

CONTINGENT APPLICATIONS

KNWI(FM) 296C1 UPGRADE WITH KDSN-FM 285A SAME CLASS NON-ADJACENT CHANNEL CHANGE IN A CONTINGENT APPLICATION

Allocation analysis:

The USGS 3 second terrain database is used throughout. The following exhibits are provided:

- E1 KNWI channel study
- E2 KNWI application site 70 dBu plot
- E3 KNWI site topographic map
- E4 KDSN-FM application channel study
- E5 KDSN-FM 70 dBu
- E6 KDSN-FM 285A reference site channel study
- E7 KDSN-FM reference site 70 dBu
- E8 KDSN-FM reference site topo-map

Exhibit E1 demonstrates that the proposed KNWI 296C1 facility meets Commission §73.207 spacing requirements with the simultaneous KDSN-FM 285A substitution for 296A in a contingent application. The same channel 296C1 one-step upgrade is clearly mutually exclusive with the KNWI 296C2 licensed facility. Since the site is fully spaced, it also serves as the allocation reference point. Exhibit E2 demonstrates that the proposed facility will entirely encompass Osceola, IA with a 70 dBu contour.

KNWI 296C1 Fully spaced reference point = N 41-09-14 W 94-02-390(NAD27).

The application site also serves as the fully spaced reference site. See E1, E2 and E3.

KSDN-FM channel 285 for 296A substitution.

In a contingent application the substitution of channel 285A for 296A is proposed in order to clear the KNWI 296C1 upgrade (see exhibits E4 to E7).

Anderson Communications, LLC

ERP/ HAAT:

The facility will operate at 100 kW and 299 meters HAAT as a maximum class C1.

N 41-09-14 W 94-02-39

FCC, FM 2-10 Miles, 51 points Method - USGS 03 SEC

Az	AV EL	HAAT	ERP kW	Field	70-F5	60-F5

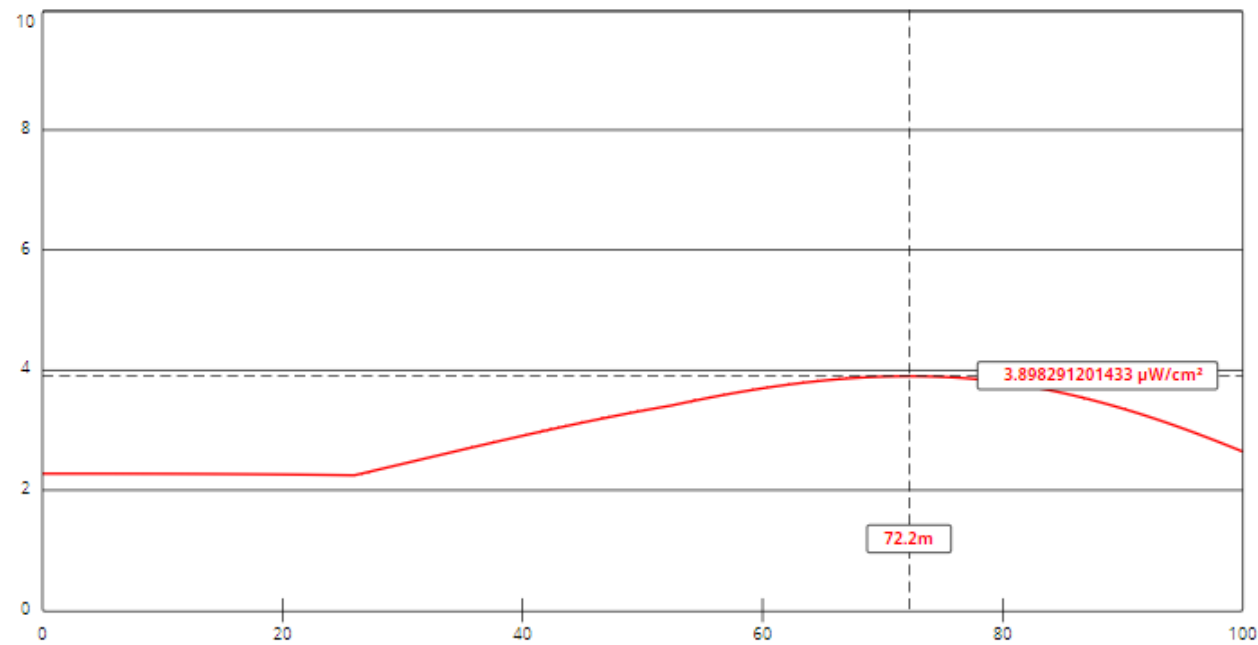
000	344.6	301.4	100.0000	1.000	50.19	72.49
045	323.8	322.2	100.0000	1.000	51.55	74.04
090	338.3	307.7	100.0000	1.000	50.60	72.97
135	354.9	291.1	100.0000	1.000	49.49	71.67
180	344.4	301.6	100.0000	1.000	50.20	72.51
225	354.1	291.9	100.0000	1.000	49.55	71.74
270	358.8	287.2	100.0000	1.000	49.22	71.35
315	358.3	287.7	100.0000	1.000	49.26	71.40

Ave El= 347.15 M HAAT= 298.85 M AMSL= 646 M

Antenna and RF calculation:

The facility will utilize an ERI SHPX-10AC 10 bay circularly polarized, full wave spaced antenna at 299 meters AGL. The RF contribution of the facility was calculated using FMModel to be 3.9 $\mu\text{W}/\text{cm}^2$ or 2% of the maximum general public exposure. The applicant is notifying the FAA and will conduct the required environmental assessment upon FAA approval.

FMMODEL OUTPUT



View Tabular Results +

Channel Selection	Channel 296 (107.1 MHz) ▾		
Antenna Type +	EPA Type 3: Opposed U Dipole ▾		
Height (m)	<input type="text" value="299"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="100000"/>	ERP-V (W)	<input type="text" value="100000"/>
Num of Elements	<input type="text" value="10"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	

E1 KNWI CHANNEL STUDY

REFERENCE		DISPLAY DATES
41 09 14.0 N.	CLASS = C1	DATA 04-08-18
94 02 39.0 W.	Current Spacings to 3rd Adj.	SEARCH 04-08-18
----- Channel 296 - 107.1 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
-----	-----	-----	-----	-----	-----	-----	-----
KNWI	LIC	296C2	Osceola	IA	133.0	21.01	223.5 -202.5
KDSN-FM %	LIC	296A	Denison	IA	313.0	145.17	199.5 -54.3

KDSN-FM 285A substitution proposed in contingent application.

KOPW	LIC	295C3	Plattsmouth	NE	270.6	144.16	143.5	0.7
KUDV	LIC-N	295C3	Bloomfield	IA	106.3	144.71	143.5	1.2
KKDM	LIC	298C1	Des Moines	IA	48.9	83.37	81.5	1.9
KRQN	LIC	296A	Vinton	IA	57.7	211.41	199.5	11.9
KSOM	LIC	243C1	Audubon	IA	295.6	73.11	33.5	39.6
KBBK	LIC	297C1	Lincoln	NE	258.4	221.55	176.5	45.1
KIKD	LIC	294C3	Lake City	IA	329.5	125.04	75.5	49.5

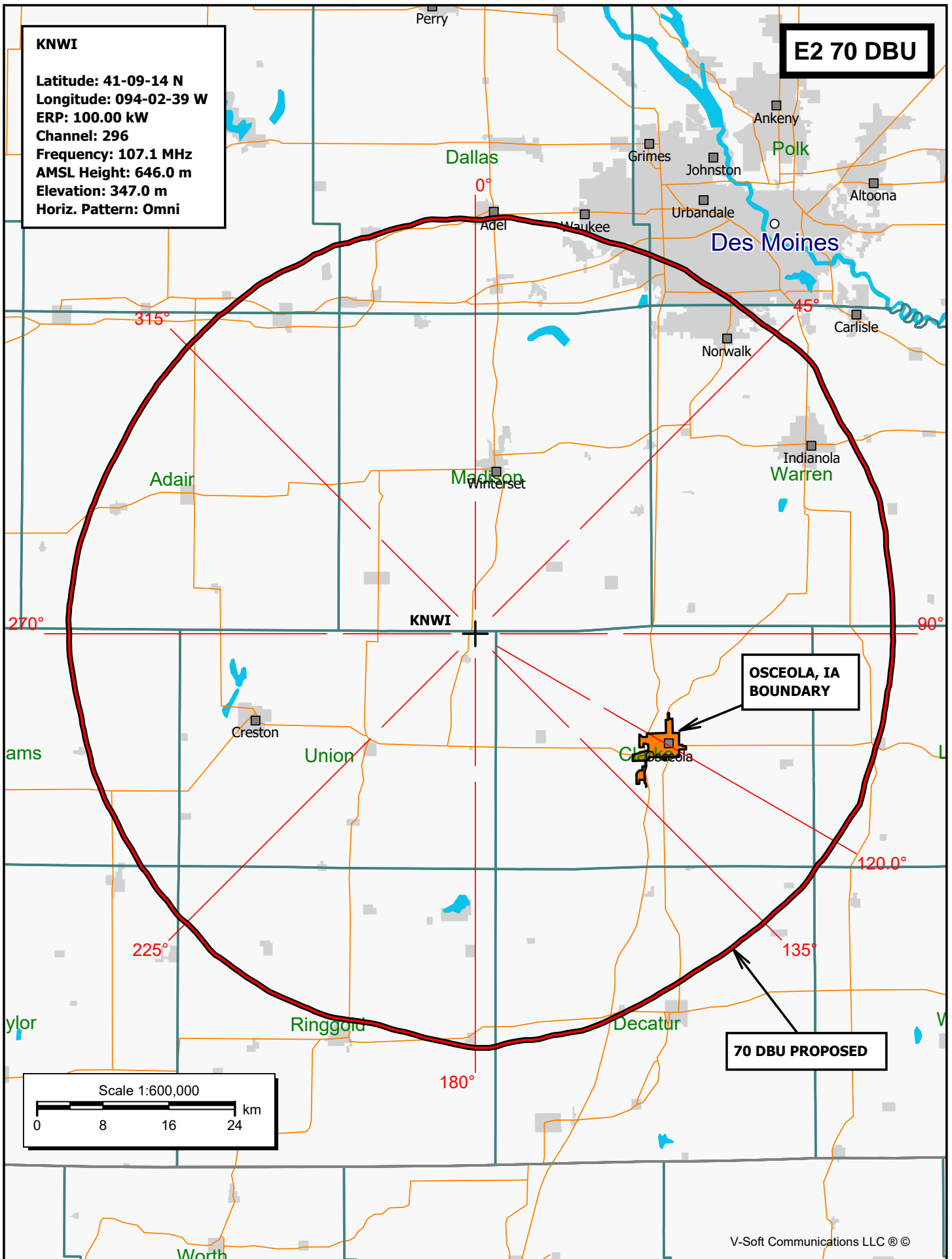
% = Station Fails minimum 73.215 spacings

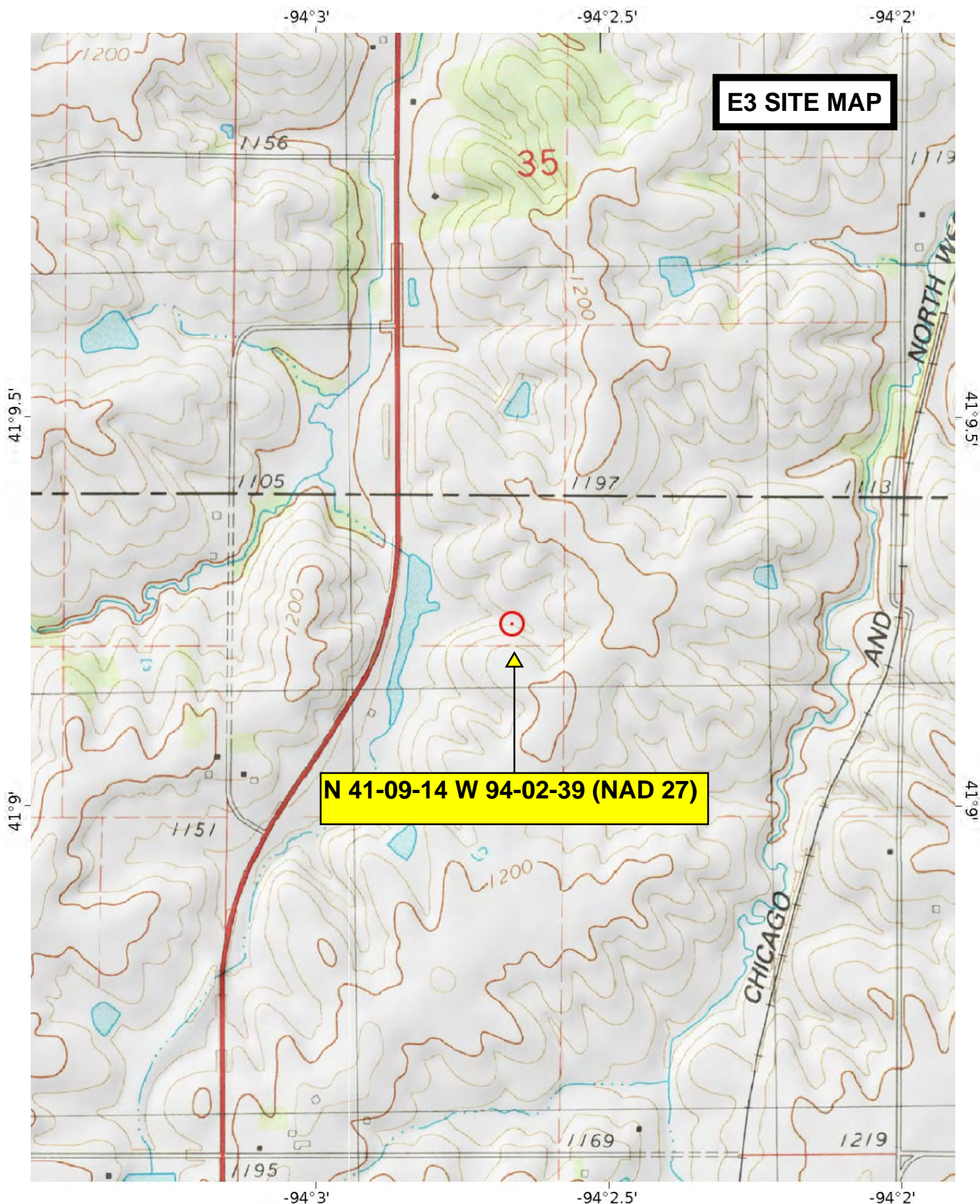
All separation margins include rounding.

KNWI

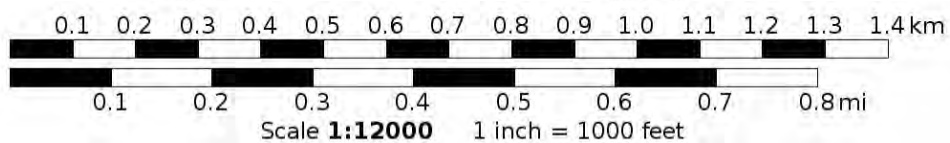
Latitude: 41-09-14 N
Longitude: 094-02-39 W
ERP: 100.00 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 646.0 m
Elevation: 347.0 m
Horiz. Pattern: Omni

E2 70 DBU





Mercator Projection
WGS84
USNG Zone 15TVF
CalTopo.com



NADCON OUTPUT

North American Datum Conversion

NAD 83 to NAD 27

NADCON Program Version 2.11

=====

Transformation #: 1 Region: Conus

Latitude

Longitude

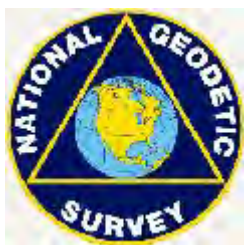
NAD 27 datum values: 41 09 14.03073 94 02 39.17985

NAD 83 datum values: 41 09 14.00000 94 02 40.00000

NAD 27 - NAD 83 shift values: 0.03073 -0.82015(secs.)

0.948 -19.123 (meters)

Magnitude of total shift: 19.146(meters)



[NGS HOME PAGE](https://www.ngs.noaa.gov)

E4 KDSN-FM CHANNEL STUDY

REFERENCE		DISPLAY DATES
42 02 10.0 N.	CLASS = A	DATA 04-08-18
95 19 44.0 W.	Current Spacings to 3rd Adj.	SEARCH 04-08-18
----- Channel 285 - 104.9 MHz -----		

Call	Channel	Location		Azi	Dist	FCC	Margin
-----	-----	-----	-----	-----	-----	-----	-----
KMRR	LIC 285C3	Spencer	IA	6.2	139.78	141.5	-1.7

73.215 AND DA TO KMRR.

KTCH	LIC-N 285C3	Emerson	NE	279.4	144.44	141.5	2.9
KNOD	LIC 287C3	Harlan	IA	174.0	46.84	41.5	5.3
KSRZ	LIC 283C0	Omaha	NE	215.8	99.96	85.5	14.5
1668165	APP 285C3	Maryville	MO	167.8	188.58	141.5	47.1
1669514	RSV-A 285C3	Maryville	MO	167.8	188.58	141.5	47.1
AL5392	ADD 285C3	Maryville	MO	167.8	188.58	141.5	47.1

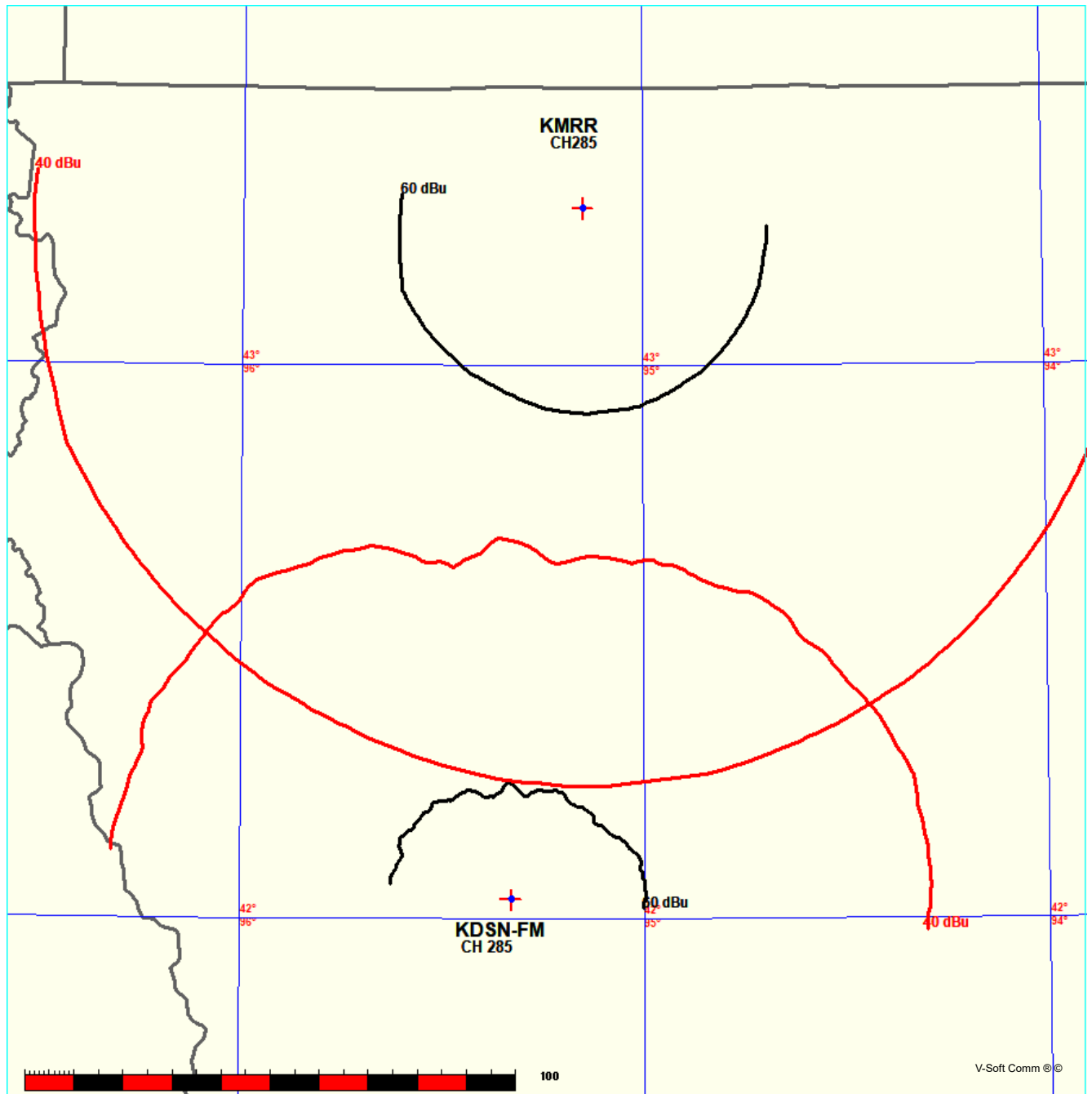
Reference station has protected zone issue: AM tower
 RSV-R = reserved - needs protection, RSV-A = allocation
 All separation margins include rounding.

E4A KMRR INTERFERENCE PLOT

FMCommander Single Allocation Study - 04-08-2018 - USGS 03 SEC
KDSN-FM's Overlaps (In= 0.55 km, Out= 28.48 km)

KDSN-FM CH 285 A 73.215 Z
Lat= 42 02 10.0, Lng= 95 19 44.0
6.0 kW 89.5 m HAAT, 495 m COR
Prot.= 60 dBu, Intef.= 40 dBu

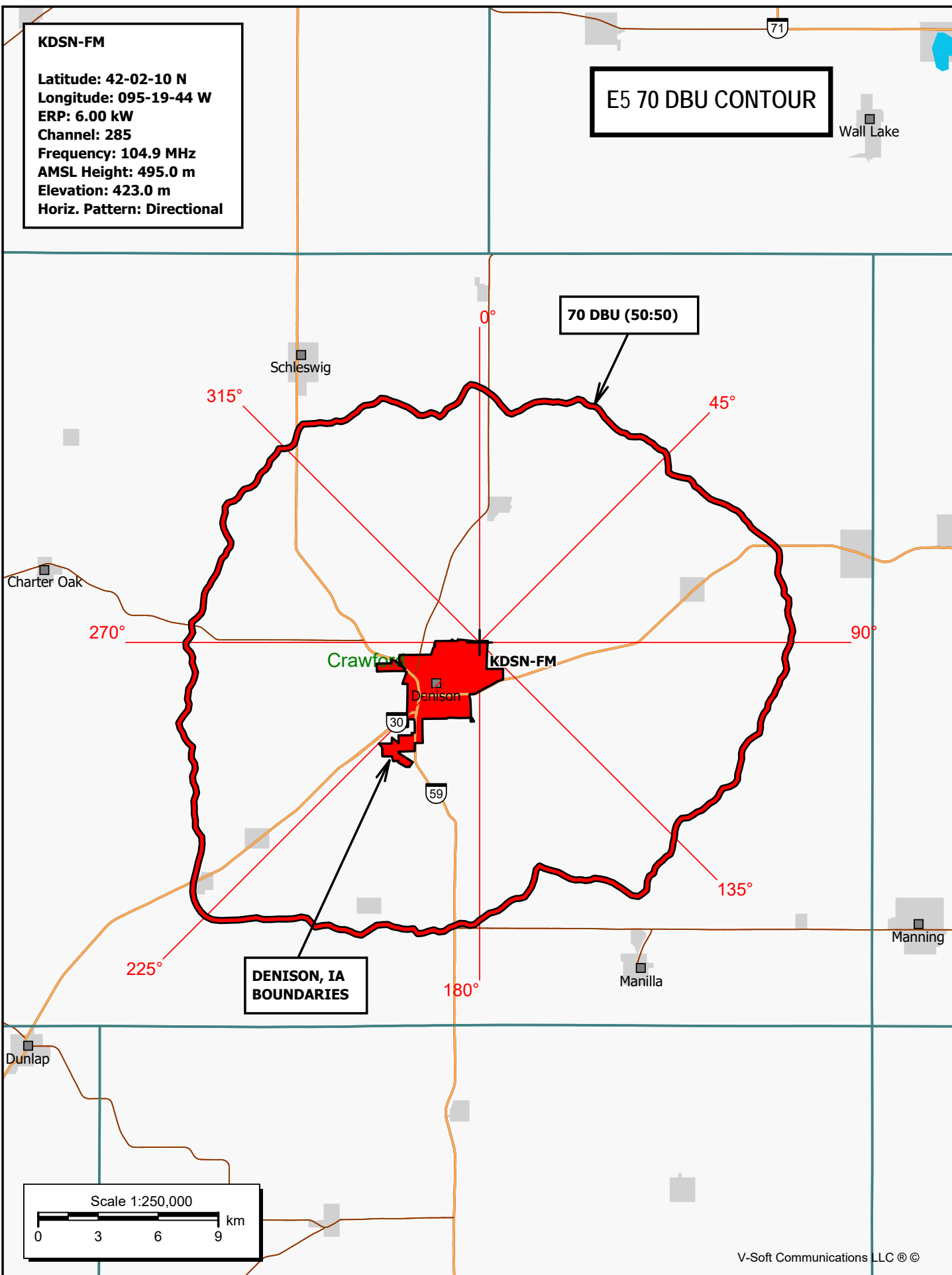
KMRR^ CH 285 C3 BLH19970508KE
Lat= 43 17 13.0, Lng= 95 08 34.0
Max CIs: 25.0 kW 100 m HAAT, 536 m COR
Prot.= 60 dBu, Intef.= 40 dBu



KDSN-FM

Latitude: 42-02-10 N
Longitude: 095-19-44 W
ERP: 6.00 kW
Channel: 285
Frequency: 104.9 MHz
AMSL Height: 495.0 m
Elevation: 423.0 m
Horiz. Pattern: Directional

E5 70 DBU CONTOUR



E6 REFERENCE POINT CHANNEL STUDY

REFERENCE			DISPLAY DATES
42 00 45.0 N.	CLASS = A		DATA 04-08-18
95 19 45.0 W.	Current Spacings to 3rd Adj.		SEARCH 04-08-18
----- Channel 285 - 104.9 MHz -----			

Call	Channel	Location		Azi	Dist	FCC	Margin
-----	-----	-----	-----	-----	-----	-----	-----
KMRR	LIC 285C3	Spencer	IA	6.1	142.39	141.5	0.9
KNOD	LIC 287C3	Harlan	IA	173.6	44.24	41.5	2.7
KTCH	LIC-N 285C3	Emerson	NE	280.4	144.87	141.5	3.4
KSRZ	LIC 283C0	Omaha	NE	216.6	97.84	85.5	12.3
1668165	APP 285C3	Maryville	MO	167.6	186.02	141.5	44.5
1669514	RSV-A 285C3	Maryville	MO	167.6	186.02	141.5	44.5
AL5392	ADD 285C3	Maryville	MO	167.6	186.02	141.5	44.5
-----	-----	-----	-----	-----	-----	-----	-----

RSV-R = reserved - needs protection, RSV-A = allocation
All separation margins include rounding.

KDSN-FM

Latitude: 42-00-45 N
Longitude: 095-19-45 W

Channel: 285
Frequency: 104.9 MHz

E7 285A REFERENCE POINT
CLASS A MAXIMUM 70 DBU CONTOUR

16.2 KM CLASS A
CIRCULAR
70 DBU (50:50)

Schleswig

Charter Oak

Crawford

Denison

KDSN-FM

DENISON, IA
BOUNDARIES

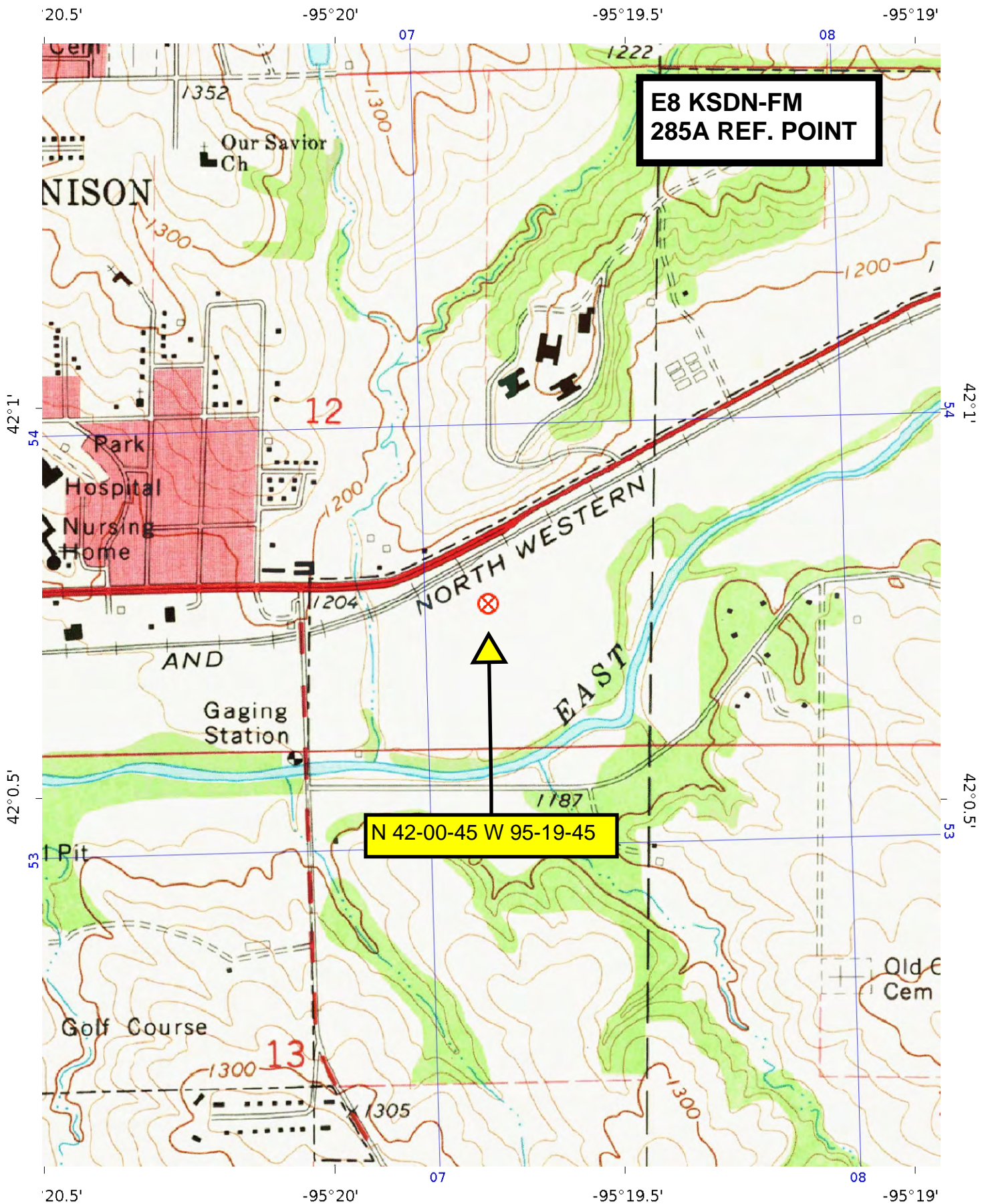
Manning

Manilla

Dunlap

Scale 1:250,000

0 3 6 9 km



Mercator Projection
NAD27 Conus
USNG Zone 15TUG
CalTopo.com

