010), which allows its use when the Longley-Rice predicted 70 dBu exceeds the FCC predicted 70 dBu by at least 10% on a radial through the community of license. Exhibit E2A includes a tabulation of the FCC and Longley-Rice 70 dBu contours through the range of azimuths that encompass the entire Reedsville, WI city boundary. The Longley-Rice 70 dBu exceeds the FCC 70 dBu by more than 10% at all azimuths including the 174 degree azimuth directly through the center of the community. It is also noted that the WOGB FCC 70 dBu contour does not

## ANDERSON COMMUNICATIONS, LLC

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encompasses Kaukauna, the current city of license, indicating that Longley-Rice was probably used to establish that coverage as well.

The proposed 70 and 60 dBu contours are tabulated below.

N. Latitude = 44-21-32.0 West Longitude = 87-59-07.0  
HAAT and Distance to Contour,  
FCC, FM 2-10 Mile, 51 points Method - FCC 30 SEC terrain

Azi.	AV EL	HAAT	dBk	70-F5	60-F5
000	205.1	306.9	5.56	24.85	41.62
010	213.8	298.2	5.56	24.51	41.12
020	235.1	276.9	5.56	23.67	39.88
030	243.3	268.7	5.56	23.33	39.39
040	249.9	262.1	5.56	23.06	38.99
050	257.1	254.9	5.56	22.77	38.55
060	257.9	254.1	5.56	22.73	38.50
070	256.6	255.4	5.56	22.79	38.58
080	263.2	248.8	5.56	22.51	38.17
090	263.0	249.0	5.56	22.52	38.18
100	268.1	243.9	5.56	22.30	37.87
110	264.1	247.9	5.56	22.47	38.12
120	264.9	247.1	5.56	22.44	38.07
130	270.0	242.0	5.56	22.22	37.75
140	269.1	242.9	5.56	22.26	37.80
150	268.2	243.8	5.56	22.30	37.86
160	262.4	249.6	5.56	22.54	38.22
170	269.9	242.1	5.56	22.23	37.76
180	271.9	240.1	5.56	22.13	37.63
190	272.7	239.3	5.56	22.10	37.58
200	274.0	238.1	5.56	22.05	37.50
210	270.4	241.6	5.56	22.20	37.73
220	263.0	249.0	5.56	22.52	38.19
230	246.8	265.2	5.56	23.19	39.18
240	239.9	272.1	5.56	23.47	39.59
250	226.6	285.4	5.56	24.00	40.38
260	214.1	297.9	5.56	24.49	41.10
270	213.2	298.8	5.56	24.53	41.16
280	213.5	298.5	5.56	24.52	41.14
290	210.4	301.6	5.56	24.64	41.32
300	207.3	304.7	5.56	24.76	41.49
310	206.9	305.1	5.56	24.78	41.51
320	206.6	305.4	5.56	24.79	41.53
330	205.1	306.9	5.56	24.85	41.62
340	204.5	307.5	5.56	24.88	41.65
350	207.2	304.8	5.56	24.77	41.50

Ave El= 242.66 M HAAT= 269.34 M AMSL= 512 M

A reduced ERP of 3.6 kW at 369 meters HAAT produces a maximum class C3 60 dBu of 39.4 km. The WOGB facility is proposed at its existing site:

**N 44-21-32 W 87-59-07 (NAD27 – ASR#1037793).**

**WOGB reference point:**

The WOGB fully spaced 276C3 reference point is proposed at:

**N 44-20-51 W 88-00-45 (NAD27).**

A channel study for the reference point is provided as E4, a 70 dBu plot as E5 and a map as E6.

**Antenna and RF calculation:**

The RF contribution for the WOGB facility was calculated using a worst case F factor of 1.0 and the mounting height of 219 meters above ground using the formula provided below. The calculated maximum is 5.1  $\mu\text{W}/\text{cm}^2$  or 2.6% of the maximum permissible for general public exposure, allowing its exclusion from consideration.

$$S \text{ (RF in } \mu\text{Watts}/\text{cm}^2) = \frac{33.4 (F^2 - \text{Vert Factor}) \times (\text{H ERP} + \text{V ERP in watts})}{R^2 \text{ (distance to radiation center in meters-2 m)}}$$

**Conclusion:**

It is concluded that the minor modification of WOGB is in full compliance with the Commission rules and policies.

June 11, 2012

Charles M. Anderson

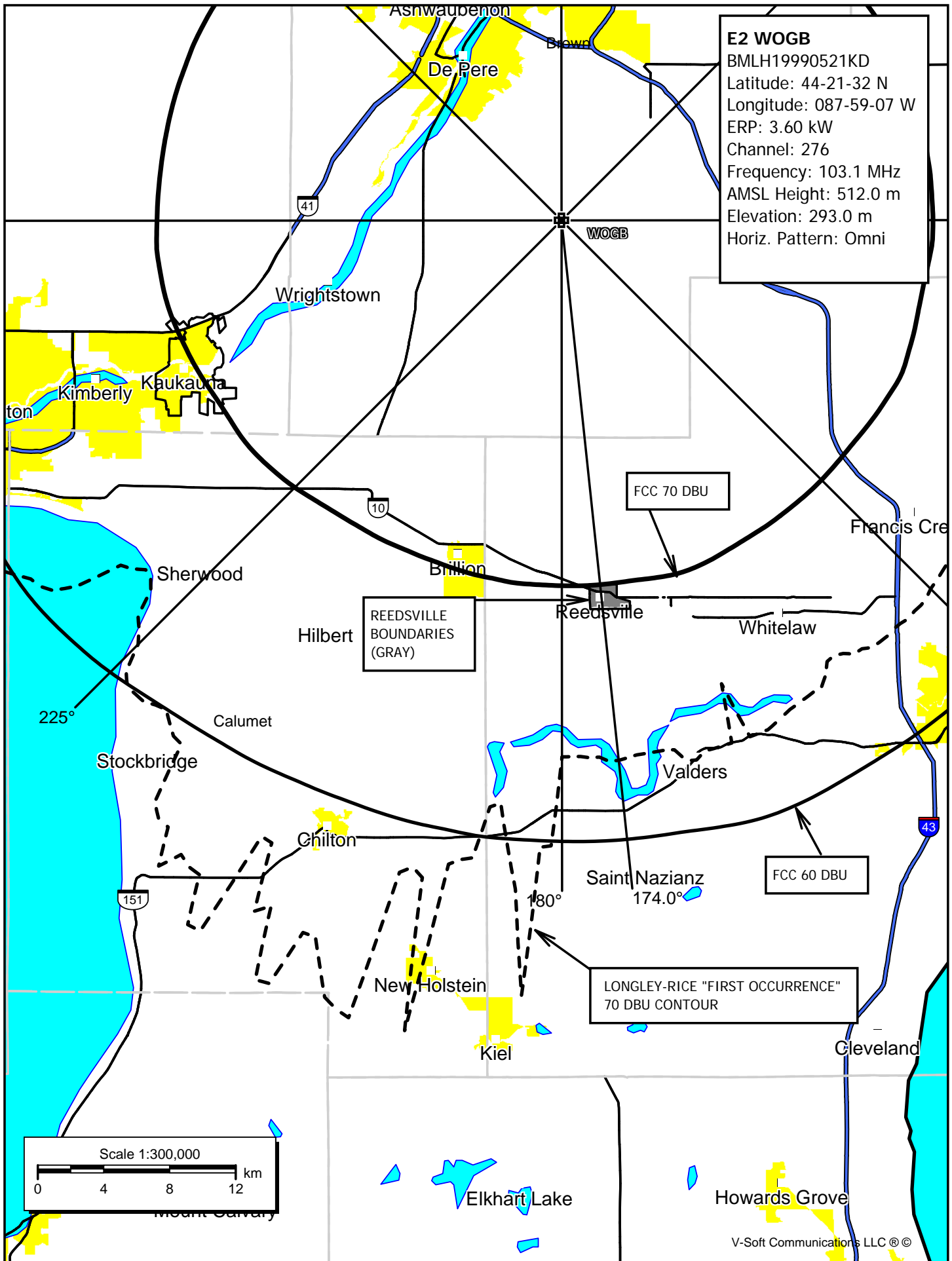
1519 Euclid Avenue  
Bowling Green, KY 42103  
270-782-0246

## E1 WOGB APPLICATION SITE CHANNEL STUDY

REFERENCE		DISPLAY DATES
44 21 32.0 N.	CLASS = C3 Int = B1	DATA 06-11-12
87 59 07.0 W.	Current Spacings to 3rd Adj.	SEARCH 06-11-12
----- Channel 276 - 103.1 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
WOGB	LIC-N 276C3	Kaukauna	WI	0.0	0.00	152.5	-152.5
WHQG	LIC 275B	Milwaukee	WI	179.9	145.76	144.5	1.3
WRVM	LIC 274C1	Suring	WI	335.5	78.08	75.5	2.6
WGLX-FM	LIC-N 277C1	Wisconsin Rapids	WI	282.7	151.91	143.5	8.4
AU9312199	VAC 276A	Crandon	WI	332.3	152.81	141.5	11.3
WHYB	LIC-N 279C3	Menominee	MI	17.7	82.63	42.5	40.1
WJMQ	RSV-A 222C3	Clintonville	WI	314.0	63.25	13.5	49.8

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All margins are shown with rounding included  
RSV-R = reserved - needs protection, RSV-A = allocation



## E2A Longley-Rice Distance to 70 dBu Contour

Using the first occurrence method at 70.0 dBu and FCC 30 second terrain

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### Transmitter Information:

Call Letters: WOGB  
File Number: BMLH19990521KD  
Latitude: 44-21-32 N  
Longitude: 087-59-07 W  
ERP: 3.60 kW  
Channel: 276  
Frequency: 103.1 MHz  
AMSL Height: 512.0 m  
Elevation: 293.0 m  
HAAT: 268.0 m  
Horiz. Antenna Pattern: Omni

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Azimuth (deg)	FCC 70 dBu	LR Distance (km)	% Increase	HAAT (m)
169.0	22.24	32.70	46.0	242.4
170.0	22.22	32.70	47.2	242.0
171.0	22.21	32.70	47.2	241.8
172.0	22.20	32.70	47.3	241.6
173.0	22.20	32.80	47.7	241.4
174.0	22.19	32.90	48.3	241.3
175.0	22.19	32.90	48.3	241.2
176.0	22.18	32.60	47.3	241.0
177.0	22.17	32.60	47.0	240.8

Longley-Rice 70 dBu exceeds FCC by more than 10% at all azimuths across Reedsville, WUI.

Longley-Rice contour calculated using V-Soft Communications' Probe 4 software.

## E2A1 FCC Distance to 70 dBu Contour

Type of contour: FCC  
Location Variability: 50.0 %  
Time Variability: 50.0 %  
# of Radials Calculated: 360  
V-Soft Accurate HAAT Calculation Used  
Field Strength: 70.00 dBuV/m

Primary Terrain: FCC 30 Second US Database  
Secondary Terrain: V-Soft 3 Second US Terrain

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Transmitter Information:

Call Letters: WOGB  
File Number: BMLH19990521KD  
Latitude: 44-21-32 N  
Longitude: 087-59-07 W  
ERP: 3.60 kW  
Channel: 276  
Frequency: 103.1 MHz  
AMSL Height: 512.0 m  
Elevation: 293.0 m  
HAAT: 269.0 m  
Horiz. Antenna Pattern: Omni  
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Azimuth (deg)	Distance (km)	HAAT (m)
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169.0	22.24	242.4
170.0	22.22	242.0
171.0	22.21	241.8
172.0	22.20	241.6
173.0	22.20	241.4
174.0	22.19	241.3
175.0	22.19	241.2
176.0	22.18	241.0
177.0	22.17	240.8

## E2A2 Distance to FCC 60 dBu Contour Report

Type of contour: FCC  
Location Variability: 50.0 %  
Time Variability: 50.0 %  
# of Radials Calculated: 360  
V-Soft Accurate HAAT Calculation Used  
Field Strength: 60.00 dBuV/m

Primary Terrain: FCC 30 Second US Database  
Secondary Terrain: V-Soft 3 Second US Terrain

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Transmitter Information:

Call Letters: WOGB  
File Number: BMLH19990521KD  
Latitude: 44-21-32 N  
Longitude: 087-59-07 W  
ERP: 3.60 kW  
Channel: 276  
Frequency: 103.1 MHz  
AMSL Height: 512.0 m  
Elevation: 293.0 m  
HAAT: 269.0 m  
Horiz. Antenna Pattern: Omni

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Azimuth (deg)	Distance (km)	HAAT (m)
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169.0	37.77	242.4
170.0	37.75	242.0
171.0	37.74	241.8
172.0	37.73	241.6
173.0	37.71	241.4
174.0	37.71	241.3
175.0	37.70	241.2
176.0	37.69	241.0
177.0	37.67	240.8



## E3 Registration 1037793

 [Map Registration](#)

### Registration Detail

Reg Number	1037793	Status	Constructed
File Number	A0451255	Constructed	01/01/1988
FAA Study	2003-AGL-6894-OE	EMI	No
FAA Issue Date	12/10/2003	NEPA	No

### Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

#### Location (in NAD83 Coordinates)

Lat/Long 44-21-32.0 N 087-59-07.0 W 3237 SHIRLEY ROAD

City, State DEPERE , WI

Center of  
AM Array

### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
292.6	317.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
609.6	290.4

### Painting and Lighting Specifications

FAA Chapters 4, 9, 12

Paint and Light in Accordance with FAA Circular Number 70/7460-1K

### Owner & Contact Information

FRN	0002592830	Licensee ID	L00001836
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#### Owner

WOODWARD COMMUNICATIONS INC. WAPL FM  
Attention To: Steve Brown  
2800 East College Avenue  
P.O. Box 1519  
Appleton , WI 54912-1519

P: (920)831-5659  
E: SBROWN@wcinet.COM

#### Contact

Brown , Stephen J  
P.O. Box 1519  
Appleton , WI 54912-1519

P: (920)831-5659  
E: sbrown@wcinet.com

### Last Action Status

Status	Constructed	Received	06/07/2005
Purpose	Notification	Entered	06/07/2005
Mode	Interactive		

### Related Applications

06/07/2005	A0451255 - Notification (NT)
05/07/2004	A0375980 - Modification (MD)
08/23/2003	A0338936 - Notification (NT)

Related applications (7)R Registration 1037793

## E4 WOGB REFERENCE POINT CHANNEL STUDY

REFERENCE		DISPLAY DATES
44 20 51.0 N.	CLASS = C3 Int = B1	DATA 06-11-12
88 00 45.0 W.	Current Spacings to 3rd Adj.	SEARCH 06-11-12
----- Channel 276 - 103.1 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
WOGB	LIC-N 276C3	Kaukauna	WI	59.7	2.51	153.0	-150.0
WHQG	LIC 275B	Milwaukee	WI	179.0	144.52	145.0	0.02
WRVM	LIC 274C1	Suring	WI	337.3	78.37	76.0	2.9
WGLX-FM	LIC-N 277C1	Wisconsin Rapids	WI	283.4	150.08	144.0	6.6
AU9312199	VAC 276A	Crandon	WI	333.2	152.94	142.0	11.4
WHYB	LIC-N 279C3	Menominee	MI	18.8	84.52	43.0	42.0
WJMQ	RSV-A 222C3	Clintonville	WI	316.2	62.62	14.0	49.1

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All margins are shown with rounding included  
RSV-R = reserved - needs protection, RSV-A = allocation

E5 WOGB REF. POINT  
Latitude: 44-20-51 N  
Longitude: 088-00-45 W  
Channel: 276  
Frequency: 103.1 MHz

WOGB  
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Denmark

Maribel

Kellnersville

REEDSVILLE BOUNDARY

Brillion

Reedsville

Whitelaw

Hilbert

Potter

REFERENCE POINT C3 CIRCULAR 23.3 KM 70 DBU

Calumet

Valders

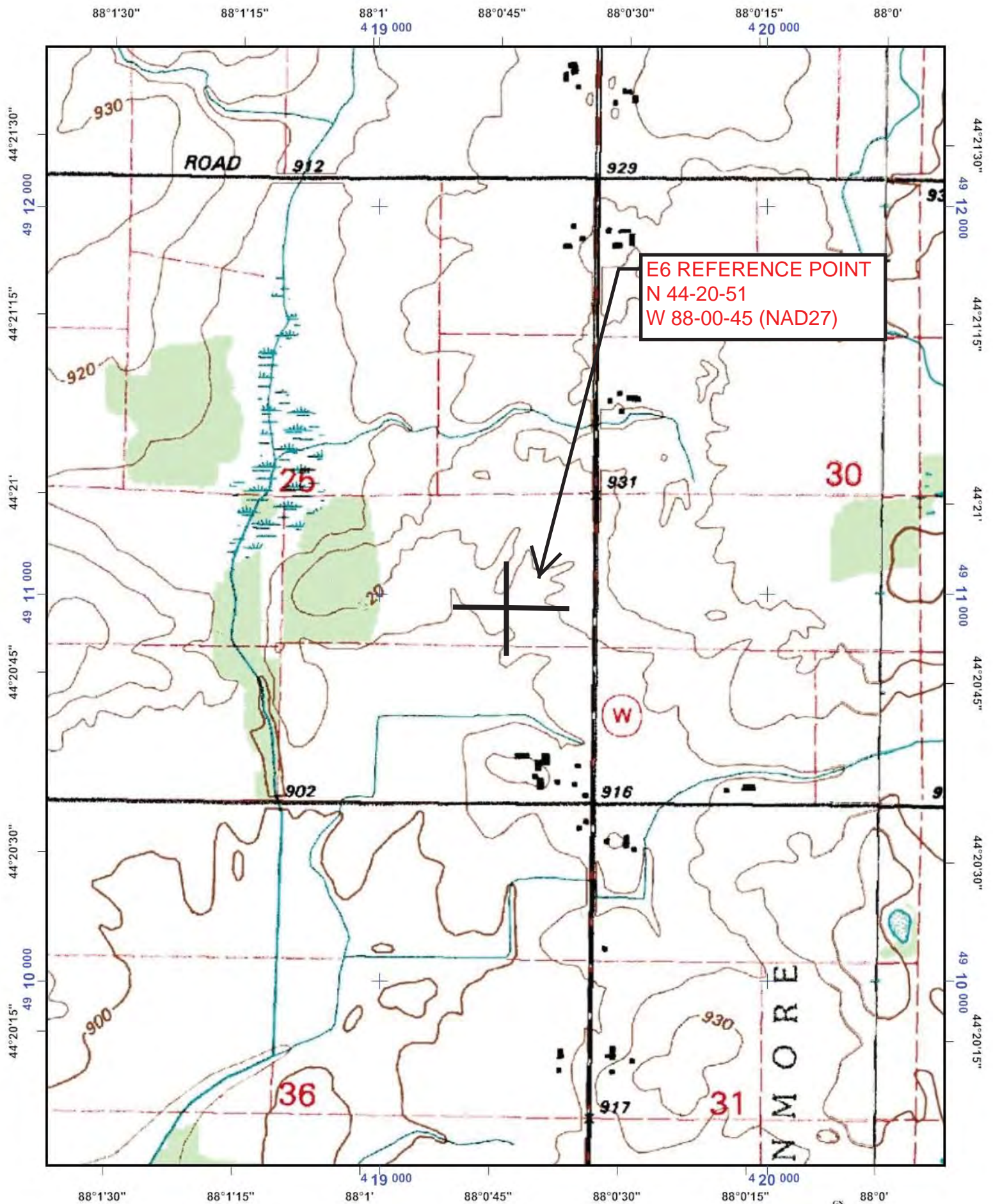
Chilton

Saint Nazianz

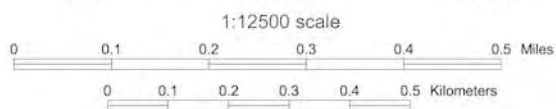
Wausau  
Holstein

Scale 1:200,000

0 2 4 6 km



Universal Transverse Mercator (UTM) Projection Zone 16  
 North American Datum of 1983  
 1000 meter UTM / USNG / MGRS  
 Grid Zone Designation: 16T  
 100,000-m Squares: DQ



Magnetic declination of 4W at center of map  
 on March 17, 2011