

## Engineering Statement

### In Support of an Application for a Construction Permit

**WTWR, Luna Pier, MI  
Channel 252A**

### WTWR Terrain-Contour Study

#### Reference Coordinates:

**North Latitude: 41-40-05**

**West Longitude: 83-27-11**

| ERP =   | 3.4 kW      | FM - 2-6 Tables |       | F(50-50)       | F(50-50)       |
|---------|-------------|-----------------|-------|----------------|----------------|
| Azimuth | Ave. Elev.  | Effective       |       | Distance to    | Distance to    |
| °T.     | 3 to 16 km  | Antenna Height  | ERP   | 70 dBu Contour | 60 dBu Contour |
|         | Meters AMSL | Meters AAT      | (dBk) | km             | km             |
| 0.0     | 174.6       | 140.9           | 5.315 | 16.7           | 28.9           |
| 5.0     | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 10.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 15.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 20.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 25.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 30.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 35.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 40.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 45.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 50.0    | 174.0       | 141.5           | 5.315 | 16.7           | 28.9           |
| 55.0    | 174.1       | 141.4           | 5.315 | 16.7           | 28.9           |
| 60.0    | 174.1       | 141.4           | 5.315 | 16.7           | 28.9           |
| 65.0    | 174.2       | 141.3           | 5.315 | 16.7           | 28.9           |
| 70.0    | 174.4       | 141.1           | 5.315 | 16.7           | 28.9           |
| 75.0    | 174.6       | 140.9           | 5.315 | 16.7           | 28.9           |
| 80.0    | 175.1       | 140.4           | 5.315 | 16.7           | 28.8           |
| 85.0    | 175.6       | 139.9           | 5.315 | 16.6           | 28.8           |
| 90.0    | 176.0       | 139.5           | 5.315 | 16.6           | 28.8           |
| 95.0    | 176.7       | 138.8           | 5.315 | 16.6           | 28.7           |
| 100.0   | 177.3       | 138.2           | 5.315 | 16.5           | 28.6           |
| 105.0   | 177.9       | 137.6           | 5.315 | 16.5           | 28.6           |
| 110.0   | 178.3       | 137.2           | 5.315 | 16.4           | 28.5           |
| 115.0   | 179.0       | 136.5           | 5.315 | 16.4           | 28.5           |
| 120.0   | 179.7       | 135.8           | 5.315 | 16.3           | 28.4           |
| 125.0   | 180.5       | 135.0           | 5.315 | 16.3           | 28.3           |
| 130.0   | 181.3       | 134.2           | 5.315 | 16.2           | 28.3           |
| 135.0   | 181.9       | 133.6           | 5.315 | 16.2           | 28.2           |
| 140.0   | 182.6       | 132.9           | 5.315 | 16.1           | 28.2           |
| 145.0   | 183.1       | 132.4           | 5.315 | 16.1           | 28.1           |
| 150.0   | 183.6       | 131.9           | 5.315 | 16.1           | 28.1           |
| 155.0   | 184.6       | 130.9           | 5.315 | 16.0           | 28.0           |

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Exhibit E, Figure 2

| ERP =   | 3.4 kW      | FM - 2-6 Tables |        | F(50-50)       | F(50-50)       |
|---------|-------------|-----------------|--------|----------------|----------------|
| Azimuth | Ave. Elev.  | Effective       | ERP    | Distance to    | Distance to    |
| °T.     | 3 to 16 km  | Antenna Height  | (dBk)  | 70 dBu Contour | 60 dBu Contour |
|         | Meters AMSL | Meters AAT      |        | km             | km             |
| 160.0   | 185.1       | 130.4           | 5.315  | 16.0           | 27.9           |
| 165.0   | 185.9       | 129.6           | 5.315  | 15.9           | 27.9           |
| 170.0   | 186.6       | 128.9           | 5.315  | 15.9           | 27.8           |
| 175.0   | 187.1       | 128.4           | 5.315  | 15.8           | 27.8           |
| 180.0   | 187.5       | 128.0           | 5.315  | 15.8           | 27.7           |
| 185.0   | 188.2       | 127.3           | 4.400  | 14.9           | 26.5           |
| 190.0   | 188.8       | 126.7           | 3.484  | 14.0           | 25.1           |
| 195.0   | 189.1       | 126.4           | 2.509  | 13.3           | 24.0           |
| 200.0   | 189.4       | 126.1           | 1.533  | 12.5           | 22.7           |
| 205.0   | 189.5       | 126.0           | 0.559  | 11.9           | 21.6           |
| 210.0   | 189.8       | 125.7           | -0.415 | 11.2           | 20.4           |
| 215.0   | 189.3       | 126.2           | -1.391 | 10.7           | 19.3           |
| 220.0   | 188.5       | 127.0           | -2.366 | 10.1           | 18.3           |
| 225.0   | 186.2       | 129.3           | -3.314 | 9.7            | 17.4           |
| 230.0   | 183.3       | 132.2           | -4.262 | 9.3            | 16.5           |
| 235.0   | 180.4       | 135.1           | -4.617 | 9.2            | 16.4           |
| 240.0   | 180.5       | 135.0           | -4.971 | 9.0            | 16.0           |
| 245.0   | 183.8       | 131.7           | -4.971 | 8.9            | 15.8           |
| 250.0   | 182.0       | 133.5           | -4.971 | 8.9            | 15.9           |
| 255.0   | 184.8       | 130.7           | -4.617 | 9.0            | 16.1           |
| 260.0   | 184.8       | 130.7           | -4.262 | 9.2            | 16.4           |
| 265.0   | 183.7       | 131.8           | -3.314 | 9.8            | 17.6           |
| 270.0   | 184.2       | 131.3           | -2.366 | 10.3           | 18.6           |
| 275.0   | 184.7       | 130.8           | -1.391 | 10.9           | 19.7           |
| 280.0   | 185.6       | 129.9           | -0.415 | 11.4           | 20.7           |
| 285.0   | 185.1       | 130.4           | 0.559  | 12.1           | 21.9           |
| 290.0   | 184.4       | 131.1           | 1.533  | 12.8           | 23.1           |
| 295.0   | 183.4       | 132.1           | 2.509  | 13.6           | 24.4           |
| 300.0   | 181.6       | 133.9           | 3.484  | 14.4           | 25.7           |
| 305.0   | 183.9       | 131.6           | 4.400  | 15.2           | 26.8           |
| 310.0   | 183.0       | 132.5           | 5.315  | 16.1           | 28.2           |
| 315.0   | 182.6       | 132.9           | 5.315  | 16.1           | 28.3           |
| 320.0   | 181.2       | 134.3           | 5.315  | 16.2           | 28.4           |
| 325.0   | 180.2       | 135.3           | 5.315  | 16.3           | 28.5           |
| 330.0   | 179.2       | 136.3           | 5.315  | 16.4           | 28.5           |
| 335.0   | 178.6       | 136.9           | 5.315  | 16.4           | 28.6           |
| 340.0   | 177.4       | 138.1           | 5.315  | 16.5           | 28.7           |
| 345.0   | 176.5       | 139.0           | 5.315  | 16.6           | 28.8           |
| 350.0   | 175.7       | 139.8           | 5.315  | 16.6           | 28.8           |
| 355.0   | 175.1       | 140.4           | 5.315  | 16.7           | 28.2           |