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August 27, 2021

VIA E-MAIL & HAND DELIVERY

Attorney Melanie Bachman
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: DOCKET NO. 503 – Arx Wireless Infrastructure, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 43 Osgood Avenue, New Britain, Connecticut

New Cingular Wireless PCS LLC's (AT&T) Additional Pre-Hearing Supplemental Submission

Dear Attorney Bachman:

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), please find enclosed an original and 15 copies of our Additional Pre-Hearing Supplemental Submission.

Sincerely,

/s/ Thomas J. Regan
Thomas J. Regan

Encl.

cc: Service List

64142718 v1-WorkSiteUS-024519/1567

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:

APPLICATION BY ARX WIRELESS INFRASTRUCTURE, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A WIRELESS TELECOMMUNICATIONS FACILITY AT 43 OSGOOD AVENUE, NEW BRITAIN, CONNECTICUT	DOCKET NO. 503 August 27, 2021

ADDITIONAL PRE-HEARING SUPPLEMENTAL SUBMISSION BY INTERVENOR NEW CINGULAR WIRELESS PCS, LLC d/b/a AT&T

New Cingular Wireless PCS, LLC d/b/a AT&T, an Intervenor in this proceeding, hereby submits to the Connecticut Siting Council (the "Council") the following additional information prior to the September 2, 2021 public hearing in this docket.

A. Exhibit to be Offered

1. Environmental Sound Assessment dated July 27, 2021 prepared by Modeling Specialties.

AT&T reserves the right to offer additional exhibits, testimony witnesses and administratively noticed materials as may be necessary during the public hearing.

Respectfully submitted,

NEW CINGULAR WIRELESS d/b/a AT&T

By: */s/ Thomas J. Regan*

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CERTIFICATE OF SERVICE

I hereby certify that on this day, August 27, 2021, an electronic copy of the foregoing was sent to the Connecticut Siting Council and:

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cc: Brian Leyden, AT&T
Lynn Brady, AT&T
Edward D. Pare, Jr.
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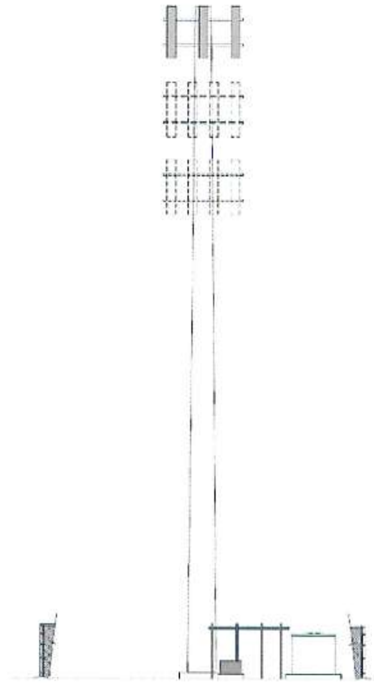
C Squared Systems, LLC

64142652 v1-WorkSiteUS-033437/0027

EXHIBIT 1

Environmental Sound Assessment



Wireless Communication Facility
CT1430 New Britain
New Monopole
43 Osgood Avenue, New Britain CT 06053

July 27, 2021

Prepared For:

ARX Wireless Infrastructure, LLC
110 Washington Avenue
North Haven, CT 06473

ARX WIRELESS

Prepared By:

Modeling Specialties
30 Maple Road
Westford, MA 01886

Modeling Specialties

ENVIRONMENTAL NOISE EVALUATION

ARX Wireless Infrastructure, LLC (ARX) is developing a Wireless Communications Facility in New Britain Connecticut to support personal wireless communication in the area. AT&T Wireless, a planned tenant carrier at the tower, will mount their antennas on the new monopole structure at 43 Osgood Avenue. The facility is designed to support additional future co-locating carriers. AT&T's electronic equipment will be enclosed in a Walk-In Cabinet (WIC) at the foot of the structure. The electronics are environmentally sensitive and will typically be cooled by ambient air. A small door-mounted cooler unit will be available on the WIC for periods of high ambient temperature when additional cooling is needed. The cooler is usually silent but will produce sound when it is actively protecting the equipment. AT&T will also have an emergency generator within the fenced equipment compound at the foot of the tower. The generator will operate only during emergencies and for occasional daytime testing of about one-half hour.

This report addresses land uses in the area, measured ambient sound levels, sources expected at this installation and resulting sound levels at area sensitive locations.

Overview of Project and Site Vicinity

The project is located behind the former Israel Putnam School. Ambient sound levels were established by field measurements. The sound levels resulting from the proposed equipment were estimated using vendor data and measurements made at similar installations. ARX Wireless plans issued by AECOM dated November 12, 2020 provided the necessary information to support the evaluation of project sounds. The corresponding sound levels expected at the nearby sensitive locations were estimated using noise modeling techniques prescribed in acoustical literature.

Figure 1 has a backdrop of Google aerial imagery and is annotated to show the proposed site, surrounding area and nearby receptor locations, showing the orientation and distance from the proposed equipment to the receptor locations.

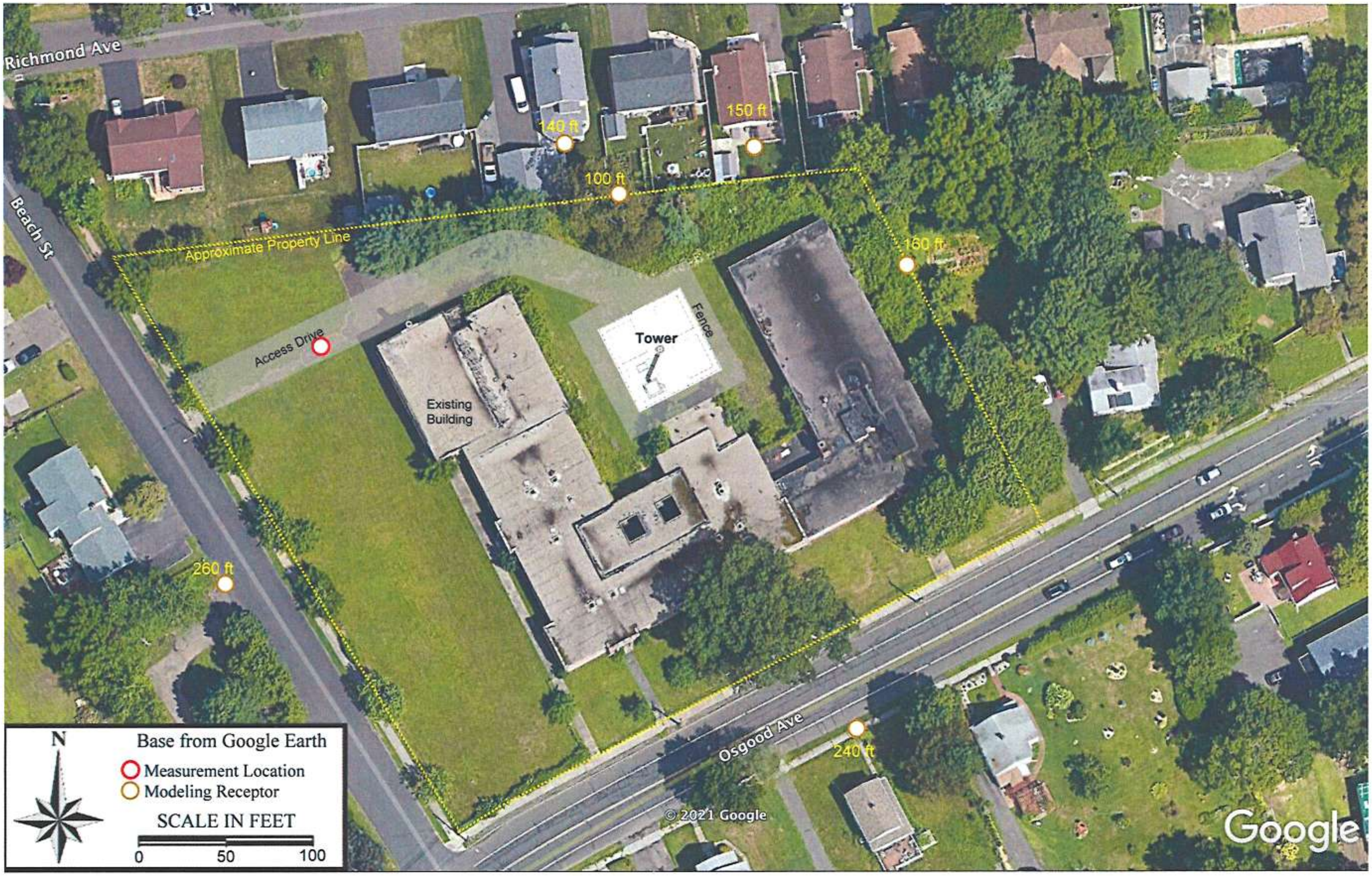


Figure 1: Project Area Showing the Site, Nearby Features and Distance to Sensitive Receptors

Discussion of General Noise Analysis Methods

There are a number of ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. Following is a brief introduction to the noise measurement terminology used in this assessment.

Noise Metrics

The Sound Level Meter used to measure environmental sound is a standardized instrument.[1] It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various circumstances. One of these is the *A-weighting* network. A-weighted sound levels emphasize the middle frequency sounds and de-emphasize lower and higher frequency sounds; they are reported in decibels designated as "dBA". All broadband levels represented in this study are weighted using the A-weighting scale.

The sounds in our environment usually vary with time, so they cannot always be described with a single number. Two methods are used for describing variable sounds. These are *exceedance levels* and *equivalent level.* Both are derived from a large number of moment-to-moment A-weighted sound level measurements. Exceedance levels are designated L_n, where "n" can have any value from 0 to 100 percent. For example:

- L_{10} is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the *intrusive* sound level because it is caused by occasional louder noises like those from passing motor vehicles.

- L_{50} is the median sound level in dBA exceeded 50 percent of the time during the measurement period.

- L_{90} is the sound level in dBA exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the *residual* sound level, which is the sound level observed when there are no loud, transient noises.

By using exceedance levels, it is possible to separate steady sounds (L_{90}) from occasional louder sounds (L_{10}) in the environment. The *equivalent level* is the level of a hypothetical steady sound that has the same energy as the actual fluctuating sound observed. The equivalent level is designated L_{eq}, and is also A-weighted. The equivalent level is strongly influenced by occasional loud, intrusive noises. When a steady sound is observed, all of the L_n and L_{eq} are equal.

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1 *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983, published by the Standards Secretariat of the Acoustical Society of America, NY.

In the design of noise control treatments, it is essential to know something about the frequency spectrum of the sound of interest. Noise control treatments do not function like the human ear, so simple A-weighted levels are not useful for noise-control design or the identification of tones. The spectra of sounds are usually stated in terms of *octave band sound pressure levels*, in dB, with the octave frequency bands being those established by standard.[2] The sounds at the proposed site have been evaluated with respect to the octave band sound pressure levels, as well as the A-weighted equivalent sound level. Only the A-weighted values are presented here, since they represent the more easily recognized sound scale.

Noise Regulations and Criteria

Sound compliance is judged on two bases: the extent to which governmental regulations or guidelines are met, and the extent to which it is estimated that the community is protected from the excessive sound levels. The governmental regulations that may be applicable to sound produced by activities at the project site are summarized below.

Federal

- Occupational Noise Exposure Standards: 29 CFR 1910.95. This regulation restricts the noise exposure of employees at the workplace as referred to in OSHA requirements. Workers will not routinely attend this facility so this is not applicable to the project. Furthermore, this study demonstrates the facility will only emit infrequent sounds of modest levels that would comply with these requirements.

State

- The state of Connecticut (Connecticut Department of Energy & Environmental Protection or CTDEEP) regulates noise at Regulation Title 22a, Sections 69-1 through 69-7.4, Control of Noise. The project is a Class B (Utility - Communications) emitter. The land use is Single Family 3. The parcels adjacent to the site are also residential land whose property lines were evaluated as Class A Noise Receptors. The details of the CTDEEP performance criteria are shown in Table 1 below and are based on the source and receiving land uses. An excerpt from the City of New Britain Zoning Map is shown in Figure 2.

Table 1: Overview of CTDEEP Performance Criteria

	Receptor's Zone			
Emitter's Zone	Industrial	Commercial	Residential/Day	Residential/Night
Residential	62 dBA	55 dBA	55 dBA	45 dBA
Commercial	62 dBA	62 dBA	55 dBA	45 dBA
Industrial	70 dBA	66 dBA	61 dBA	51 dBA

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2 *American National Standard Specification for Octave, Half-octave and Third-octave Band Filter Sets*, ANSI S1.11-1966(R1975).

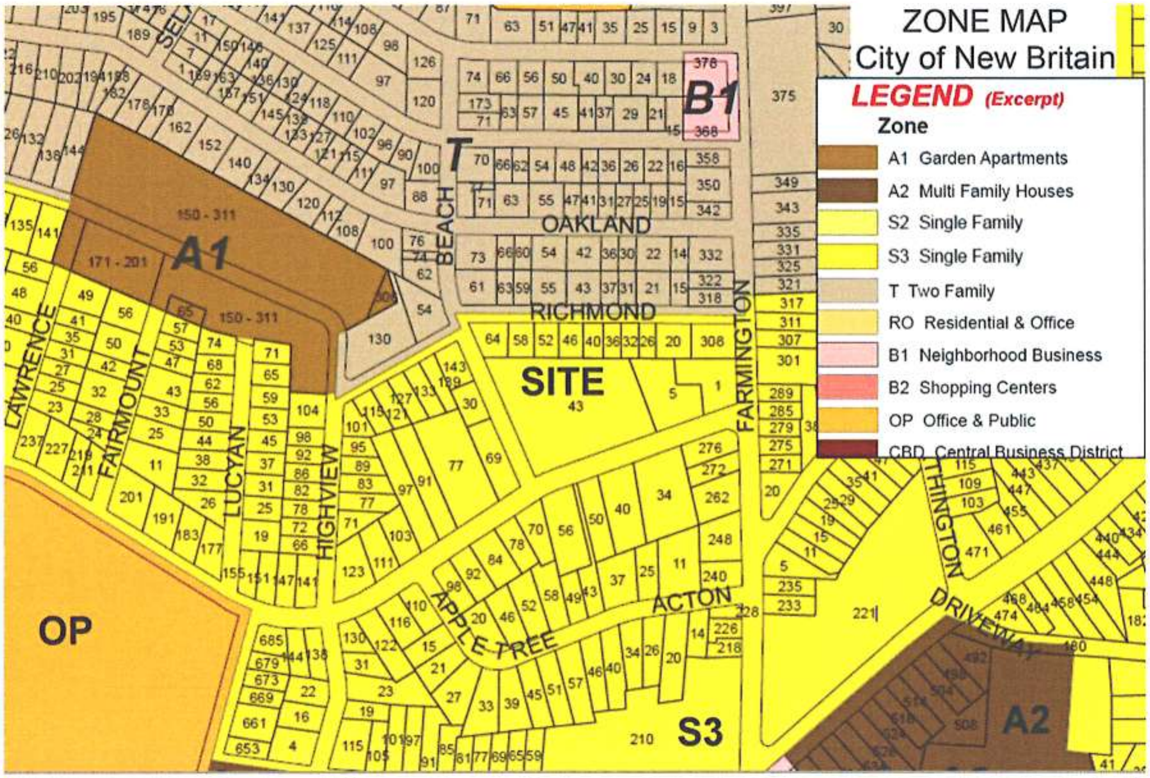


Figure 2: Excerpt from the New Britain Online Zoning Map

- ***Local***

New Britain has a detailed regulation to address noise within the city at ***Article V. Noise***. It specifies equipment, methodology and locations to measure the sound near the receiving property line. Daytime is defined in the regulation to be 7:00 AM to 9:00 PM Monday through Saturday and 9:00 AM to 9:00 PM on Sunday. Other hours are Nighttime. The New Britain standards are provided in Sec. 16-105 as excerpted below. It is noted that the quantitative performance standards are identical to the applicable CTDEEP criteria.

Sec. 16-105. Noise standards.

(a) It shall be unlawful for any person to emit or cause to be emitted any noise beyond the property lines of his/her premises in excess of the following noise levels:

Emmiter Zone Noise	Receptor Noise Zone Class			
	C	B	A-Day	A-Night
Class C	70 dBA	66 dBA	61 dBA	51 dBA
Class B	62 dBA	62 dBA	55 dBA	45 dBA
Class A	62 dBA	55 dBA	55 dBA	45 dBA

Existing Community Sound Levels

Except for the site the area has a rural residential character. The nearest sensitive receptors (residences) are located on adjacent lots in various distances and directions from the proposed back lot equipment. Sound level measurements were made at an open area of the site to establish the background sound levels for the area on July 20, 2021. Even though this facility has no significant sources of nighttime sound, both a daytime and nighttime survey were conducted. A new source of sound tends to be noticed most during conditions that are otherwise quiet. Because of this, the ambient sound surveys were scheduled under conditions associated with quiet sound levels for the area. This includes no precipitation, dry roads, low wind and off-peak traffic times.

Attended sound level measurements were made using a Rion NA-28 sound level meter. The measurements established a baseline community sound level and captured the frequency-specific character of the sound. The meter was mounted on a tripod approximately 5 feet above the ground. The microphone was fitted with factory recommended foam windscreen. The meter was programmed to take measurements for 20 minutes and then store processed statistical levels. The meter meets the requirements of ANSI S1.4 Type 1 – Precision specification for sound level meters. The meter was calibrated in the field using a Larsen Davis Cal-250 acoustical calibrator before and after the sessions. The field calibrations indicated that the meters did not drift during the study. The spectrum analyzer complies with the requirements of the ANSI S1-11 for octave band filters.

Results of the Ambient Survey

The results of the ambient sound level measurements are summarized in Table 2. The Leq represents the "time average" sound level of the fluctuating ambient sound, which is strongly affected by occasional intrusions like vehicle pass-bys while the L_{90} represents the background or "near quietest" level in the measured sample. Both are shown in this study to characterize the existing sound field. Comparing the Leq levels (including all sounds) to the L_{90} levels (quietest 10% of samples) illustrates the way fluctuating levels affect the measured ambient. Ambient levels are affected by community conditions, meteorology, seasons and traffic patterns. The measurements indicate that the existing daytime background sound levels (L_{90}) are currently well within the residential target levels of the CTDEEP standards for daytime sound standards (55 dBA).

Table 2: Ambient Sound Levels Measured on July 20, 2021

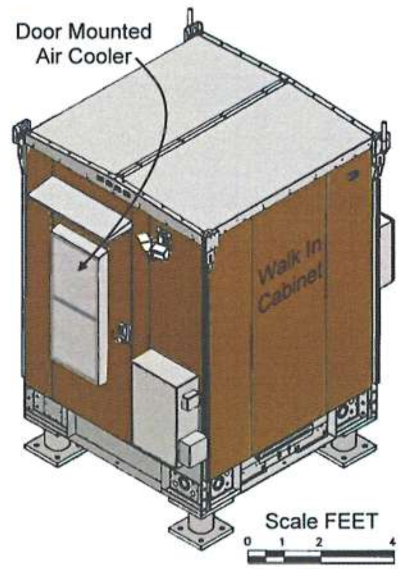
Location / Condition	Time	L_{eq}	L_{90}
Site / Daytime	9:34 AM	50 dBA	40 dBA
Site / Nighttime	4:08 AM	44 dBA	40 dBA

Community ambient sound typically fluctuates throughout the day and night. This is due to an increase of daytime community activities and local traffic in the area during the daytime. The background sound at this site is dominated by the sound from distant traffic on Routes 9/72 about 1.2 miles to the southeast and Interstate 84 about 1.2 miles to the northwest. The only local sounds were from a few vehicles on local roadways and some mechanical sounds from neighboring residences. Daytime sounds included more bird sound and commercial aircraft overflights, but they were short-lived intrusions that would affect the momentary levels but not the background (L90) sound level. The background levels were the same under daytime and nighttime conditions.

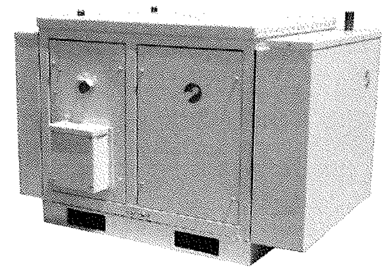
Sounds from the Proposed Installation

The proposed installation has been designed to minimize the effect on the sound environment. Most of the equipment will produce no sound such as tower, antennas, cable trays, utilities and other infrastructure. Sounds that will be produced by the equipment will be significantly mitigated to manage any effects at sensitive locations. This analysis represents the most likely sound levels to be expected as a result of the normal operation of the equipment using data from potential equipment vendors and measurements of other similar equipment. Details of the modeling and assumptions are provided below. As noted, there are only two proposed sources of sound related to this project. The cabinet cooler and standby generator to provide system power during periods when utility support is lost. The equipment is described and quantified below.

Environmental Control Equipment. A walk-in cabinet (WIC) will be located in the fenced compound at the base of the tower. The cabinet will house AT&T equipment that is environmentally sensitive. The proposed Vertiv cabinet has two ways to provide cooling. Multiple fans move filtered ambient air through the front wall and out the back wall. Their speed and corresponding sound level vary based on how much cooling is needed. The ventilation system provides adequate cooling except when the ambient temperature is very high. The trigger temperature is adjustable but it is commonly 90° F. When needed, the door-mounted cooler provides additional support. The highest operational sound levels are expected on the hottest days of summer when the cooler is active. It is noted that the system has a heating mode with minimal interaction with the outdoors, so is not associated with community sound.



Non-Routine Sound Emissions



The installation will include a propane-fired generator installed inside an acoustical enclosure. It has an inverter design, which is inherently quieter than its Alternating Current counterpart. Its operation will be tested no more than one-half hour every week or two and only during the daytime hours. The sound level associated with the generator test is rated at 65 dBA at 23 feet from the equipment. This is a maintenance function and assures that the equipment is available when needed for emergency use.

The other occasion when the generator would operate is during the loss of utility power. These rare events are most likely to occur during exceptional conditions like major storms. The emergency use is considered an upset condition that is exempt from the CTDEEP standards and is not addressed in this report.

Equipment Sound Level Modeling

A computer model was developed for the project sounds based on conservative sound propagation principles prescribed in acoustics literature. Each of the expected sources during operation of the facility were identified and quantified, then estimated at the nearest sensitive receptors. Sound levels decrease with distance, so the resulting sound level will be lower at more distant locations. The sound modeling accounts for specific source and propagation path assumptions for each modeled receiver location.

Sound level prediction modeling was performed using CADNA software under downwind weather conditions as assumed in the standard ISO 9613-2. Table 3 summarizes the modeling input parameters.

Table 3: Modeling Input Parameters

Item	Modeling Input and Description
Terrain	Flat Terrain assumed
Temperature	10°C
Relative Humidity	70%
Weather Condition	6.5 mph, directly from facility to receptor*
Ground Attenuation	0.2, hard surface (0.5 = soft ground, 0.0 = pure reflection)
Atmospheric Inversion	CONCAWE – Category F**
# of Sound Reflections	2
Receptor Height	1.5 meter above ground level

** Propagation calculations incorporate the adverse effects of certain atmospheric and meteorological conditions on sound propagation, such as gentle breeze of 1 to 5 m/s (ISO 1996-2: 1987) from source to receiver.*
***CONCAWE – Category F indicates an atmosphere that promotes sound propagation.*

Connecticut standards apply at the property line, the nearest of which is about 100 feet from the generator. This part of the site is relatively flat and some modeled residences are line-of-sight to the equipment, so no terrain effects were included in any modeling. The proposed equipment layout plan is shown in Figure 3. An elevation drawing of the compound is shown in Figure 4.

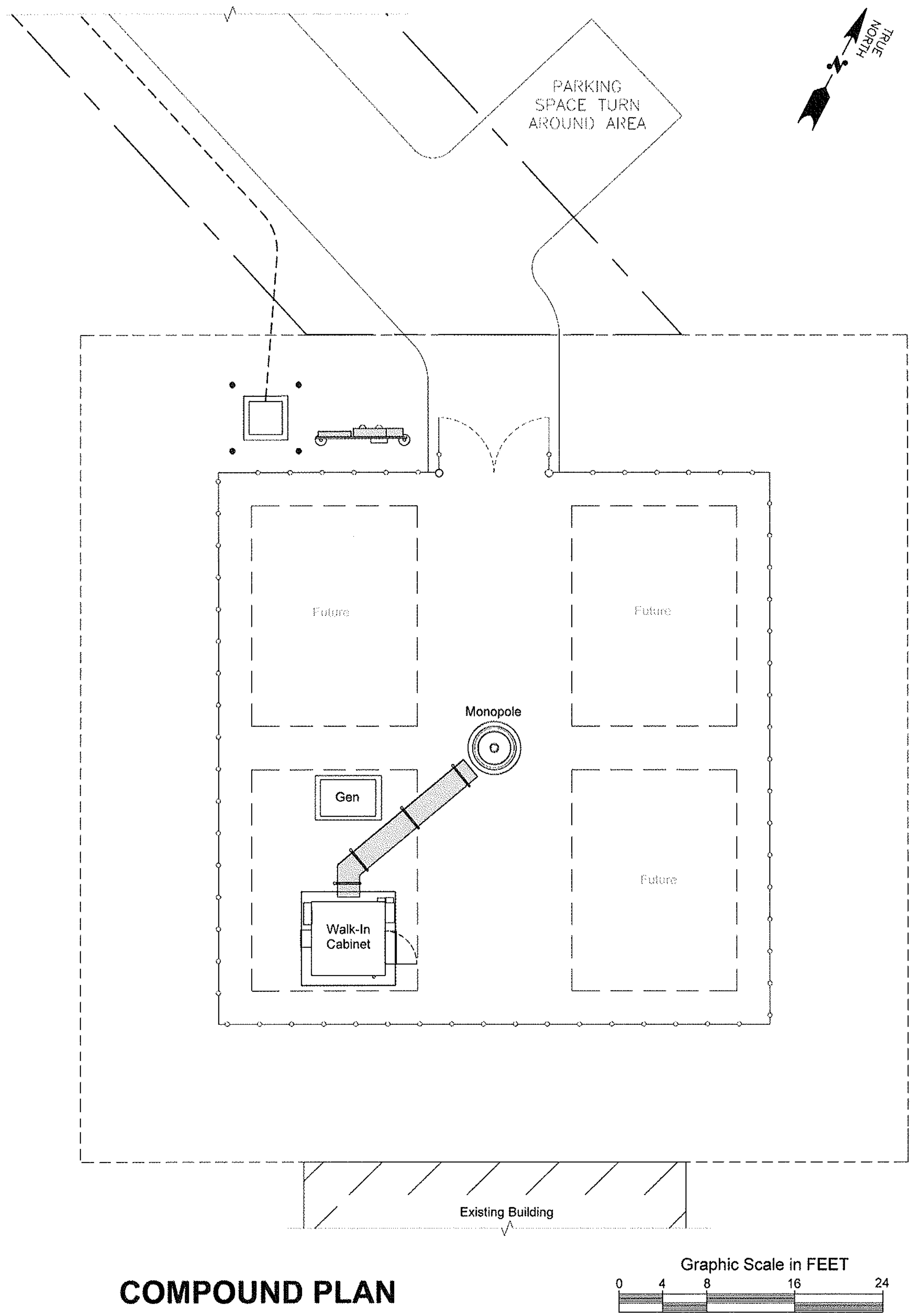


Figure 3: Plan Showing the Proposed Layout of the Equipment Compound

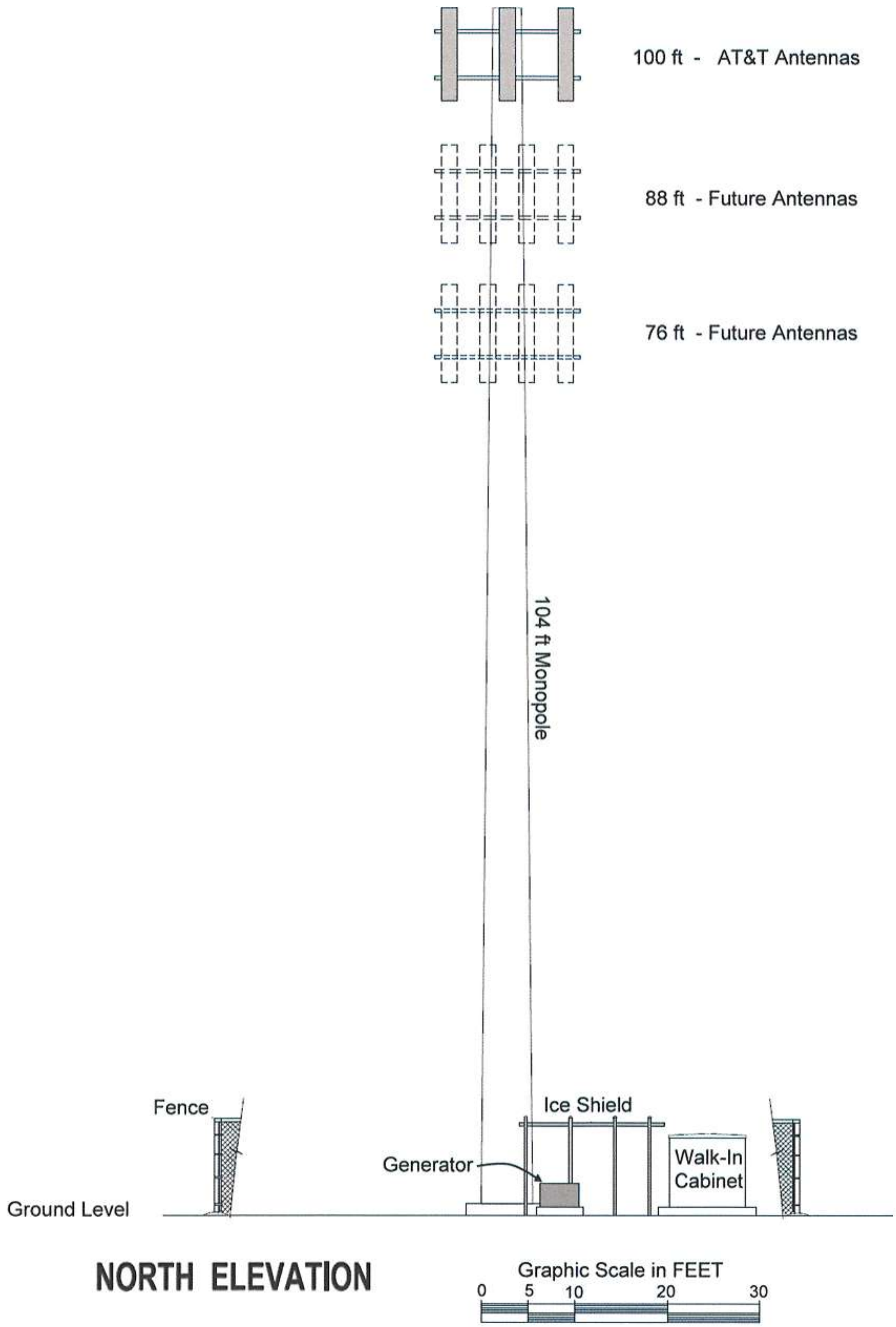


Figure 4: Plan Showing the Proposed Elevation Character of the Project

Results of Sound Level Modeling

The routine operation of the facility is not expected to include the cabinet cooler or generator, so emits only fan sounds when modest cooling is needed. The cabinet will be cooled by drawing ambient air through the cabinet using fans that are located inside the unit. This is not expected to be noticeable outside host site.

The rare event when the sound might be heard off-site is the one-half hour every week or two when the generator is tested. This commonly takes place in the late morning. The hottest hours of the day when the cooler might be active is typically in the afternoon. Therefore, these two sources are not expected to operate together. Nevertheless, the daytime worst-case sound scenario is modeled to be with both rare sources active together. The results are summarized in Table 4 and shown graphically in Figure 5. The results of the modeling are shown in Table 4. The CTDEEP standards are applied at the property lines. Additional modeling was conducted to estimate the sound at the neighboring residences.

Table 4: Predicted Worst-Case Daytime Sound Levels at Receptors

Receptor Location	Distance (ft) (from Source)	Ambient Level Day (dBA L_{90})	Sound Level Standard (dBA)	Cooler+ Generator Worst Case Level
P/L, North	100	40	55	51 dBA
Residence, NW	140	40	55	49 dBA
Residence, NE	150	40	55	48 dBA
P/L, East	160	40	55	28 dBA
P/L, South	240	40	55	25 dBA
P/L, West	260	40	55	25 dBA

Note: It is customary to conduct all calculations using precise values, but to round the result to whole dBA. All results are rounded to units (dBA). Also note that target sound levels that are significantly below ambient level cannot be reliably measured using New Britain's methodology.

The cooler is expected to only operate during the hottest summer conditions when the cabinet cooler is needed to supplement the cooling fans. This is only expected to occur during the daytime, but is activated automatically to protect the equipment from overheating. In case it is ever needed at night, it is represented as un-anticipated worst-case nighttime sound scenario. The results are summarized in Table 5 and shown in Figure 6.

Table 5: Predicted Cabinet Cooler Sound Levels at Receptors

Receptor Location	Distance (ft) (from Source)	Ambient Level Night (dBA L_{90})	Sound Level Standard (dBA)	Cabinet Cooler Level
P/L, North	100	40	45	37 dBA
Residence, NW	140	40	45	35 dBA
Residence, NE	150	40	45	34 dBA
P/L, East	160	40	45	10 dBA
P/L, South	240	40	45	6 dBA
P/L, West	260	40	45	7 dBA

Sound Mitigation Assumptions

There are several notable mitigation measures in place to achieve the low sound levels shown in Tables 4 and 5. The selection of the walk-in cabinet reduces the size and sound levels associated with full size shelters. The cabinet can be oriented to emit sound in a direction that minimizes sound at the most exposed property line. The cabinet cooling system uses fans to move fresh air through the cabinet for cooling under most conditions. A supplementary door-mounted cooler is activated only for the period when the heat load exceeds the fan cooling capacity. The generator was selected from "quietest design" units that are available to support AT&T project electronics. The lower sound levels are a result of the genset's inverter design, its full enclosure and no-load test feature. As a comparison, most portable gasoline fired generators sized to support a residence would operate at more than 70 dBA at 23 feet. The routine test of this project generator that is about twice the capacity of residential units is expected to emit in the 60's dBA at the same reference distance.

Conclusions

The potential sounds from the proposed installation were evaluated using measured field levels, vendor data and numerical modeling methods. Most of the time, the proposed wireless facility will produce no sound. The ambient daytime sound level was established to be 40 dBA during the daytime and at night in the area. The only routine facility sound is from the cabinet ventilation which is expected to be below the ambient level at all property lines. A supplementary cabinet cooler is expected to operate only during the daytime under summertime highest ambient temperatures. Its sound is expected to be about 37 dBA or lower at the nearest property lines during its operation.

Infrequently, the proposed facility will include the sound from testing the emergency generator. This infrequent daytime testing was modeled to include the combined sound from cooler and generator simultaneously. This represents a worst-case estimate, which could only happen during the few hottest days of the summer. The worst-case daytime sound estimate at the nearest property line is 51 dBA. The worst-case daytime sound estimate at the nearest residence is 49 dBA. Both are below the daytime standard of 55 dBA.

No significant sources are expected to operate during nighttime conditions. Therefore, the nighttime levels will remain at or near ambient levels (40 dBA). If the cabinet cooler were ever needed at night, the expected sound level is 37 dBA at the nearest property line. Since it is less than the ambient, the sound levels at the residences would be only slightly increased. The results of this expert analysis indicate the facility will comply with all federal and state requirements with respect to project sound at residential receptors.

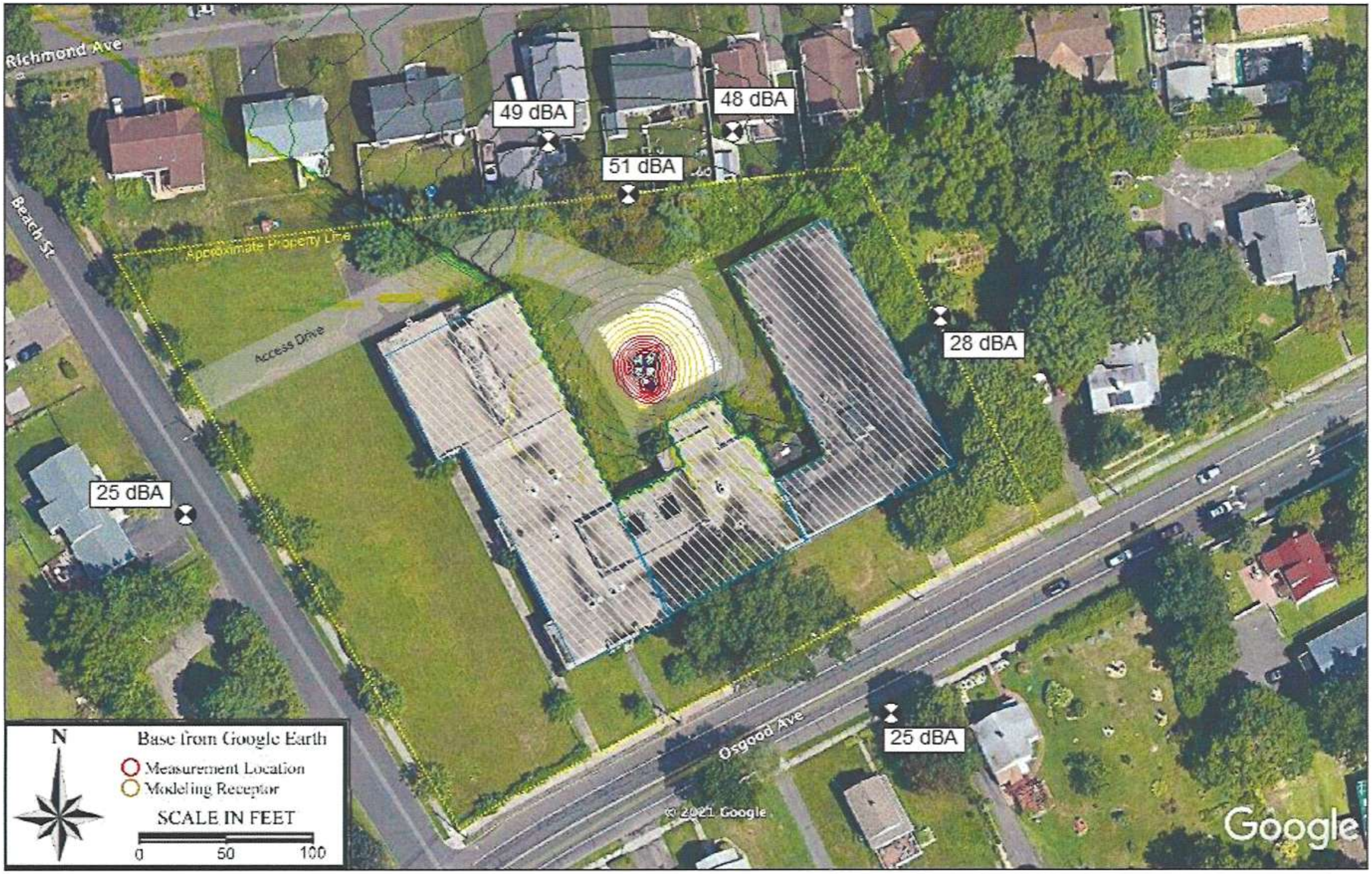


Figure 5: Graphical Summary of the Modeling Results under Worst-Case Daytime Operating Conditions (Gen + Cooler)

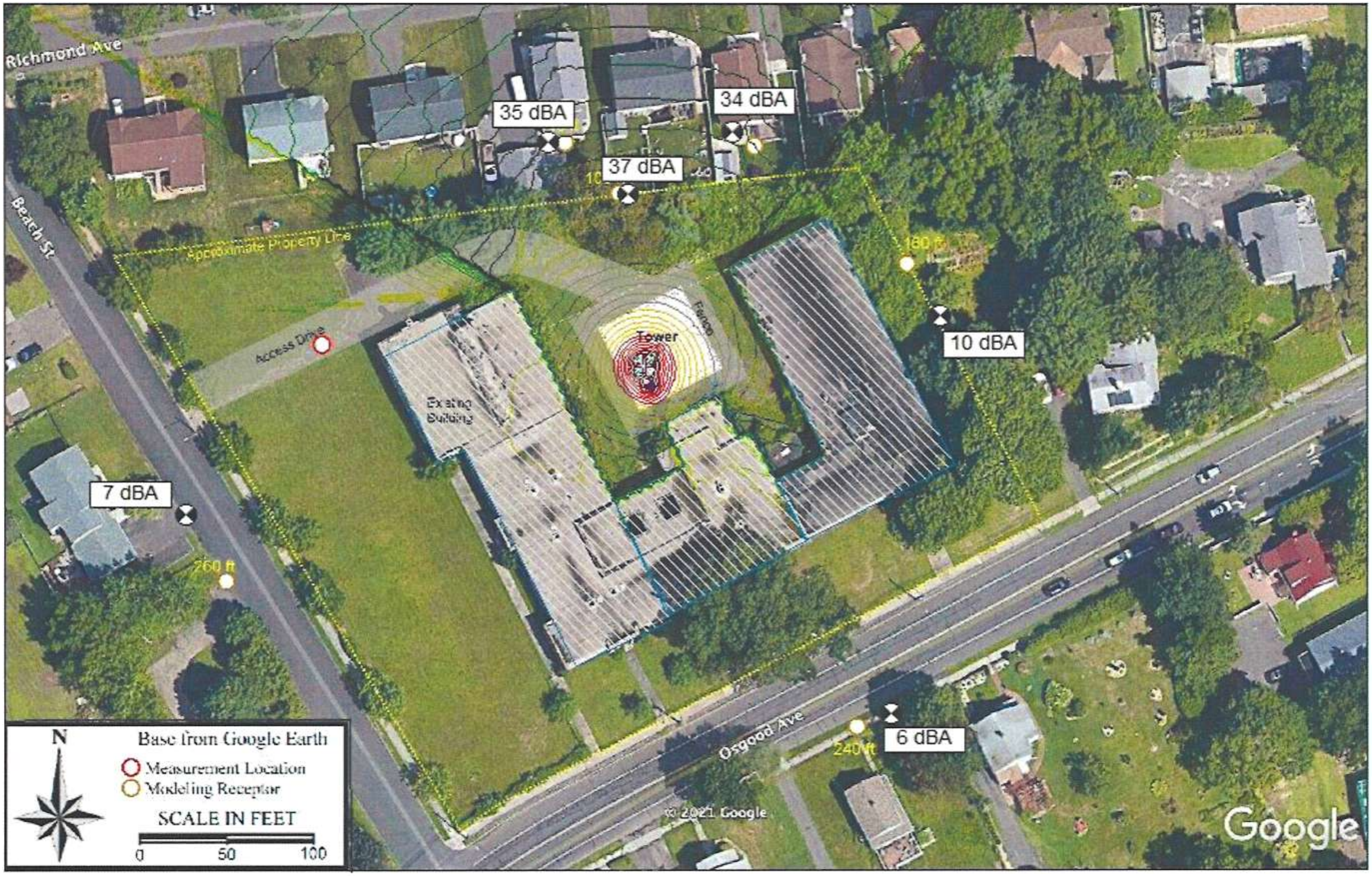


Figure 6: Graphical Summary of the Modeling Results Under Worst-Case Nighttime Operating Conditions (Cooler)