

# Dane County, Wisconsin

## Wireless Communications Site Review New Monopole Tower



C O N S U L T A N T S , I N C .

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February 6, 2023

Dane County Zoning & Land Regulation Committee (ZLR)  
c/o Dane County Planning & Development  
210 Martin Luther King Jr. Blvd.  
Madison, WI 53703

**APPLICANT/PROVIDER: CelluSite LLC, Agent for Iron Mountain Towers LLC dba TowerKing and DISH Wireless LLC**

**SITE NAME: "McFarland"**

**ADDRESS: 3486 County Road MN, Town of Dunn, WI**

**LATITUDE: 43°-01'-01.0" N LONGITUDE: 089°-16'-15.4" W**

**STRUCTURE PROPOSED: 170-foot Monopole Tower (plus 4-foot lightning rod)**

Dear ZLR Committee Members,

At your request, on behalf of Dane County ("County"), CityScape Consultants, Inc. ("CityScape"), in its capacity as telecommunications consultant for the County, has considered the merits of the above-referenced application submitted by CelluSite LLC on behalf of TowerKing and DISH Wireless (collectively "Applicant"), to construct a new wireless telecommunications *monopole* tower and associated antenna elements and ground equipment compound at 3486 County Road MN in the Town of Dunn, *see Figure 1*.

This application for a new wireless communications facility is proposed to bring DISH mobile personal wireless service to an area in southeastern Dane County, specifically the Village of McFarland and outlying areas, and along a portion of Interstate Highway 90/39. The Applicant's application documents indicate that the tower will accommodate additional equipment by other wireless carriers.

DISH is a bona fide *personal wireless service provider*, meeting the FCC's definition of such, and thus is afforded the protections of the federal Telecommunications Act of 1996, in that:

*"The regulation of the placement, construction, and modification of personal wireless service facilities by any State of local government or instrumentality thereof— (I) shall not unreasonably discriminate among providers of functionally equivalent services; and (II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services."*<sup>1</sup>

The Applicant is requesting to construct a one hundred and seventy (170) foot *monopole* tower, 174 feet including lightning rod, on a property that is zoned RR-2 (Rural Residential, 2 to 4 Acres) which requires a Conditional Use Permit. The County Ordinance limits the height of such a structure to one hundred and ninety five (195) feet. Thus, a height variance is not required, and neither aviation

<sup>1</sup> 47 U.S. Code §332(c)(7)(B)(i)

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lighting nor marking are required by the Federal Aviation Administration.<sup>2</sup> According to the Applicant's elevation sketch of the tower, see *Figure 2*, DISH's antennas would be at an elevation of one hundred and sixty (160) feet above ground. Up to three future collocations can be accommodated on the proposed tower at approximately 150, 140, and 130 feet (the minimum is three total users, including the primary per County Code).

The proposal will be evaluated from the following perspectives:

- Whether the proposed facility, as specified, is justified due to technological reasons and is essential for the Applicant to provide its telecommunications service; and,
- Whether the proposed facility will follow the requirements of Federal Law, Wisconsin State Law, the Dane County Ordinance and all other pertinent rules and regulations.

The Applicant has submitted a photosimulation report showing the tower as built, as required per County Code. As indicated on the photos, the tower would be highly visible from the recently constructed residential subdivision adjacent to the subject property. The nearest residential building is approximately 255 feet from the site of the proposed monopole. The Applicant has not addressed this visual impact to the residential area despite CityScape's recommendations to do so as part of the application.

#### New Site Justification and Coverage

In order for the wireless communications facility to be justified, the need, location and height must be addressed by the Applicant. The application is for construction of a new one hundred seventy (170) foot (174 feet to top of lightning rod) *monopole* tower, see *Figure 2*. The local authority has certain rights in regard to the height, location, type and appearance of the support structure (for example, the structure could be a *concealed* monopole rather than a non-concealed monopole) as well as the ability to assure the proposed facility is following FCC safety specifications and local building codes. It is apparent to CityScape that there is sufficient evidence of need for a DISH wireless facility in this area. However, compatibility of the facility with the existing environs must also be considered, and it is the right of the County to evaluate the height of the proposed structure relative to its proximity to the existing residences.

The Applicant provided a notarized sworn statement from an RF network engineer from DISH Wireless offering justification for construction of a new wireless communication facility. The Applicant supplemented the sworn statement with propagation/coverage maps, provided only to CityScape on a confidential basis at Applicant's request, which shows the DISH service coverage both before and after activation of the proposed facility. The affidavit by the Dish RF engineer states the following:

- No existing antenna structures are within the search ring that would support collocation. There are two existing towers within 1.5 miles of the center of the search

<sup>2</sup> The FAA reviewed the proposed construction and issued a Determination of No Hazard to Air Navigation on Nov 15, 2022 (Aeronautical Study No. 2022-AGL-19183-OE).

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ring but it is not feasible to collocate on either one primarily because the maximum available antenna mounting heights on both towers are too low to provide adequate service coverage. In addition, one of the towers, the US Cellular tower located 1.19 miles east of the proposed site<sup>3</sup>, “is not viable because using that tower...would create a gap in coverage in [the Village of] McFarland which would require an additional tower to provide adequate service.” CityScape has determined these assessments to be accurate. See additional discussion below.

- “The minimum height needed for this site is One Hundred Sixty Feet (160’) antenna centerline [above ground level]”. While CityScape can confirm DISH’s need for a facility in the area based on the service coverage gap observed in the propagation maps, we cannot validate that the requested height is justified at this site. Being that the site is very near a single-family residential development and a 170-foot tower constructed at the proposed site will have a substantial visual impact, the Applicant should justify the proposed height and demonstrate why a tower of lesser height would not achieve substantially the same coverage as 170 feet of height. See below for CityScape’s recommendation regarding the requested height.

The Applicant also provided a site search ring map, *see Figure 3*, which also shows known tall structures within 1.5 miles of the center of the search ring. This information is critical in determining if the proposed location and height are justified. While collocation on an existing structure is preferred over new construction, currently the Applicant states this is not an option. By searching both public and private communication tower databases, CityScape has verified Applicant’s statements that the only existing tall structures within 1.5 miles of the search ring center are the US Cellular tower on the west side of County Road AB just southwest of Interstate 90/39 and a water tower on Holscher Road one block south of Siggelkow Road, *see Figure 4*.

Both these towers are more than 0.8 mile outside the search ring. It is not unusual for a mobile provider to select a site outside the RF engineer’s search ring; circumstances such as lack of availability of land inside the search ring or need of adjustments due to terrain variability can cause a provider to investigate sites outside the ring. In fact, the subject proposed site is almost a quarter-mile outside the DISH search ring; however, consideration of an existing tower site for collocation 0.8 miles or more from the search ring could test the flexibility of any wireless provider. As mentioned previously, collocation on the US Cellular tower is likely to leave a service gap in the Village of McFarland due to the distance of the tower further east and the fact that the highest available mounting height on that tower is 115 feet above ground, as stated in the RF affidavit.

The water tower, owned by the Village of McFarland, is currently the site of many communications carriers’ antennas, and it is apparent that the antenna mount on the top of the tank cannot accommodate additional antennas. The RF engineer’s affidavit states that additional antennas could only be installed on the neck of the tower, below the tank, at 60 feet above ground, although to CityScape’s knowledge this has not been independently verified<sup>4</sup>. However, the

<sup>3</sup> There is another water tower (shown in Figures 3 and 4) 1.50 miles west of the proposed site, however, it was not considered for collocation because the location is just outside the 1.50-mile radius circle from the search ring center.

<sup>4</sup> It may be practicable to mount new antennas on the side of the tank (where the width of the tank is greatest), approximately 90 feet above ground; however, even with the additional 30 feet, CityScape does not believe this site is suitable for reasons stated in this report.

overarching factor associated with the possible collocation on the water tower is that it may be too close to a DISH facility located at the intersection of State Highway 18 and Interstate 90/39, as there is likely to be unnecessary and possibly destructive duplication of coverage to the north and loss of coverage to the south.

The subject property abuts a single-family residential area to the west, and the Applicant has not addressed the visual impact caused by the tower to nearby residences and how the impact will be mitigated. CityScape understands that concealment tower design may not be regarded as a solution to the visual impact. For these reasons, and as previously noted, based on information provided thus far, CityScape cannot validate the justification for the requested tower height at the subject site.

The Applicant appears to have met the preponderance of evidence threshold for technically justifying new construction in the vicinity of the proposed site. While the height of the proposed tower at the proposed site may be appropriate solely from a technical standpoint, it is unclear that a lower height would not achieve practically the same level of service.

CityScape recommends that the Applicant produce additional propagation maps with alternative lower antenna heights of 140 feet and 120 feet, in the same format as the maps already provided to CityScape, except **a scale of miles on each map** should be included. As before, these requested maps can be sent confidentially to CityScape for examination.

### Tower Setbacks

The Applicant has provided a letter, signed by a Wisconsin-registered professional engineer, stating that the tower will be designed to fall within a radius of thirty five feet (35') in the event that the wind speed is beyond the capacity for the tower to remain standing. This setback just meets the distance from the tower to the property line as seen in Figure 6.

### Ground Equipment

The Applicant proposes to construct a fifty foot by fifty foot (50' X 50') fenced compound within a larger one hundred foot by one hundred foot (100' x 100') lease area, *see Figure 7*. The 50' x 50' compound will encompass the tower and Applicant's equipment and allow space for at least three future additional wireless providers. It should be noted that for future requests to collocate on this tower under Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 ("the Act") and the FCC rules implementing that Act, such requests are eligible for administrative approval if they meet certain requirements, among them if they do not entail excavation or deployment more than 30 feet beyond the *current boundaries of the leased property surrounding the tower and any access or utility easements currently related to the site*.

The application is ambiguous as to the major characteristics of the ground compound and the Applicant's planned equipment in the compound. For example, in Figure 2, the fence is depicted as a metal chain-link type while Sheet C-4 of the Construction Drawings depicts a treated wood picket fence, although the depiction is referred to as "typical". Also, as seen in Figure 2, an equipment building is shown that is labeled as a "proposed Verizon shelter". This is likely a typographical error and the building is actually meant to be for DISH's use. Details of a shelter appear in Sheet C-2 of the

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Construction Drawings, but again the depiction is accompanied by the word “typical.”

Also note that, as seen in Figure 2, the height of the shelter exceeds the height of the proposed fence. It may be the preference of the County, in the interest of visual screening, for the height of the fence to equal or exceed the height of the shelter or specify outdoor equipment enclosures instead of a building.

### Visual Screening

The County does have the right under its Ordinance to require, unless shown to be unreasonable, visual screening or landscaping that it deems necessary to minimize the visual impact of the ground compound. As shown in Figure 7, the Applicant proposes planting arborvitaes around the compound fence.

### CityScape’s Recommendations

It is the opinion of the undersigned that a need has been demonstrated for a new antenna support structure in the vicinity of the proposed site to fill a gap in DISH Wireless’s service coverage. Furthermore, the Applicant has demonstrated due diligence in investigating collocation possibilities

In order for CityScape to make conclusive findings regarding the requested height of the proposed tower at the proposed site, CityScape recommends that the applicant provide additional propagation maps with alternative lower antenna heights of 140 feet and 120 feet. These maps should be provided in the same format as the maps already provided to CityScape, except **a scale of miles on each map** should be included. These additional maps can be sent confidentially to CityScape for examination.

Upon receipt and review of the additional propagation maps, CityScape will provide an update of this report.

I certify that, to the best of my knowledge, all the information included herein is accurate at the time of this report. CityScape only works for public entities and has unbiased opinions. All recommendations are based on technical merits without prejudice per prevailing laws and codes.

Respectfully submitted,



B. Benjamin Evans  
Senior Project Engineer  
CityScape Consultants

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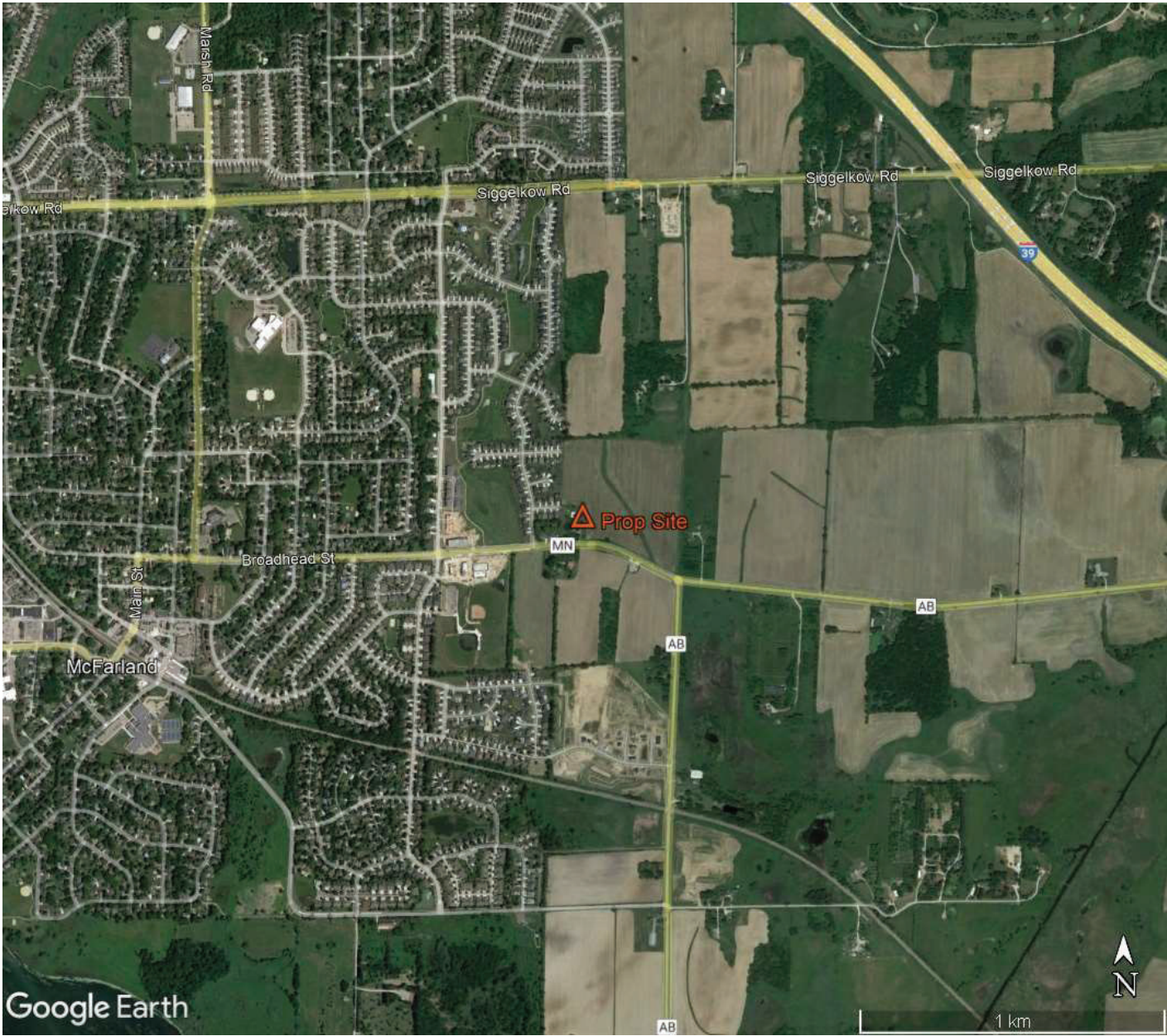


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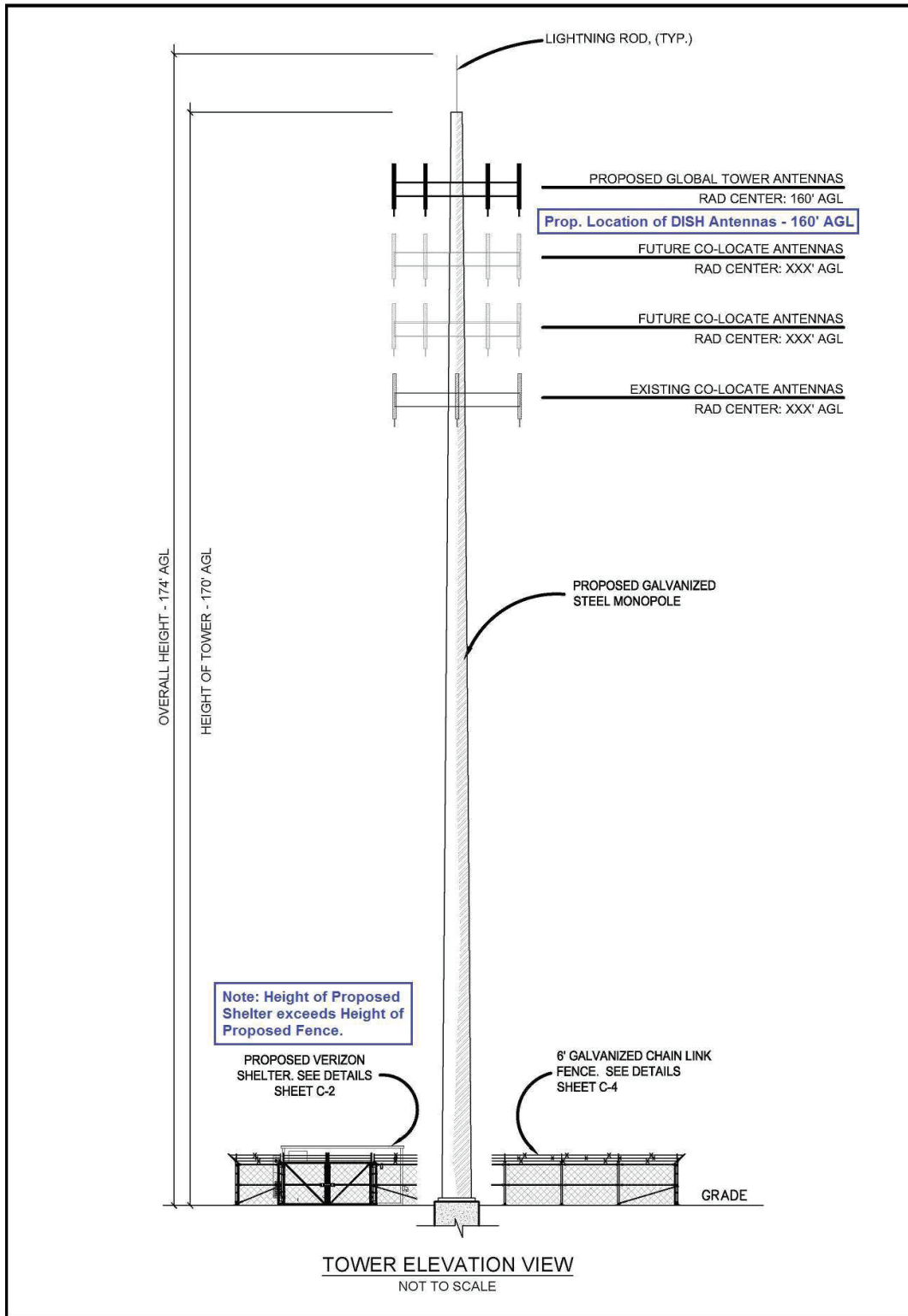
Susan Rabold  
Project Manager  
CityScape Consultants





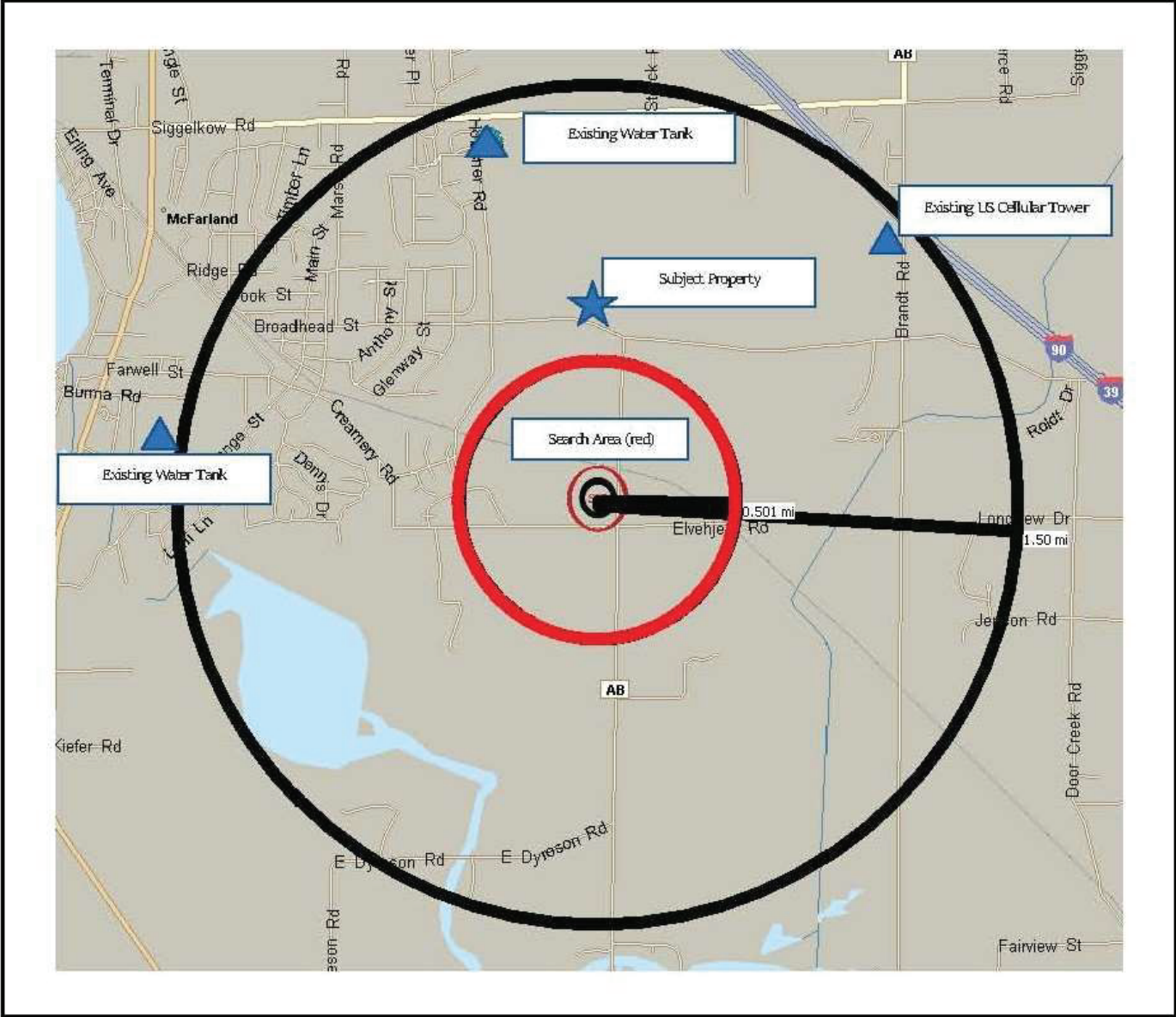


**Figure 1 – Site Location Google Map**

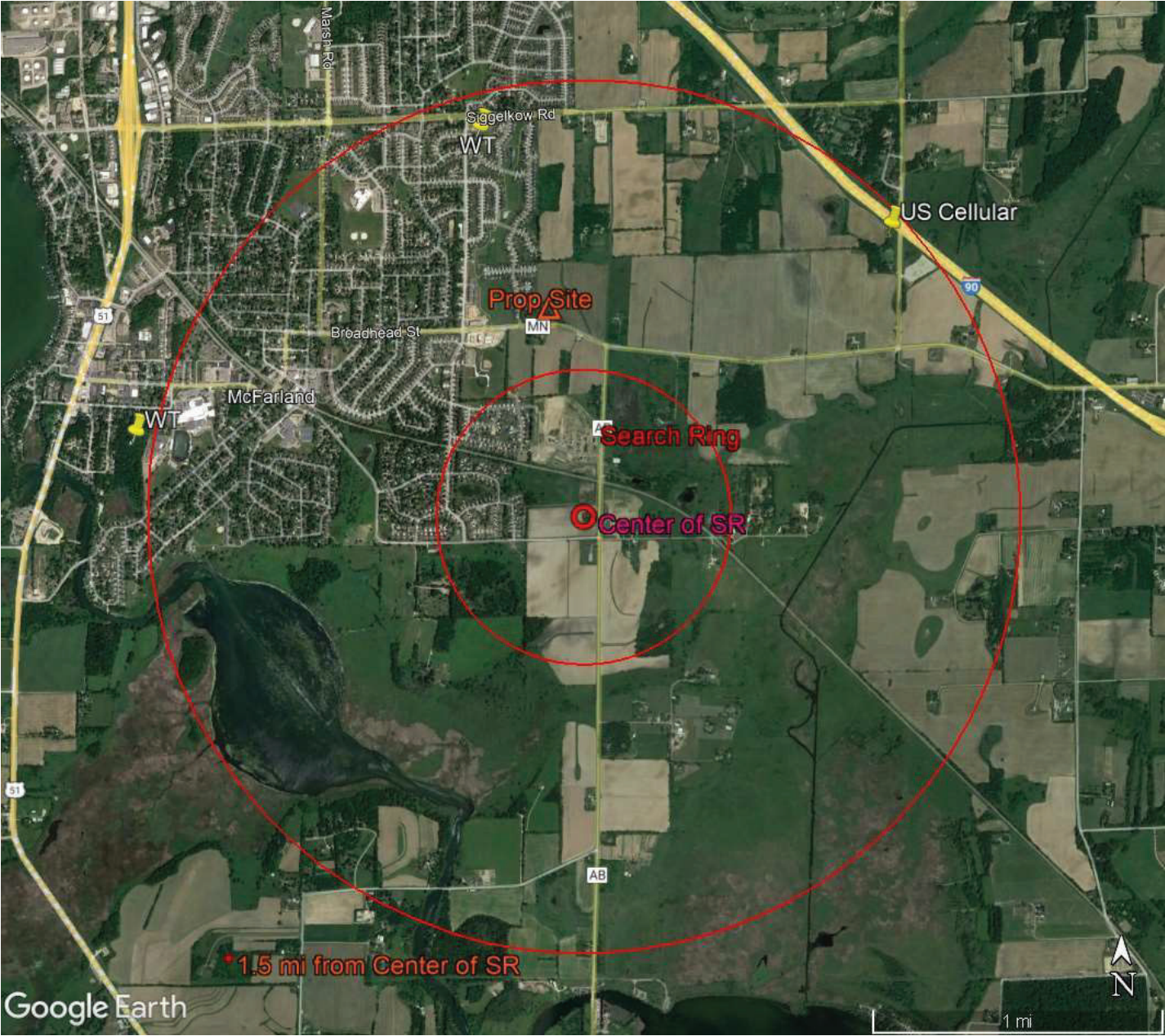


**Figure 2 – Elevation Tower Sketch (with added notes by CityScape in Blue)**



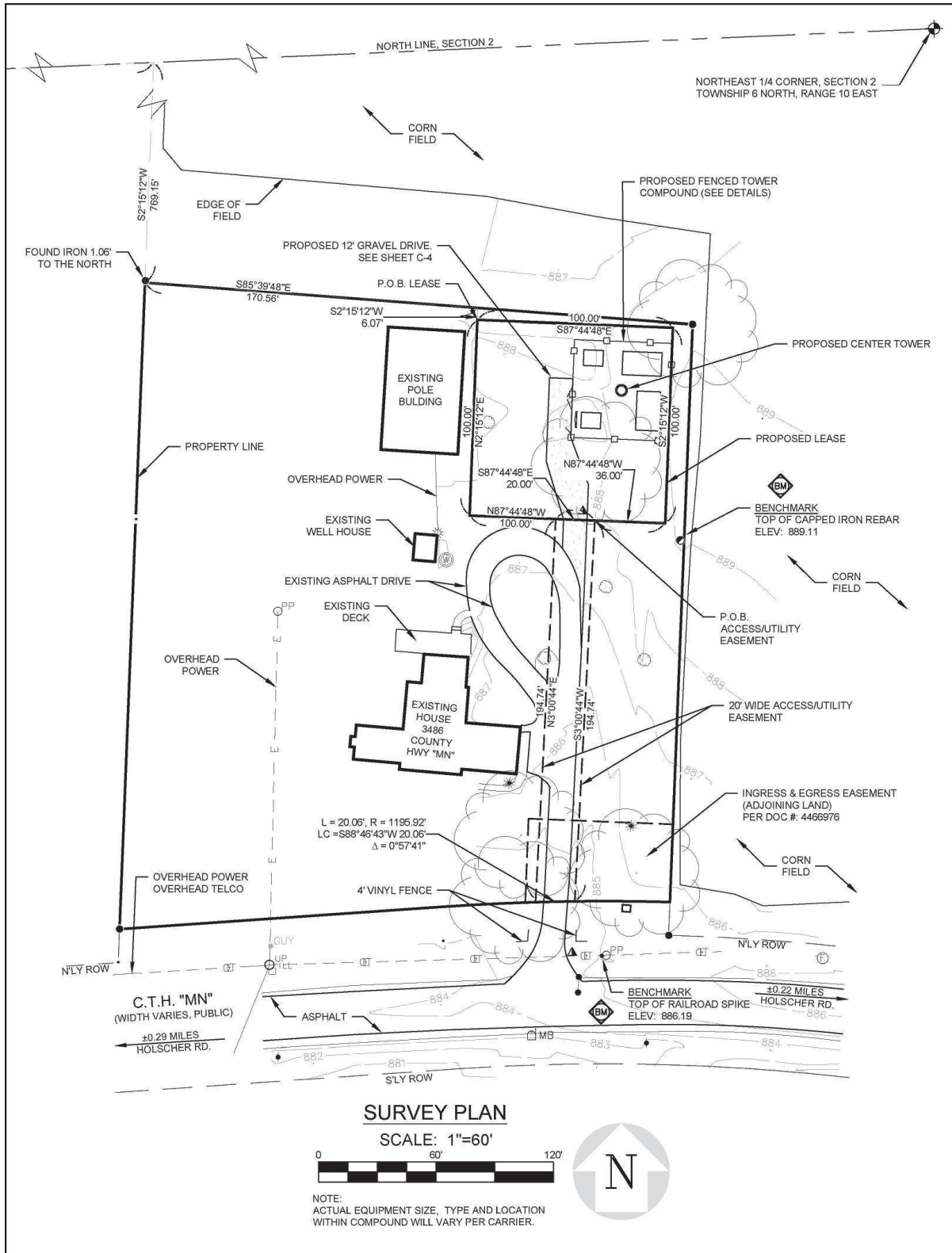


**Figure 3 – Provided DISH Search Ring Map**



**Figure 4 – Google Map of Proposed Site, Search Ring and Nearest Existing Antenna Structures**





**Figure 5 – Parcel Survey Plan with Leased Area**

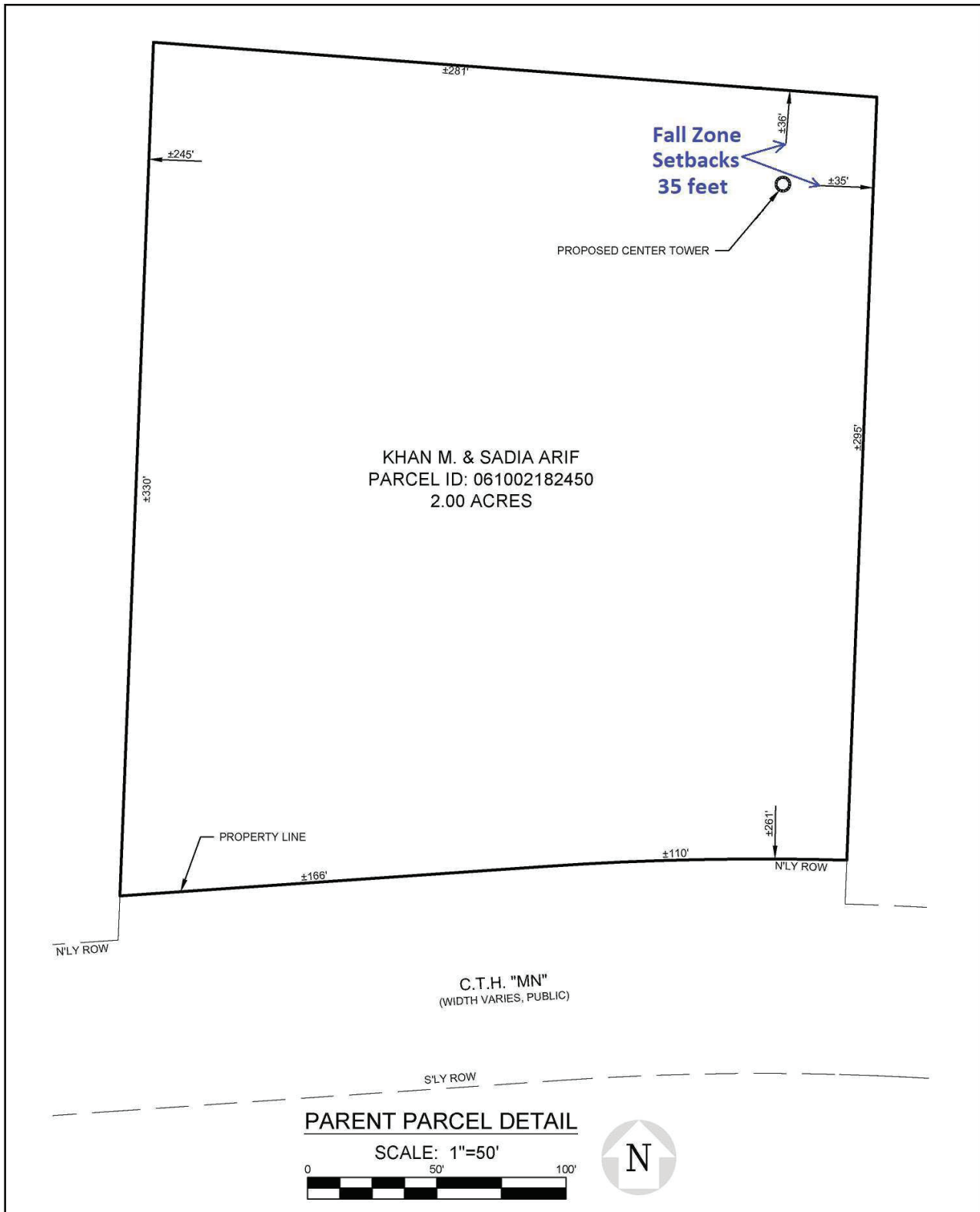


Figure 6 – Parcel Plan with Tower Property Line Setbacks (CityScape Comment in Blue)



