Exhibit V

Noise Impact Assessment Report

NOTTINGHAM SOLAR LLC.

NOISE IMPACT ASSESSMENT – NOTTINGHAM SOLAR

OHIO POWER SITING BOARD CASE NO. 21-0270-EL-BGN HARRISON COUNTY, OHIO

JULY 22, 2021

EXECUTIVE SUMMARY

This report documents the predicted noise impacts during operations and construction, along with the measured existing ambient noise levels, consistent with the Ohio Power Siting Board (OPSB) requirements detailed in Ohio Administrative Code Chapter 4906-4-08(A)(3) for Nottingham Solar (Facility). The highest predicted operational noise impact at any of the 20 nonparticipating residential receptors is 39 dBA expressed as a 1-hour Leq. The Facility, once operational, is therefore expected to comply with typical OPSB regulations which limit the increase in existing noise level to no more than 5 dBA at surrounding non-participating dwellings.

The highest construction noise level at a residential receptor is 72 dBA expressed as a 1-hour Leq. Construction noise can be viewed as a temporary nuisance, and noise levels will be lower as construction moves to further points in the Facility. Best construction noise management practices are expected to be implemented during construction.

ACRONYMS AND ABBREVIATIONS

AC	Alternating current
Ambient Noise	Composite of noise from all normal or existing sound sources
dB(A)	Decibels (A-weighted scale)
DC	Direct current
Facility	Nottingham Solar
Hz	Hertz, unit of frequency meaning cycles per second
Leq	Equivalent continuous sound level
L_{10}, L_{50} , L_{90}	Sound level exceeded for 10, 50, 90 percent of the measurement interval
MVA	Megavolt ampere
NS	Nottingham Solar LLC
OAC	Ohio Administrative Code
OPSB	Ohio Power Sitting Board
PV	Photovoltaic
PWL	Sound power level, expressed in dB re: 1 pico-Watt
SLM	Sound level meter
SPL	Sound pressure level, expressed in dB re: 20 micro-Pascal
UTM	Universal Transverse Mercator
WSP	WSP USA Inc.

TABLES

APPENDICES

1 Introduction

1.1 Project Description

Nottingham Solar LLC is proposing to develop, construct, and operate the 100-megawatts alternating current power (MWac) Nottingham Solar Project (Project), a PV solar energy generation facility in Harrison County, Ohio. The Project will include PV modules mounted on a racking system to maximize solar energy capture and electric generation of the array. The Project will connect to the regional transmission grid via AEP owned Nottingham 138 kV Substation. The purpose of the Project is to provide 100 MW of clean, cost-effective, renewable energy to the PJM Interconnection, LLC (PJM) transmission grid. The Project will generate electricity using virtually no fuels or water and with effectively zero air emissions and waste generation.

1.2 Regulatory Requirements

Harrison County does not have ordinances that regulate noise emissions. The governing regulations that are applicable to the Facility are promulgated by the OPSB.

OAC Chapter 4906-4-08(A)(3) identifies the following noise analysis requirements:

Table 1: List of Noise Requirements

4906-4-08(A)(3)	Noise. The applicant shall provide information on noise from the construction and operation of the Facility.
4906-4-08(A)(3)(a)	Describe the construction noise levels expected at the nearest property boundary. The description shall address:
4906-4-08(A)(3)(a)(i)	Blasting activities.
4906-4-08(A)(3)(a)(ii)	Operation of earth moving equipment.
4906-4-08(A)(3)(a)(iii)	Driving of piles, rock breaking or hammering, and horizontal directional drilling.
4906-4-08(A)(3)(a)(iv)	Erection of structures.
4906-4-08(A)(3)(a)(v)	Truck traffic.
4906-4-08(A)(3)(a)(vi)	Installation of equipment.
4906-4-08(A)(3)(b)	Describe the operational noise levels expected at the nearest property boundary. The description shall address:

4906-4-08(A)(3)(b)(i)	Operational noise from generation equipment. [*Not applicable:* In addition, for a wind farm, cumulative operational noise levels at the property boundary for each property adjacent to or within the project area, under both day and nighttime operations. The applicant shall use generally accepted computer modeling software (developed for wind turbine noise measurement) or similar wind turbine noise methodology, including consideration of broadband, tonal, and low-frequency noise levels.]
4906-4-08(A)(3)(b)(ii)	Processing equipment.
4906-4-08(A)(3)(b)(iii)	Associated road traffic.
4906-4-08(A)(3)(c)	Indicate the location of any noise-sensitive areas within one mile of the Facility, and the operational noise level at each habitable residence, school, church, and other noise-sensitive receptors, under both day and nighttime operations. Sensitive receptor, for the purposes of this rule, refers to any occupied building.
4906-4-08(A)(3)(d)	Describe equipment and procedures to mitigate the effects of noise emissions from the proposed Facility during construction and operation, including limits on the time of day at which construction activities may occur.
4906-4-08(A)(3)(e)	Submit a preconstruction background noise study of the project area that includes measurements taken under both day and nighttime conditions.

1.3 Fundamentals of Sound

An understanding of how noise is defined and measured provides useful background for this assessment. Noise is defined as unwanted sound. Sound is defined as any air pressure variation that the human ear can detect.

Humans can detect a wide range of sound pressures, but only the pressure variations occurring within a particular frequency range are experienced as sound. However, the acuity of human hearing is not the same at all frequencies. Humans are less sensitive to low frequencies than to mid-frequencies, so noise measurements are often adjusted (or weighted) to account for human perception and sensitivities. The fundamental unit to quantify sound level is the decibel (dB) which relates the fluctuating air pressure to that of a standardized reference pressure of 20 micro-pascals.

The most common weighting scale used is the A-weighted scale, which was developed to allow sound level meters to simulate the frequency sensitivity of human hearing. Sound levels measured using this weighting scale are noted as A-weighted decibels (dBA) – "A" indicates that the sound has been filtered to reduce the strength of very low and very high frequency sounds, much as the human ear does. The decibel scale is logarithmic, so an increase of 10 dB represents a sound level that is 10 times louder. However, humans do not perceive the 10-dBA increase as 10 times louder, but as only twice as loud.

The following is typical of human responses to changes in noise level:

> A 1-dBA change is the threshold of change detectable by the human ear when focusing acutely.
>
> A 3-dBA change is the minimal perceptible change to people in general.

A 5-dBA change is readily noticeable.

A 10-dBA change is perceived as a doubling (or halving) of the original noise level.

Table 2 lists typical sources and A-weighted levels of noise, as well as corresponding human responses to the noise.

Table 2: A-weighted Decibel Level of Some Common Sounds

Sound Source	dB(A)	Response Criteria
	150	
Carrier Deck Jet Operation	140	
	130	Painfully Loud Limit Amplified Speech
Jet Takeoff (200 feet) Discotheque Auto Horn (3 feet) Riveting Machine	120	
	110	Maximum Vocal Effort
Jet Takeoff (2000 feet) Shout (0.5 feet)	100	
N.Y. Subway Station Heavy Truck (50 feet)	90	Very Annoying Hearing Damage (8 hours, continuous exposure)
Pneumatic Drill (50 feet)	80	Annoying
Freight Train (50 feet) Freeway Traffic (50 feet)	70	Telephone Use Difficult Intrusive
Air Conditioning Unit (20 feet)	60	
Light Auto Traffic (50 feet)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 feet)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

Noise sources that affect the environment include transportation sources such as automobiles, buses, trucks, aircraft, and trains; and stationary sources such as machinery or mechanical equipment associated with industrial and manufacturing operations or building heating, ventilating, and air-conditioning systems.

The sound pressure level (SPL) that humans experience typically varies from moment to moment. The Equivalent Sound Level, Leq, is a common descriptor used to evaluate sound levels over time. The sound energy from the fluctuating levels are averaged over time to create a single number to describe the mean sound energy level. The duration of the measurement (n) would be shown as Leq(n). Thus, a 24-hour measurement would be shown as Leq(24hr), expressed in dBA.

The Percentile Level, or Ln, expressed in dBA, is a statistical representation of changing noise levels indicating whether the fluctuating noise level was equal to or greater than the stated level for "n" percent of the time. For example, the L1, L10, L50, and L90 represent the noise levels exceeded 1%, 10%, 50%, and 90% of the time. The L10 is often used to identify impacts of transportation or construction noise, while the L90 is used to represent steady background noise.

The sound power level (PWL) of a noise source is the strength or intensity of noise that the source produces/emits, regardless of its environment. Sound power is a property of the source, and therefore is independent of distance. The radiating sound power produces a SPL at any given point of interest that human beings perceive as audible sound. The sound pressure level is dependent on its environment (absorption, reflections, etc.) and its distance from the noise source. Both sound power and sound pressure are expressed in decibels (dB). However, decibel levels of sound power are referenced to a power level of 1 pico-Watt (pW), while decibel levels of sound pressure have a pressure reference level of 20 micro-Pascal (μPa).

2 Background Noise

A preconstruction background noise study was conducted in the vicinity of the Facility continuously for four days, from May 10 to May 14, 2021 as per section 3(e) of OAC Chapter 4906-4-08(A). Four monitoring locations were selected and are shown in **Figure 1 of Appendix A**. Locations **M1** and **M2** were residential properties selected as representative noise sensitive receptors, while locations **M3** and **M4** were selected to represent the existing soundscapes on and around the Facility site. **Appendix B** includes further details and photographs of the sound monitoring instrumentation used at each location.

Background noise levels at all four locations were logged using Svantek 971 Sound Level Meters (SLM) which complies with ANSI Standard S1.4 for Type 1 precision sound measurement accuracy. The SLMs were programmed to log overall and third-octave band sound levels once every second. The microphones were equipped with a windscreen mounted at a height of approximately five feet above the ground surface and at least six feet away from any sound-reflecting surfaces to avoid major interference with the sound being measured. The SLMs laboratory calibration was checked before and after sound level readings using a Larson Davis Cal 150 precision sound level calibrator emitting a 94 dB tone at 1 kHz. **Table 3** shows the summary of existing sound levels at four monitoring locations. No project related activities were happening for the entire duration of measurements. The predominant background noise at locations **M1** and **M2** was contributed by road traffic on Ohio State Route 519, while locations **M3** and **M4** were dominated by wilderness noise and occasional traffic noise.

Additionally, a Davis Vantage Pro II weather station was set up on-site to log meteorological conditions including temperature and wind speed. Data from background noise monitoring is typically removed when wind speeds are greater than 12 miles per hour or during periods of precipitation. Wind speeds were generally low, and there were no periods of precipitation during the background monitoring period. A more detailed summary of the sound level measurement data and on-site weather data are included in **Appendix D**.

Table 3: Summary of Existing Sound Levels

Location	Period	Leq dBA	L10 dBA	L50 dBA	L90 dBA
M1	Overall	58	53	46	45
	Day	59	54	45	43
	Night	55	51	48	46
M2	Overall	57	50	41	35
	Day	58	51	42	36
	Night	53	45	37	32
M3	Overall	49	50	42	36
	Day	51	52	42	35
	Night	42	43	40	37
M4	Overall	46	45	39	36
	Day	47	46	38	35
	Night	43	45	40	37

Notes: Day = 7 AM to 10 PM, and Night = 10 PM to 7 AM

The Leq metric was selected to be the sound level descriptor to define baseline background noise conditions because it includes the sound contributions of all sources currently audible in the environment. The Leq levels, expressed in dBA, will be used to define existing conditions for the purpose of applying OPSB's relative increase allowance of 5 decibels. These measured background noise levels can also be applied to define baseline levels and limiting criteria for the remaining sensitive receptors due to their proximity and exposure to the same background noise sources.

3 Receptor Summary

Receptors in a noise assessment are the locations where sound from the noise source is received and assessed against applicable limits. Section 3(b) of OAC Chapter 4906-4-08 (A) states that sound level at the nearest property boundary of noise sensitive areas within one mile of the Facility are to be assessed for potential impacts.

Figure 1 in **Appendix A** shows the location of receptors with respect to the proposed Facility. The noise sensitive properties identified within one mile of the Facility include 20 nonparticipating residential dwellings. 9 properties located along or near Stumptown Road, adjacent to Ohio State Route 519, and 4 other additional properties located near the northern extent of the one-mile Study Area near Busby Road and Slater Road. A "nonparticipating property" is defined as a real property owned by a person who has not executed an agreement with the applicant related to the Facility. There are no participating residential properties for the Facility. Other noise sensitive receptors, such as schools, churches, or hospitals, were not identified within one mile of the Facility. A summary of noise receptors and their geographic coordinates are presented in **Table 4**.

Table 4: Receptor Information

Receptor Identification	Property Address	UTM Coordinates (m)		Height Above Ground (m)
		X	Y	
R1	40550 Stumptown Road	494753	4449919	1.5
R2	40600 Stumptown Road	494819	4449825	1.5
R3	40700 Stumptown Road	494969	4449715	1.5
R4	40800 Stumptown Road	495098	4449610	1.5
R5	40900 Stumptown Road	495293	4449573	1.5
R6	41900 Stumptown Road	495413	4449603	1.5
R7	41520 Stumptown Road	496300	4449177	1.5
R8	40250 Stumptown Rd	494422	4450161	1.5
R9	42700 Stumptown Road	498217	4448576	1.5
R10	76800 Slater Road	495034	4451154	1.5
R11	77000 Busby Road	494956	4451257	1.5
R12	77077 Slater Road	495002	4451367	1.5
R13	77110 Slater Road	494862	4451415	1.5
R14	77175 Slater Road	494873	4451512	1.5
R15	77250 Slater Road	494691	4451488	1.5
R16	77450 Slater Road	494472	4451733	1.5
R17	73999 Reservoir Hill Road	493196	4446570	1.5
R18	39800 Jockey Hollow Road	492309	4447795	1.5
R19	75215 Muntz Road	492237	4448450	1.5
R20	39800 Jockey Hollow Road	492452.	4447939	1.5

4 Noise Impact Assessment

Noise generated from the proposed Facility will be due to normal day-to-day operations as well as short-term construction activities. The Cadna-A noise model, developed by DataKustik GmbH, was used for predicting future operational and construction noise levels in the community surrounding the proposed Facility.

Cadna-A is a sophisticated, commercially available, ray-tracing, three-dimensional software model that implements methods for the propagation and prediction of outdoor sound levels in accordance with ISO Standard 9613. The model takes into account sound power levels, surface reflection and absorption, atmospheric absorption, meteorological conditions, walls, barriers, berms, foliage and terrain. It also considers wind condition, which the analysis considers the direction to always be oriented from the source to each of the receptor locations. An operational acoustical model of the proposed Facility was developed using the data provided by the applicant, and the information found in technical literature. Additional Cadna-A models were developed for construction scenarios.

4.1 Operational Noise

Solar facilities use photovoltaic panels to convert sunlight into electricity which is then transmitted to the electrical grid as alternating current (AC). The primary sound-emitting equipment associated with this process include inverters and transformers. Inverters convert the direct current (DC) electricity generated by the solar panels to low-voltage AC power, while the transformers amplify the low voltage power from the inverter to a medium power voltage.

Based on the layout provided, the Facility will have 32 inverters and 32 medium voltage transformers spread over the entire Facility area that collect power from the photovoltaic panels. The power is then sent to one higher voltage substation transformer for transmission to the utility grid. The substation is located in the northeast portion of the Facility near Stumptown Road.

The Facility does not have on-site power storage capability and the panels are equipped with tracking motors. Tracking motors maximize the electricity production by moving panels to follow the sun throughout the day. Sound emission from tracking motors are minimal, and usually consist of a ‘click’. As such, the tracking motors are considered insignificant for a noise assessment. Operational sound levels are generally lower during nighttime hours because inverters are not at full capacity and emit substantially less noise. However, the operational analysis assumes a reasonable worst-case scenario, which includes steady-state operation of all equipment simultaneously for all hours. Operational traffic is anticipated to be minimal.

Because the project is in the design stage, the make and model of the equipment has not been finalized yet. Accordingly, sound emission levels used in this analysis for the inverters and transformers are generic and adapted from other similar solar facility noise assessments. Furthermore, these sound emission levels are considered conservative. **Table 5** summarizes the equipment sound power level data used as inputs in the Cadna-A model analysis, and **Appendix C** includes the project layout and locations of modeled equipment.

Table 5: Equipment Sound Levels

Sound Source	Overall Sound Power Level (dBA)	Sound Power Level (dB) at Octave Band Frequency (Hz)								
		32	63	125	250	500	1000	2000	4000	8000
Array Inverter	89	64	80	80	81	81	79	75	85	82
Array Transformer	66	63	67	70	66	65	60	54	50	46
Substation Transformer	107	91	106	112	110	105	101	96	90	81

Source: Sound Power Data are from similar sized solar facilities

Solar inverters and transformers are located adjacent to each other and are modeled as stationary point sources. The substation transformer is also modeled as a point source. As a conservative approach, the Cadna-A model was configured to consider ground as partially porous with an absorption coefficient (G) of 0.5 and with no tree cover. Terrain data obtained from US Geological Survey (USGS) was incorporated into the model to account for changes in ground elevation.

Predicted operational sound pressure levels, presented as 1-hour Leq sound isopleth contours from reasonable worst-case assumptions, are shown on **Figure 2** in **Appendix A**. All receptors are non-participating dwellings. The sound contours represent how operational noise is expected to propagate over the surrounding area. **Table 6** presents the predicted operational noise levels at each receptor.

Table 6: Predicted Operational Noise Levels

Receptor Identification	Property Address	Sound Pressure Level (Leq dBA)
R1	40550 Stumptown Road	19
R2	40600 Stumptown Road	24
R3	40700 Stumptown Road	23
R4	40800 Stumptown Road	25
R5	40900 Stumptown Road	30
R6	41900 Stumptown Road	31
R7	41520 Stumptown Road	39
R8	40250 Stumptown Rd	20
R9	42700 Stumptown Road	24
R10	76800 Slater Road	18
R11	77000 Busby Road	18
R12	77077 Slater Road	17
R13	77110 Slater Road	17
R14	77175 Slater Road	17
R15	77250 Slater Road	16
R16	77450 Slater Road	15
R17	73999 Reservoir Hill Road	6
R18	39800 Jockey Hollow Road	8
R19	75215 Muntz Road	12
R20	39800 Jockey Hollow Road	9

The highest predicted operational sound level is 39 dBA at receptor **R7** which corresponds with noise monitoring location **M2**. Background noise level at **M2** was measured to be 58 dBA during daytime hours and 53 dBA during nighttime hours. Noise levels at all other receptors are much quieter. Therefore, the Facility is expected to comply with typical OPSB regulations of limiting the increase in existing noise level to no more than 5 dBA at surrounding non-participating dwellings.

4.2 Construction Noise

Solar facilities do not require the construction of substantial or deep foundations. Solar panels are mounted to racks on metal poles that are installed with a small hydraulic driver specifically designed for this purpose. Solar panel drivers use a hammering action, though they are substantially smaller and quieter than pile drivers that are typically used in general or heavy construction. Equipment used to move earth, drill horizontally, and erect structures are anticipated to be consistent with general construction equipment used on typical infrastructure projects.

Construction of the Facility is proposed to take place from 7:00 AM to 6:00 PM Monday through Friday, with occasional longer days or Saturday work. Construction is expected to last approximately 11 months.

To properly model construction noise, construction activities were broken into six phases: Road Construction, Substation Construction, Trenching, Inverter Equipment Pad Installation, Piling, and Racking. For each activity, the closest receptors were identified, and the worst-case noise scenarios were modeled in Cadna-A assuming all construction equipment would be operating simultaneously at full capacity. Only the eight receptors near Stumptown Road, directly north of the Facility were assessed for construction noise impacts. Construction equipment sound source information, shown in **Table 7**, was taken from the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM).

Table 7: FHWA Construction Equipment Noise

Equipment	Sound Pressure Level at 50 Feet (Lmax dBA)
Boom Truck	84
Compactor	80
Concrete Mixing Truck	85
Concrete Pumper Truck	82
Dozer	85
Dump Truck	84
Excavator	85
Flatbed Truck	84
Flatbed Truck	84
Flatbed Truck	84
Forklift	85
Grader	85
Large Crane	85
Man-lift	85
Pile Driver	84
Roller	85
Small Crane	83
Trencher	83

Each phase of construction is summarized below and **Table 8** shows the predicted construction noise levels in each phase.

Road Construction

Project road construction is needed to build access driveways and roads through the Facility surrounding the solar arrays and the substation. Primary noise sources from road construction include excavators, dozers, graders, dump trucks, and rollers. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 72 dBA at receptor **R2** as shown in **Figure 3** in **Appendix A**.

Substation Construction

Construction of the substation would take place in a single location. Primary noise sources from this construction include excavators, dozers, graders, dump trucks, rollers, concrete mixing trucks, concrete pumper trucks, flatbed trucks, man-lifts, a large crane, and a small crane. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 59 dBA at receptor **R7** as shown in **Figure 4** in **Appendix A**.

Trenching

Trenching is needed to bury the underground collection lines on their proposed routes throughout the Facility. Primary noise sources from this construction include excavators, dozers, rollers, compactors, flatbed trucks, forklifts, and trenchers. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 57 dBA at receptor **R6** as shown in **Figure 5** in **Appendix A**.

Inverter Equipment Pad Installation

Construction of the inverter pads located throughout the Facility. Primary noise sources from this construction include excavators, dozers, graders, rollers, concrete mixing trucks, a small crane, and concrete pumping trucks. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 60 dBA at receptor **R6** as shown in **Figure 6** in **Appendix A**.

Piling

Piling is needed to install the solar arrays and construction is limited to those arrays. Primary noise sources from this construction include flatbed trucks, boom trucks, and pile drivers. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 63 dBA at receptor **R4** as shown in **Figure 7** in **Appendix A**.

Racking

Racking is needed to install the solar arrays and construction is limited to those arrays. Primary noise sources from this construction include flatbed trucks, forklifts, and pneumatic equipment. In the worst-case noise scenario, the noise analysis resulted in a maximum predicted sound level of 61 dBA at receptor **R4** as shown in **Figure 8** in **Appendix A**.

Table 8: Predicted Construction Noise Levels

Receptor Identification	Property Address	Sound Pressure Level (Leq dBA)					
		Roadways	Substation	Trenching	Inverters	Piling	Racking
R1	40550 Stumptown Road	67	39	50	41	50	50
R2	40600 Stumptown Road	72	40	49	40	49	49
R3	40700 Stumptown Road	51	40	37	33	44	43
R4	40800 Stumptown Road	55	43	44	42	63	64
R5	40900 Stumptown Road	53	47	50	58	51	52
R6	41900 Stumptown Road	52	49	57	60	52	53
R7	41520 Stumptown Road	40	59	42	36	40	40
R8	40250 Stumptown Rd	49	36	42	33	43	44

5 Proposed Mitigation

The Facility will comply with requisite OPSB regulations of limiting the increase in existing noise level to no more than 5 dBA at surrounding non-participating dwellings. Therefore, operational noise mitigation measures are not required for this project.

Construction noise is typically minimized through best practices such as ensuring construction equipment and associated mufflers are in good working order, limiting noisy construction activities to daytime hours only, using alternative quieter methods, use of noise barriers around work sites as financially feasible, and establishing a noise complaint resolution process.

6 Conclusion

An operational and construction noise impact assessment in compliance with Ohio Administrative Code Chapter4906-4-08(A)(3) has been conducted for the proposed Facility in Harrison County, Ohio. The highest predicted reasonable worst-case operational noise level is 39 dBA at the closest receptor (**R7**) which corresponds with noise monitoring location **M2**. The background noise level at **M2** was measured to be 58 dBA during the daytime and 53 dBA during the nighttime. Predicted Facility operational noise levels of 39 dBA at receptor **R7** are expected to be well below the background noise levels for both daytime and nighttime, and are predicted to be lower at the other receptors. Facility operations are expected to comply with applicable OPSB regulations of limiting the increase in existing sound levels to no more than 5 dBA at the surrounding non-participating dwellings, and therefore, no additional noise mitigation measures are required or proposed.

The highest construction noise level at a residential receptor is 72 dBA expressed as a 1-hour Leq. Construction noise can be viewed as a temporary nuisance, and noise levels will be lower as construction moves to further points in the Facility. Best construction noise management practices are expected to be implemented during construction.

7 References

Federal Highway Administration, *Construction Noise Handbook*, FHWA-HEP-06-015. 2006.

Federal Highway Administration, *CFR 23 Part 772 – Procedures for Abatement of Highway Traffic Noise and Construction Noise*. 2010.

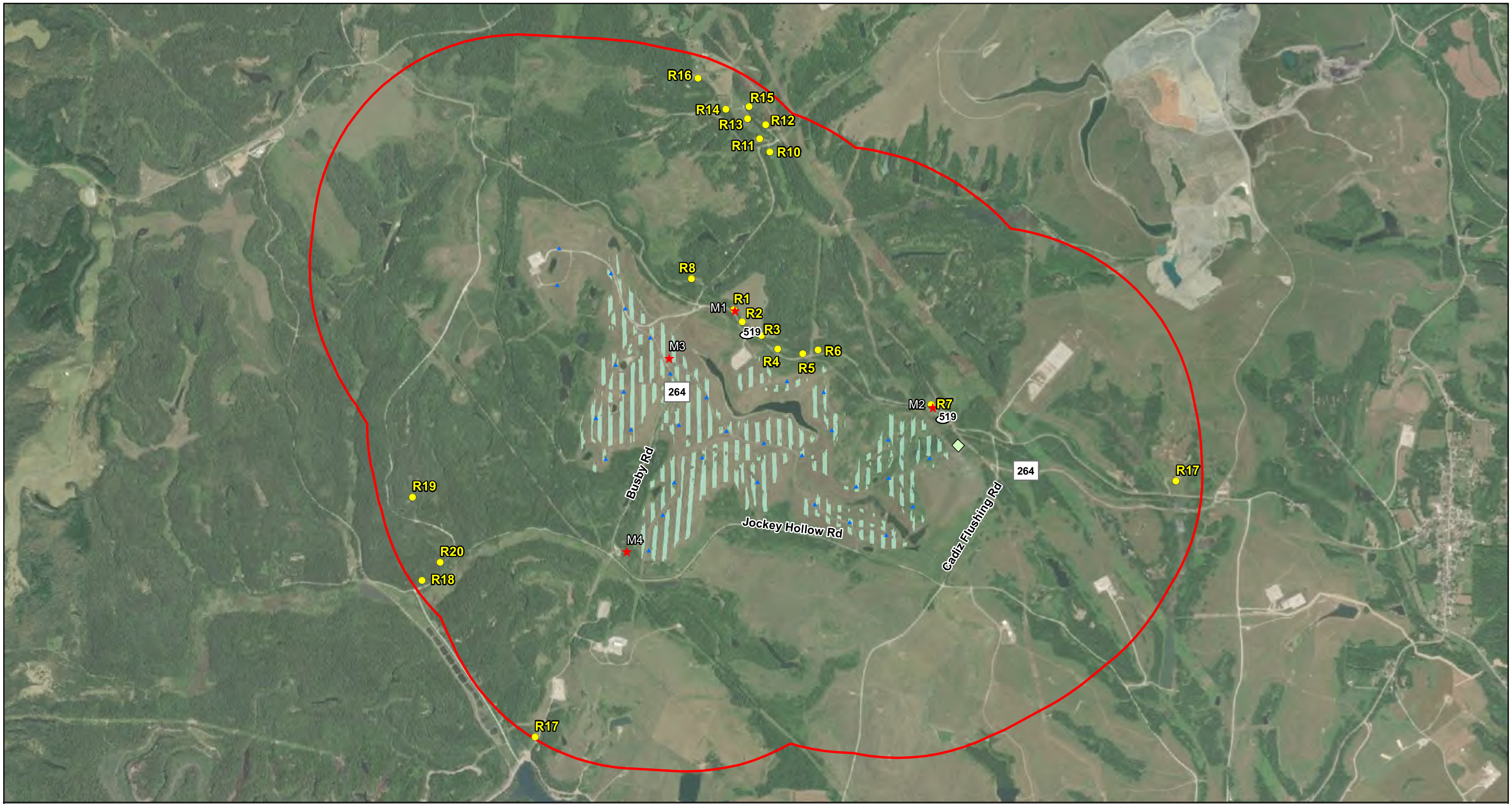
Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, *FTA Report No. 0123.* September 2018.

International Standards Organization. ISO 1996-1, *Acoustics-Description, Measurement, and Assessment of Environmental Noise*-Part 1. 2003

International Standards Organization (ISO) 9613-2, *Acoustics* - *Attenuation of sound during propagation outdoors* - *Part 2*: General method of calculation, Geneva, Switzerland. 1996.

APPENDIX

A FIGURES



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Modeled Receptors

Residences

Monitoring Location

1-Mile Buffer

Substation

Solar Arrays

Array Inverters

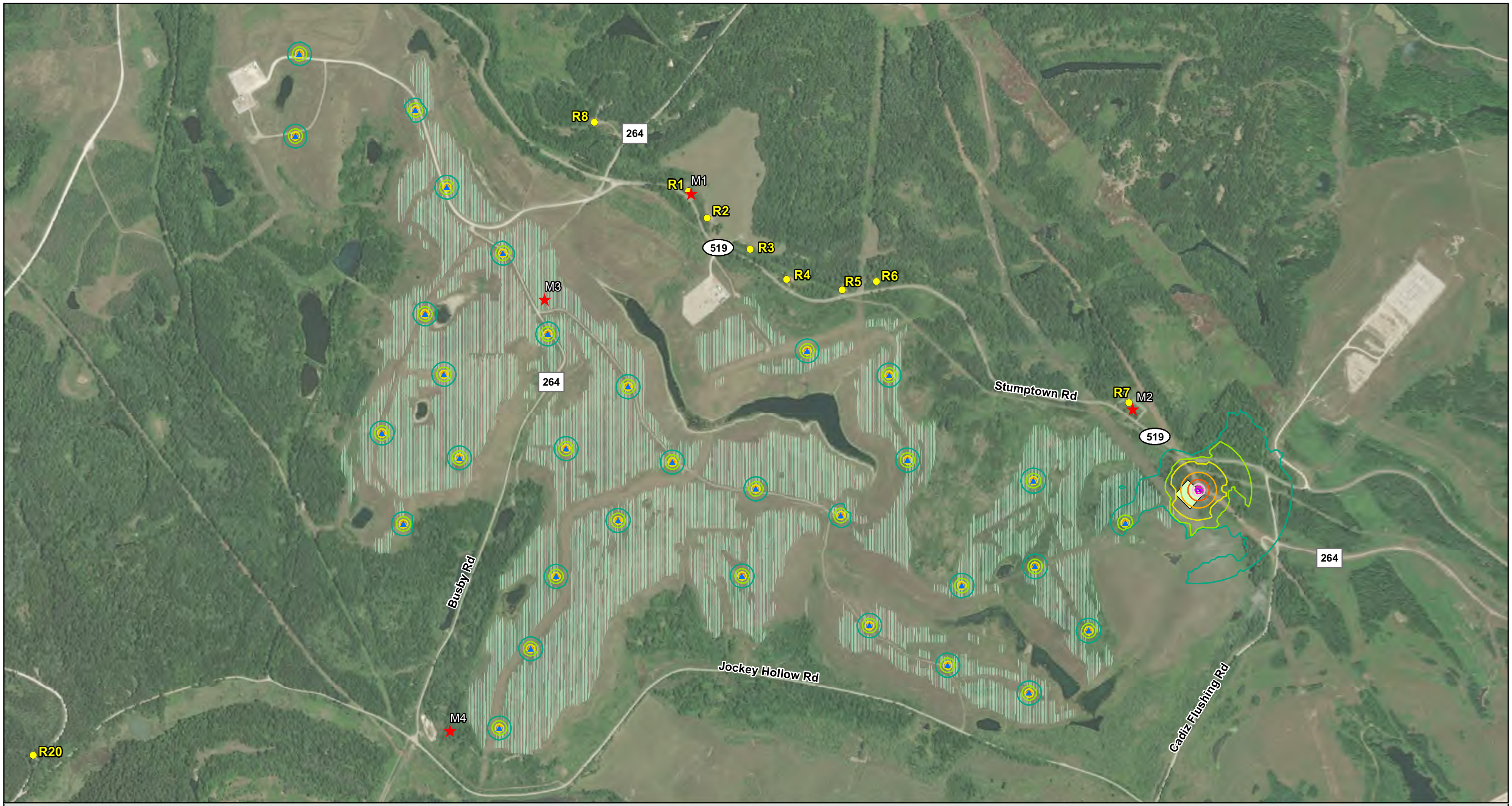
Scale: 1:29,000

N

0 0.5 1 Miles

0 0.5 1 Kilometers

Figure 1 - 1-Mile Study Area



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Modeled Receptors
Residences

Monitoring Location

Substation
Solar Arrays

Array Inverters

Project Sound
30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

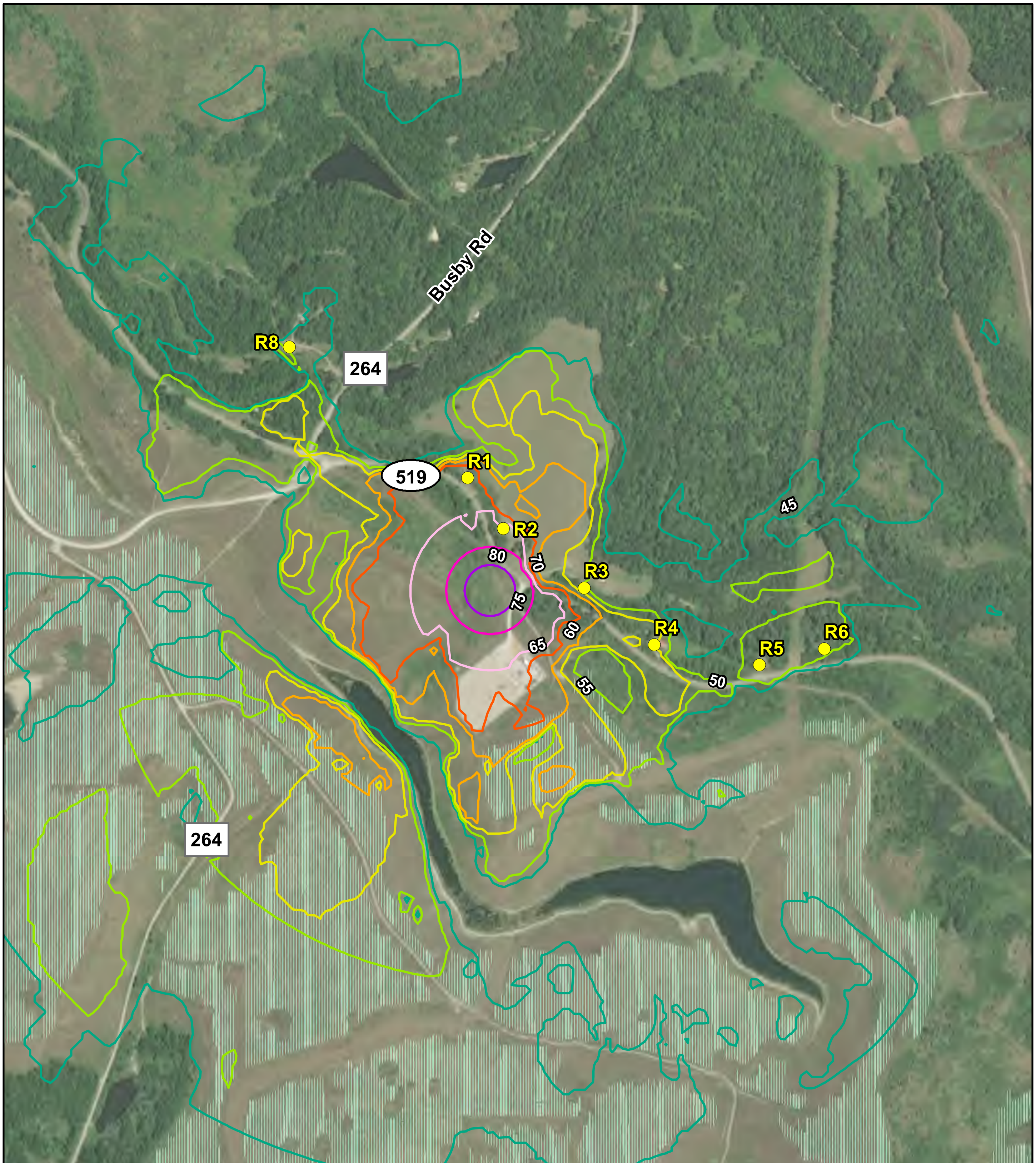
Scale: 1:13,000

N

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

Figure 2 - Operational Noise Sound Pressure Level Contours



Modeled Receptors

Residences

Solar Arrays

0 1,000 2,000 Feet

0 300 600 Meters

Project Sound

30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

N

Figure 3 - Road Construction Sound Pressure Level Contours

Scale: 1:10,000

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

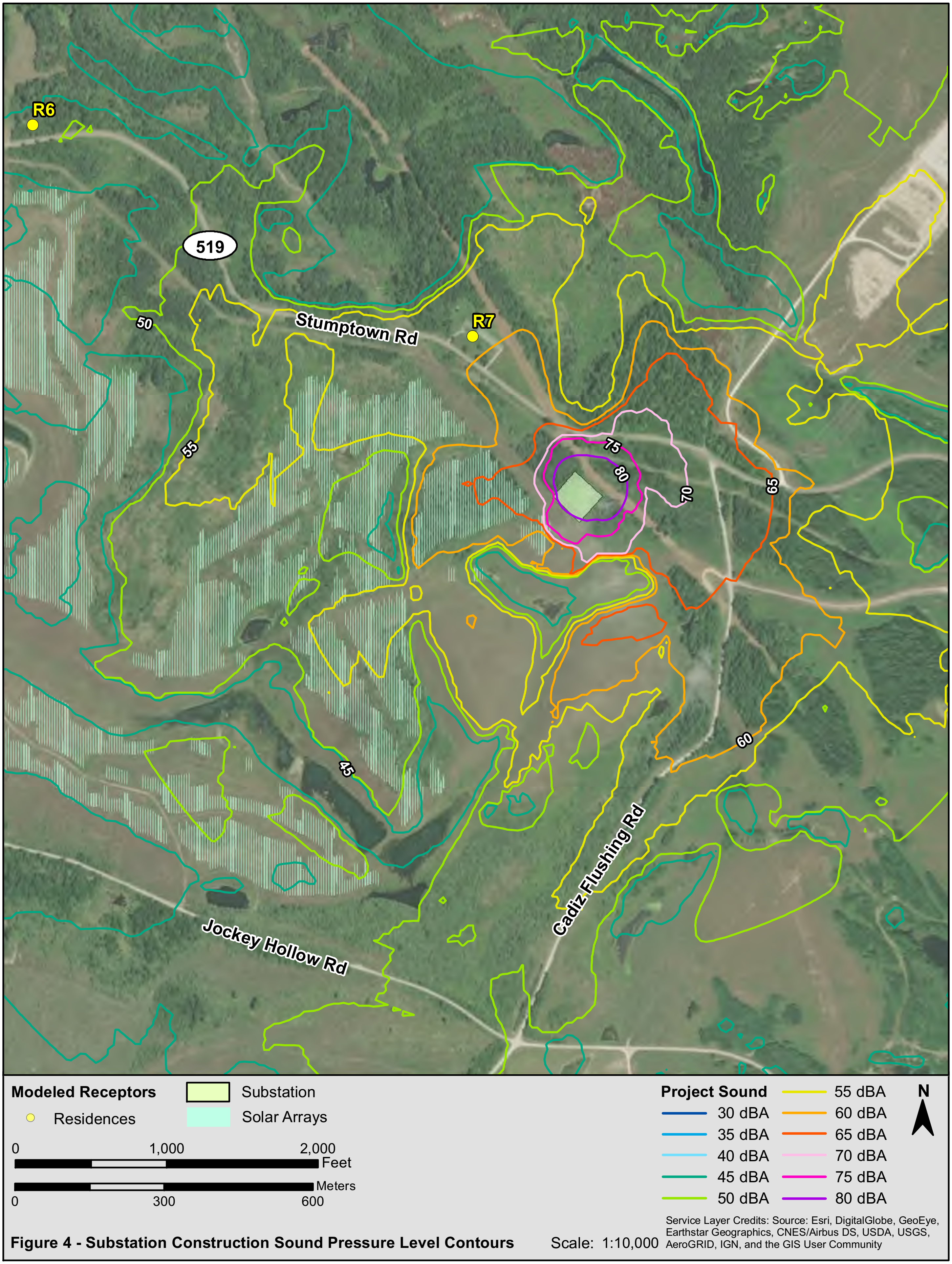
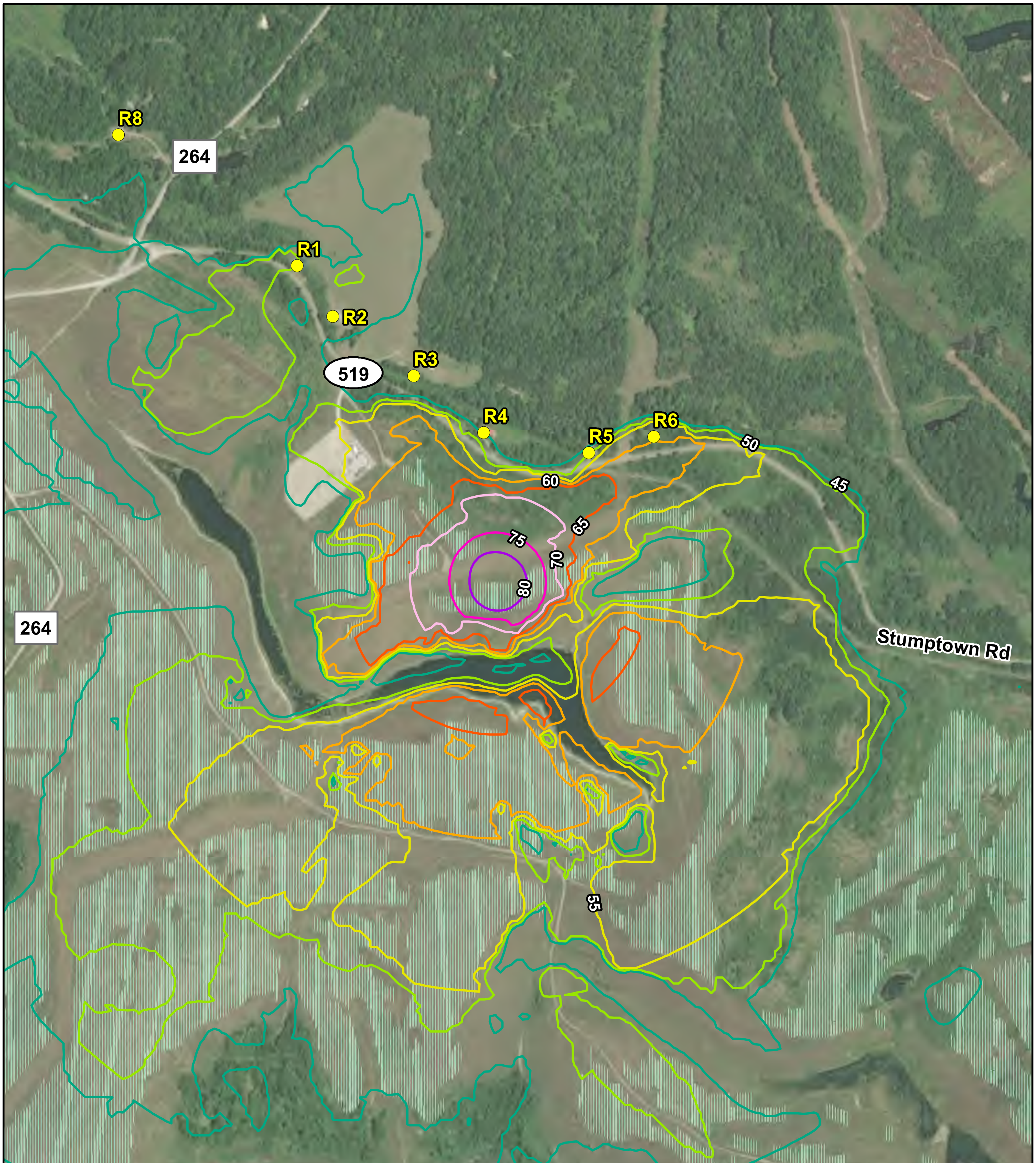


Figure 4 - Substation Construction Sound Pressure Level Contours



Modeled Receptors

Residences

Solar Arrays

0 1,000 2,000 Feet

0 300 600 Meters

Project Sound

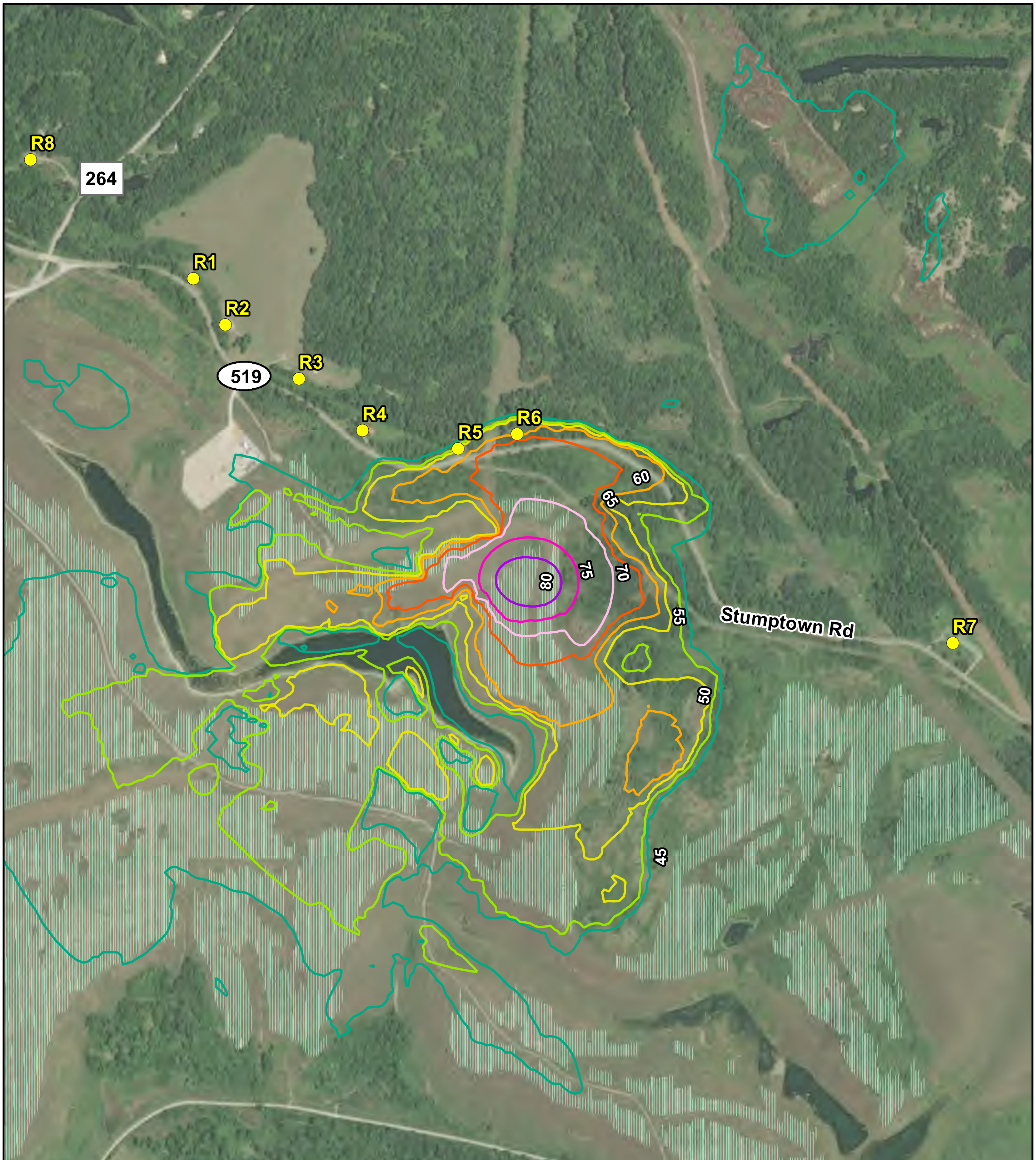
30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 5 - Trenching Sound Pressure Level Contours

Scale: 1:10,000



Modeled Receptors

Residences

Solar Arrays

0 1,000 2,000 Feet

0 300 600 Meters

Project Sound

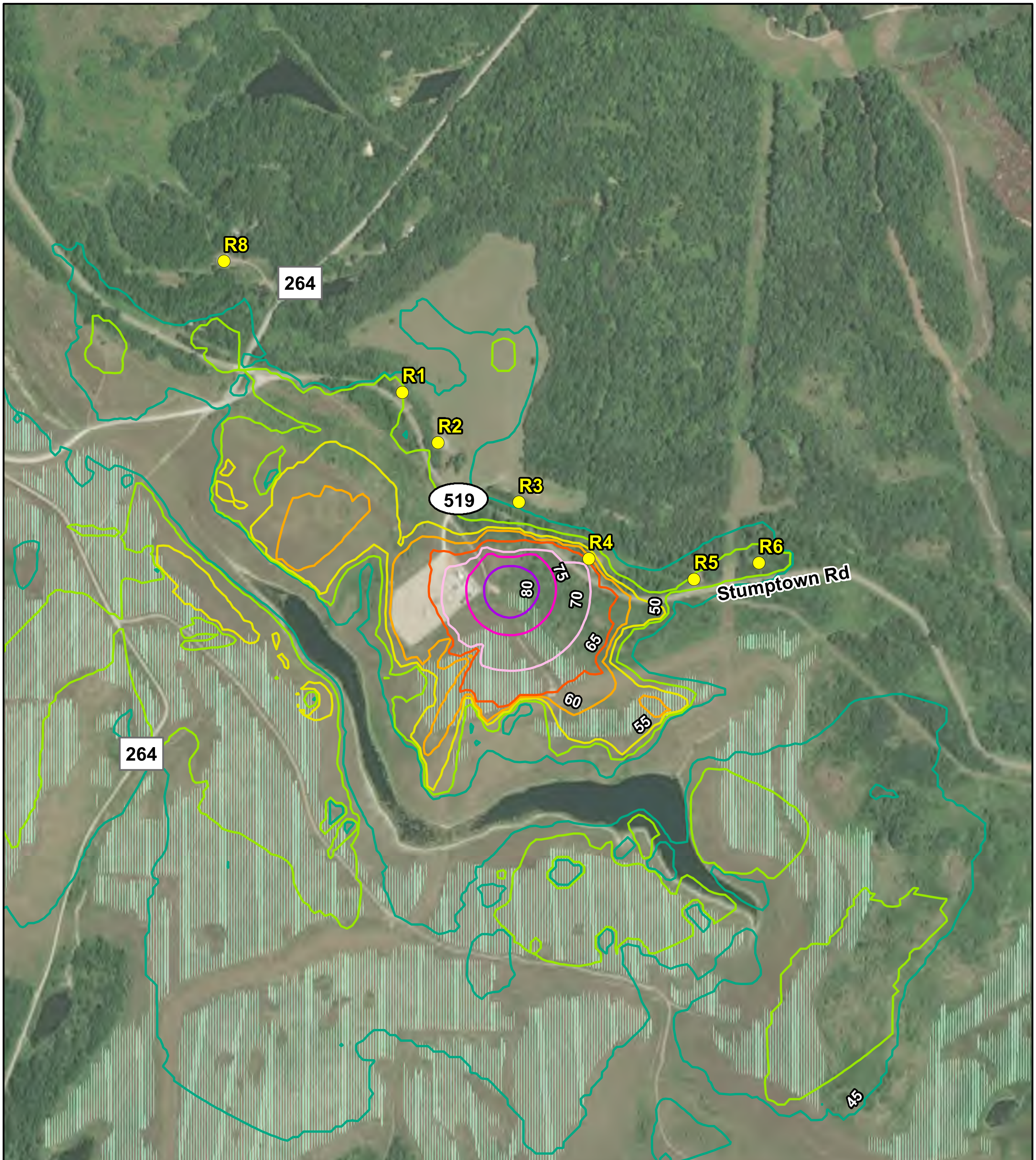
30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 6 - Inverter Pad Equipment Installation

Scale: 1:11,000



Modeled Receptors

Residences

Solar Arrays

0 1,000 2,000 Feet

0 300 600 Meters

Project Sound

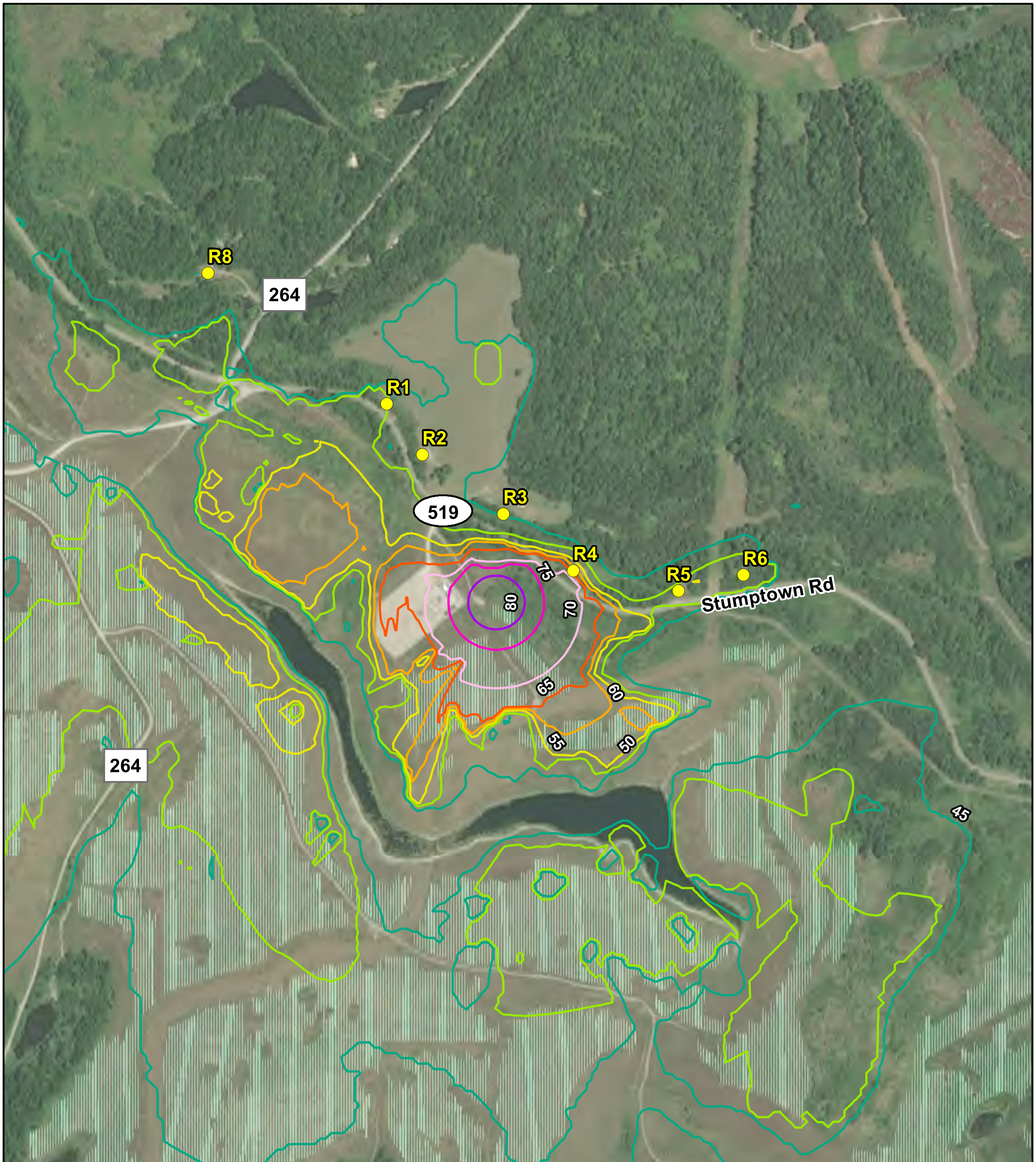
30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

N

Figure 7 - Piling Sound Pressure Level Contours

Scale: 1:10,000

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Modeled Receptors

Residences

Solar Arrays

0 1,000 2,000 Feet

0 300 600 Meters

Project Sound

30 dBA
35 dBA
40 dBA
45 dBA
50 dBA
55 dBA
60 dBA
65 dBA
70 dBA
75 dBA
80 dBA

N

Figure 8 - Racking Sound Pressure Level Contours

Scale: 1:10,000

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX

B

MONITORING LOCATIONS PHOTOGRAPHS

APPENDIX B

Noise Monitoring Location M1

z

Noise Monitoring Location M2

APPENDIX B

Noise Monitoring Location M3

Noise Monitoring Location M4

APPENDIX B

Weather Station

APPENDIX

C

MODELED EQUIPMENT IN OPERATIONAL ANALYSIS

APPENDIX C

Operational Source Type	Sound Power Level (dBA)	Coordinates (UTM NAD83, meters)		
		X	Y	Height
Array Inverter	89	493387	4450402	1.7
Array Inverter	89	493372	4450113	1.7
Array Inverter	89	493794	4450204	1.7
Array Inverter	89	493904	4449934	1.7
Array Inverter	89	494101	4449702	1.7
Array Inverter	89	493827	4449489	1.7
Array Inverter	89	493893	4449277	1.7
Array Inverter	89	493676	4449071	1.7
Array Inverter	89	493948	4448983	1.7
Array Inverter	89	493751	4448752	1.7
Array Inverter	89	494258	4449419	1.7
Array Inverter	89	494323	4449016	1.7
Array Inverter	89	494540	4449234	1.7
Array Inverter	89	494696	4448969	1.7
Array Inverter	89	494505	4448764	1.7
Array Inverter	89	494288	4448567	1.7
Array Inverter	89	494198	4448313	1.7
Array Inverter	89	494088	4448035	1.7
Array Inverter	89	495170	4449359	1.7
Array Inverter	89	494989	4448875	1.7
Array Inverter	89	494941	4448569	1.7
Array Inverter	89	495288	4448781	1.7
Array Inverter	89	495388	4448394	1.7
Array Inverter	89	495457	4449274	1.7
Array Inverter	89	495522	4448976	1.7
Array Inverter	89	495964	4448903	1.7
Array Inverter	89	495712	4448535	1.7
Array Inverter	89	495970	4448603	1.7
Array Inverter	89	496287	4448755	1.7
Array Inverter	89	496158	4448377	1.7
Array Inverter	89	495949	4448158	1.7
Array Inverter	89	495662	4448255	1.7
Array Transformer	66	493388	4450402	1.7
Array Transformer	66	493373	4450113	1.7
Array Transformer	66	493794	4450204	1.7
Array Transformer	66	493904	4449933	1.7
Array Transformer	66	494101	4449702	1.7
Array Transformer	66	493828	4449489	1.7
Array Transformer	66	493894	4449276	1.7
Array Transformer	66	493676	4449071	1.7
Array Transformer	66	493949	4448983	1.7
Array Transformer	66	493752	4448752	1.7
Array Transformer	66	494259	4449419	1.7
Array Transformer	66	494323	4449016	1.7
Array Transformer	66	494541	4449234	1.7
Array Transformer	66	494696	4448969	1.7
Array Transformer	66	494506	4448764	1.7
Array Transformer	66	494288	4448568	1.7
Array Transformer	66	494199	4448313	1.7
Array Transformer	66	494089	4448035	1.7

APPENDIX C

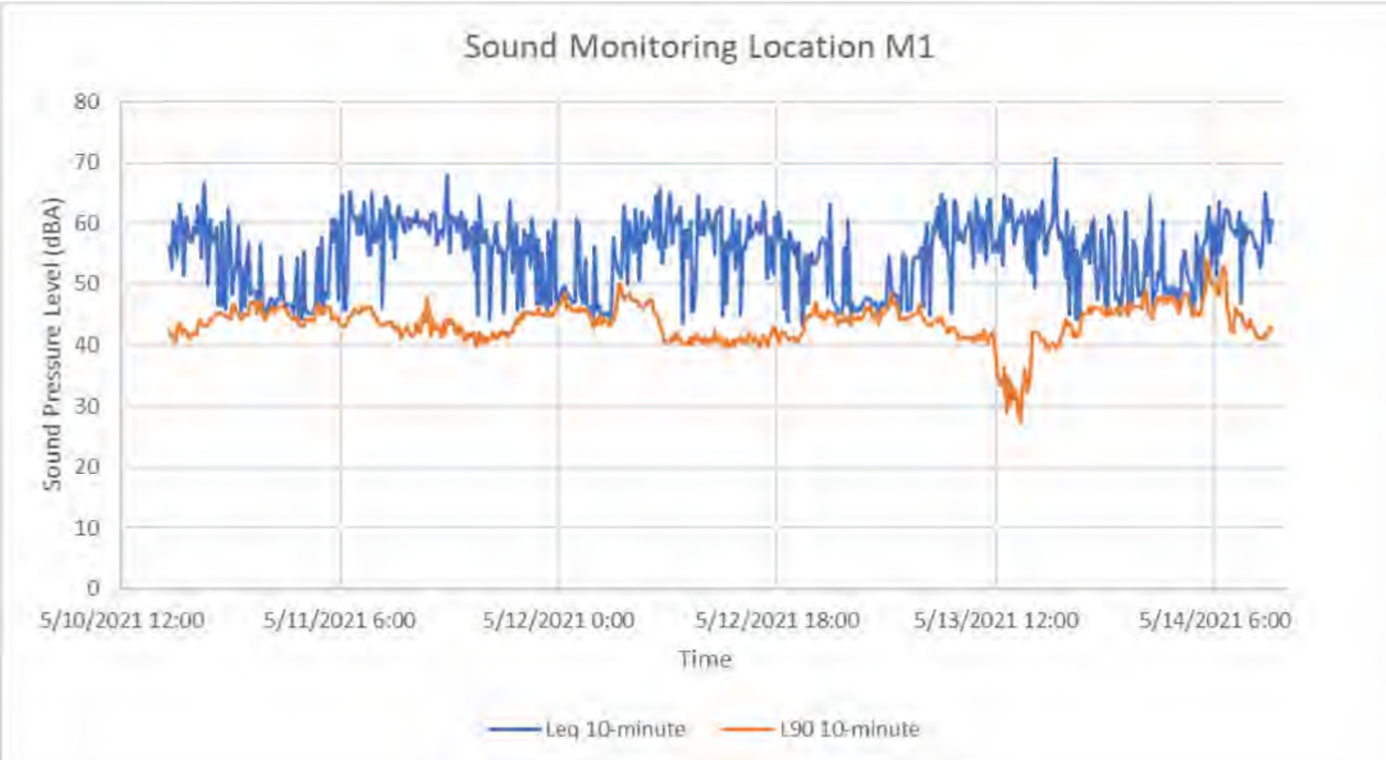
Array Transformer	66	495170	4449359	1.7
Array Transformer	66	494992	4448874	1.7
Array Transformer	66	494943	4448570	1.7
Array Transformer	66	495291	4448781	1.7
Array Transformer	66	495389	4448395	1.7
Array Transformer	66	495457	4449274	1.7
Array Transformer	66	495523	4448975	1.7
Array Transformer	66	495965	4448903	1.7
Array Transformer	66	495713	4448535	1.7
Array Transformer	66	495970	4448603	1.7
Array Transformer	66	496287	4448756	1.7
Array Transformer	66	496159	4448376	1.7
Array Transformer	66	495950	4448158	1.7
Array Transformer	66	495663	4448255	1.7
Substation Transformer	107	494797	4449716	2.8

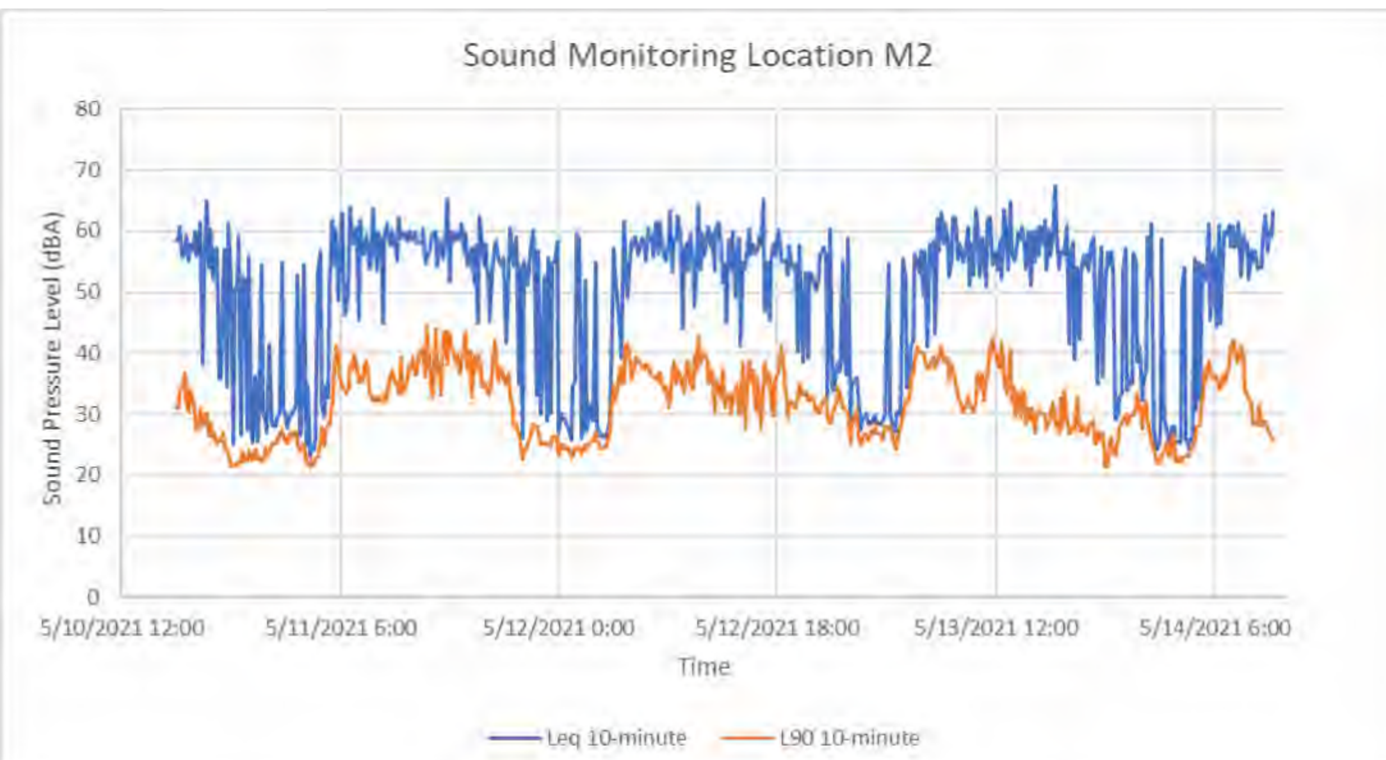
APPENDIX

D

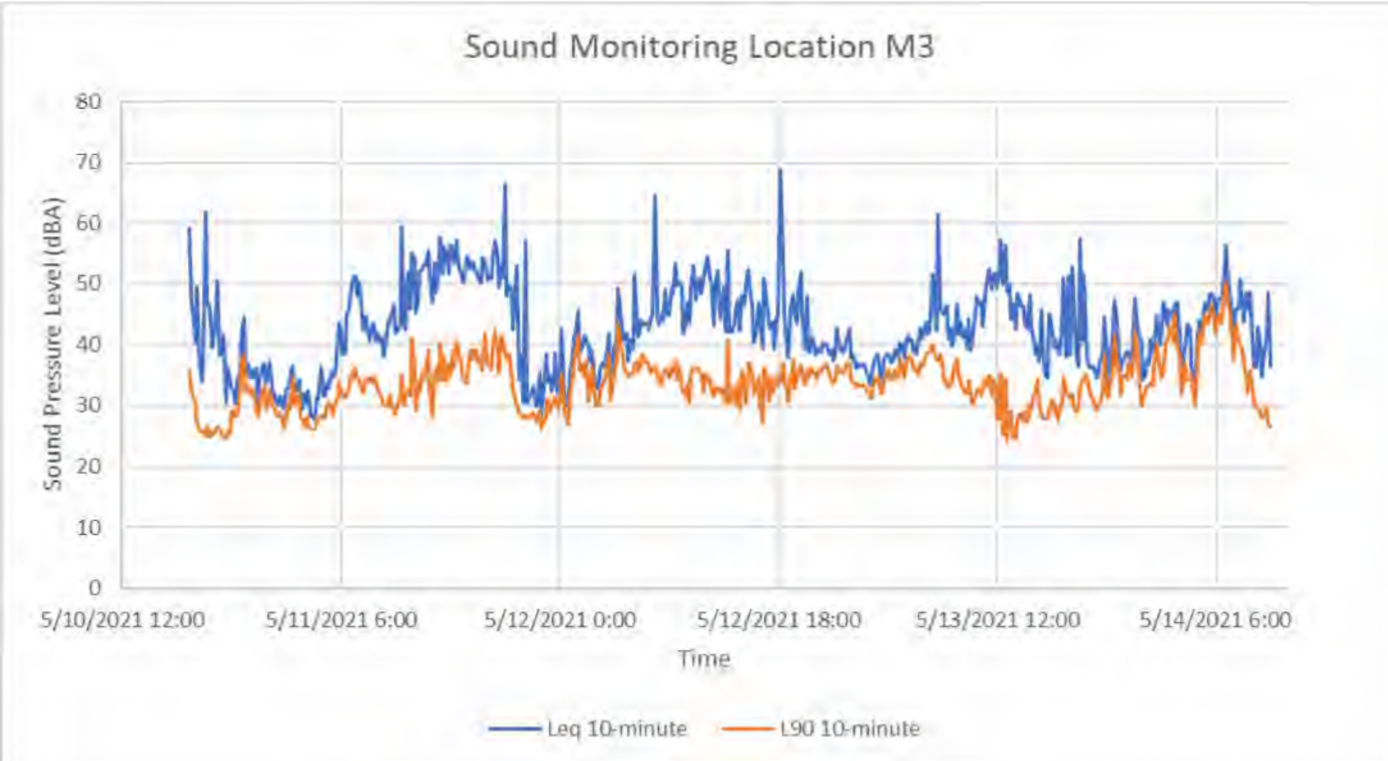
SOUND AND WEATHER MONITORING DATA

APPENDIX D

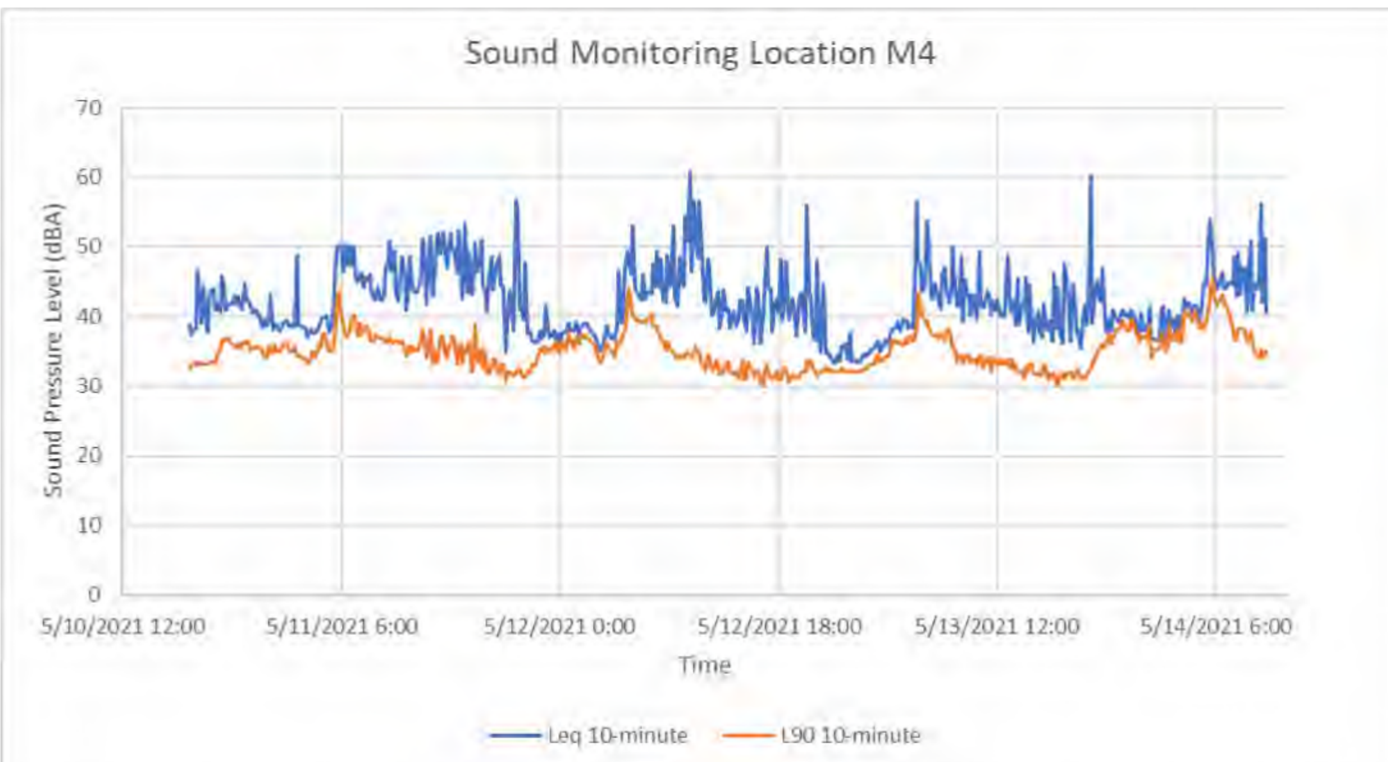

Sound Monitoring Location M1
Sound Pressure Level (dBA)
80
70
60
50
40
30
20
10
0
5/10/2021 12:00
5/11/2021 6:00
5/12/2021 0:00
5/12/2021 18:00
5/13/2021 12:00
5/14/2021 6:00
Time
Leq 10-minute
L90 10-minute


Sound Monitoring Location M2
Sound Pressure Level (dBA)
80
70
60
50
40
30
20
10
0
5/10/2021 12:00
5/11/2021 6:00
5/12/2021 0:00
5/12/2021 18:00
5/13/2021 12:00
5/14/2021 6:00
Time
Leq 10-minute
L90 10-minute

APPENDIX D



Sound Monitoring Location M3
Sound Pressure Level (dBA)
80
70
60
50
40
30
20
10
0
5/10/2021 12:00
5/11/2021 6:00
5/12/2021 0:00
5/12/2021 18:00
5/13/2021 12:00
5/14/2021 6:00
Time
Leq 10-minute
L90 10-minute



Sound Monitoring Location M4
Sound Pressure Level (dBA)
70
60
50
40
30
20
10
0
5/10/2021 12:00
5/11/2021 6:00
5/12/2021 0:00
5/12/2021 18:00
5/13/2021 12:00
5/14/2021 6:00
Time
Leq 10-minute
L90 10-minute

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/11/2021	2:00 PM	56	6
5/11/2021	2:10 PM	56	7
5/11/2021	2:20 PM	56	7
5/11/2021	2:30 PM	56	6
5/11/2021	2:40 PM	53	6
5/11/2021	2:50 PM	55	6
5/11/2021	3:00 PM	55	7
5/11/2021	3:10 PM	55	7
5/11/2021	3:20 PM	53	5
5/11/2021	3:30 PM	55	8
5/11/2021	3:40 PM	55	8
5/11/2021	3:50 PM	55	7
5/11/2021	4:00 PM	53	6
5/11/2021	4:10 PM	53	6
5/11/2021	4:20 PM	55	6
5/11/2021	4:30 PM	55	7
5/11/2021	4:40 PM	55	6
5/11/2021	4:50 PM	55	5
5/11/2021	5:00 PM	53	6
5/11/2021	5:10 PM	53	5
5/11/2021	5:20 PM	54	6
5/11/2021	5:30 PM	52	5
5/11/2021	5:40 PM	53	6
5/11/2021	5:50 PM	52	7
5/11/2021	6:00 PM	51	9
5/11/2021	6:10 PM	50	7
5/11/2021	6:20 PM	50	4
5/11/2021	6:30 PM	50	4
5/11/2021	6:40 PM	49	6
5/11/2021	6:50 PM	48	6
5/11/2021	7:00 PM	48	5
5/11/2021	7:10 PM	48	6
5/11/2021	7:20 PM	48	4
5/11/2021	7:30 PM	47	3
5/11/2021	7:40 PM	46	2
5/11/2021	7:50 PM	46	1
5/11/2021	8:00 PM	45	1
5/11/2021	8:10 PM	45	1
5/11/2021	8:20 PM	44	0
5/11/2021	8:30 PM	44	0
5/11/2021	8:40 PM	44	0
5/11/2021	8:50 PM	43	0
5/11/2021	9:00 PM	43	0

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/11/2021	9:10 PM	42	0
5/11/2021	9:20 PM	42	0
5/11/2021	9:30 PM	41	0
5/11/2021	9:40 PM	41	0
5/11/2021	9:50 PM	41	1
5/11/2021	10:00 PM	42	1
5/11/2021	10:10 PM	42	1
5/11/2021	10:20 PM	42	0
5/11/2021	10:30 PM	42	0
5/11/2021	10:40 PM	41	0
5/11/2021	10:50 PM	41	0
5/11/2021	11:00 PM	40	0
5/11/2021	11:10 PM	39	0
5/11/2021	11:20 PM	38	0
5/11/2021	11:30 PM	37	0
5/11/2021	11:40 PM	37	1
5/11/2021	11:50 PM	37	1
5/12/2021	12:00 AM	36	0
5/12/2021	12:10 AM	36	0
5/12/2021	12:20 AM	36	0
5/12/2021	12:30 AM	36	0
5/12/2021	12:40 AM	36	0
5/12/2021	12:50 AM	36	0
5/12/2021	1:00 AM	36	0
5/12/2021	1:10 AM	36	0
5/12/2021	1:20 AM	36	0
5/12/2021	1:30 AM	36	0
5/12/2021	1:40 AM	35	0
5/12/2021	1:50 AM	36	0
5/12/2021	2:00 AM	37	0
5/12/2021	2:10 AM	37	2
5/12/2021	2:20 AM	35	1
5/12/2021	2:30 AM	35	0
5/12/2021	2:40 AM	35	0
5/12/2021	2:50 AM	36	1
5/12/2021	3:00 AM	37	0
5/12/2021	3:10 AM	37	0
5/12/2021	3:20 AM	37	0
5/12/2021	3:30 AM	37	0
5/12/2021	3:40 AM	37	0
5/12/2021	3:50 AM	37	0
5/12/2021	4:00 AM	36	0
5/12/2021	4:10 AM	35	0

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/12/2021	4:20 AM	34	0
5/12/2021	4:30 AM	33	0
5/12/2021	4:40 AM	33	0
5/12/2021	4:50 AM	33	0
5/12/2021	5:00 AM	33	0
5/12/2021	5:10 AM	33	0
5/12/2021	5:20 AM	33	0
5/12/2021	5:30 AM	33	0
5/12/2021	5:40 AM	33	0
5/12/2021	5:50 AM	33	0
5/12/2021	6:00 AM	33	0
5/12/2021	6:10 AM	33	0
5/12/2021	6:20 AM	33	0
5/12/2021	6:30 AM	34	0
5/12/2021	6:40 AM	34	0
5/12/2021	6:50 AM	35	0
5/12/2021	7:00 AM	37	0
5/12/2021	7:10 AM	38	0
5/12/2021	7:20 AM	39	1
5/12/2021	7:30 AM	40	1
5/12/2021	7:40 AM	42	2
5/12/2021	7:50 AM	44	5
5/12/2021	8:00 AM	45	6
5/12/2021	8:10 AM	45	6
5/12/2021	8:20 AM	46	6
5/12/2021	8:30 AM	47	7
5/12/2021	8:40 AM	48	8
5/12/2021	8:50 AM	49	6
5/12/2021	9:00 AM	49	6
5/12/2021	9:10 AM	50	7
5/12/2021	9:20 AM	51	6
5/12/2021	9:30 AM	51	6
5/12/2021	9:40 AM	52	6
5/12/2021	9:50 AM	53	7
5/12/2021	11:00 AM	54	8
5/12/2021	11:10 AM	55	8
5/12/2021	11:20 AM	54	7
5/12/2021	11:30 AM	54	8
5/12/2021	11:40 AM	54	7
5/12/2021	11:50 AM	55	7
5/12/2021	12:00 PM	56	8
5/12/2021	12:10 PM	56	9
5/12/2021	12:20 PM	56	8

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/12/2021	12:30 PM	56	7
5/12/2021	12:40 PM	55	9
5/12/2021	12:50 PM	58	5
5/12/2021	1:00 PM	59	4
5/12/2021	1:10 PM	58	6
5/12/2021	1:20 PM	56	6
5/12/2021	1:30 PM	58	6
5/12/2021	1:40 PM	58	7
5/12/2021	1:50 PM	59	6
5/12/2021	2:00 PM	57	8
5/12/2021	2:10 PM	58	7
5/12/2021	2:20 PM	59	4
5/12/2021	2:30 PM	58	6
5/12/2021	2:40 PM	58	5
5/12/2021	2:50 PM	58	5
5/12/2021	3:00 PM	59	3
5/12/2021	3:10 PM	59	4
5/12/2021	3:20 PM	58	7
5/12/2021	3:30 PM	59	6
5/12/2021	3:40 PM	60	8
5/12/2021	3:50 PM	58	7
5/12/2021	4:00 PM	57	8
5/12/2021	4:10 PM	59	6
5/12/2021	4:20 PM	58	7
5/12/2021	4:30 PM	57	6
5/12/2021	4:40 PM	58	5
5/12/2021	4:50 PM	60	4
5/12/2021	5:00 PM	59	6
5/12/2021	5:10 PM	58	8
5/12/2021	5:20 PM	59	8
5/12/2021	5:30 PM	58	7
5/12/2021	5:40 PM	58	4
5/12/2021	5:50 PM	57	3
5/12/2021	6:00 PM	57	7
5/12/2021	6:10 PM	58	6
5/12/2021	6:20 PM	60	6
5/12/2021	6:30 PM	58	9
5/12/2021	6:40 PM	57	8
5/12/2021	6:50 PM	58	5
5/12/2021	7:00 PM	58	4
5/12/2021	7:10 PM	58	5
5/12/2021	7:20 PM	57	5
5/12/2021	7:30 PM	56	6

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/12/2021	7:40 PM	56	7
5/12/2021	7:50 PM	56	7
5/12/2021	8:00 PM	55	6
5/12/2021	8:10 PM	54	5
5/12/2021	8:20 PM	52	4
5/12/2021	8:30 PM	51	4
5/12/2021	8:40 PM	50	4
5/12/2021	8:50 PM	49	4
5/12/2021	9:00 PM	48	4
5/12/2021	9:10 PM	48	4
5/12/2021	9:20 PM	48	4
5/12/2021	9:30 PM	48	4
5/12/2021	9:40 PM	47	4
5/12/2021	9:50 PM	47	4
5/12/2021	10:00 PM	46	4
5/12/2021	10:10 PM	46	4
5/12/2021	10:20 PM	48	4
5/12/2021	10:30 PM	48	4
5/12/2021	10:40 PM	48	5
5/12/2021	10:50 PM	47	5
5/12/2021	11:00 PM	47	5
5/12/2021	11:10 PM	46	5
5/12/2021	11:20 PM	45	4
5/12/2021	11:30 PM	44	3
5/12/2021	11:40 PM	43	4
5/12/2021	11:50 PM	44	5
5/13/2021	12:00 AM	45	5
5/13/2021	12:10 AM	44	5
5/13/2021	12:20 AM	45	5
5/13/2021	12:30 AM	44	4
5/13/2021	12:40 AM	43	4
5/13/2021	12:50 AM	43	4
5/13/2021	1:00 AM	42	3
5/13/2021	1:10 AM	41	4
5/13/2021	1:20 AM	43	3
5/13/2021	1:30 AM	42	1
5/13/2021	1:40 AM	43	2
5/13/2021	1:50 AM	43	3
5/13/2021	2:00 AM	44	1
5/13/2021	2:10 AM	44	3
5/13/2021	2:20 AM	43	3
5/13/2021	2:30 AM	44	1
5/13/2021	2:40 AM	43	0

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/13/2021	2:50 AM	41	2
5/13/2021	3:00 AM	41	3
5/13/2021	3:10 AM	40	0
5/13/2021	3:20 AM	40	0
5/13/2021	3:30 AM	39	0
5/13/2021	3:40 AM	38	0
5/13/2021	3:50 AM	37	0
5/13/2021	4:00 AM	37	0
5/13/2021	4:10 AM	36	0
5/13/2021	4:20 AM	37	0
5/13/2021	4:30 AM	37	1
5/13/2021	4:40 AM	38	1
5/13/2021	4:50 AM	39	1
5/13/2021	5:00 AM	39	2
5/13/2021	5:10 AM	39	2
5/13/2021	5:20 AM	39	2
5/13/2021	5:30 AM	39	2
5/13/2021	5:40 AM	38	2
5/13/2021	5:50 AM	37	1
5/13/2021	6:00 AM	37	1
5/13/2021	6:10 AM	36	2
5/13/2021	6:20 AM	36	2
5/13/2021	6:30 AM	36	3
5/13/2021	6:40 AM	36	2
5/13/2021	6:50 AM	36	2
5/13/2021	7:00 AM	37	2
5/13/2021	7:10 AM	38	3
5/13/2021	7:20 AM	38	3
5/13/2021	7:30 AM	39	4
5/13/2021	7:40 AM	40	4
5/13/2021	7:50 AM	41	4
5/13/2021	8:00 AM	42	4
5/13/2021	8:10 AM	43	3
5/13/2021	8:20 AM	44	4
5/13/2021	8:30 AM	45	4
5/13/2021	8:40 AM	46	5
5/13/2021	8:50 AM	47	6
5/13/2021	9:00 AM	48	5
5/13/2021	9:10 AM	49	4
5/13/2021	9:20 AM	50	4
5/13/2021	9:30 AM	51	4
5/13/2021	9:40 AM	52	5
5/13/2021	9:50 AM	52	5

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/13/2021	10:00 AM	54	5
5/13/2021	10:10 AM	55	3
5/13/2021	10:20 AM	56	5
5/13/2021	10:30 AM	57	4
5/13/2021	10:40 AM	57	6
5/13/2021	10:50 AM	58	7
5/13/2021	11:00 AM	59	5
5/13/2021	11:10 AM	59	6
5/13/2021	11:20 AM	59	8
5/13/2021	11:30 AM	60	7
5/13/2021	11:40 AM	60	5
5/13/2021	11:50 AM	61	6
5/13/2021	12:00 PM	61	6
5/13/2021	12:10 PM	60	8
5/13/2021	12:20 PM	60	7
5/13/2021	12:30 PM	61	8
5/13/2021	12:40 PM	62	5
5/13/2021	12:50 PM	63	5
5/13/2021	1:00 PM	63	2
5/13/2021	1:10 PM	63	5
5/13/2021	1:20 PM	61	7
5/13/2021	1:30 PM	62	6
5/13/2021	1:40 PM	62	5
5/13/2021	1:50 PM	63	5
5/13/2021	2:00 PM	62	5
5/13/2021	2:10 PM	62	5
5/13/2021	2:20 PM	62	6
5/13/2021	2:30 PM	61	7
5/13/2021	2:40 PM	62	3
5/13/2021	2:50 PM	64	5
5/13/2021	3:00 PM	63	5
5/13/2021	3:10 PM	61	4
5/13/2021	3:20 PM	60	4
5/13/2021	3:30 PM	60	4
5/13/2021	3:40 PM	62	2
5/13/2021	3:50 PM	62	1
5/13/2021	4:00 PM	62	3
5/13/2021	4:10 PM	62	3
5/13/2021	4:20 PM	64	3
5/13/2021	4:30 PM	63	4
5/13/2021	4:40 PM	62	5
5/13/2021	4:50 PM	61	3
5/13/2021	5:00 PM	62	6

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/13/2021	5:10 PM	63	5
5/13/2021	5:20 PM	64	3
5/13/2021	5:30 PM	62	4
5/13/2021	5:40 PM	61	7
5/13/2021	5:50 PM	61	2
5/13/2021	6:00 PM	61	2
5/13/2021	6:10 PM	61	1
5/13/2021	6:20 PM	61	2
5/13/2021	6:30 PM	62	2
5/13/2021	6:40 PM	64	1
5/13/2021	6:50 PM	62	4
5/13/2021	7:00 PM	61	4
5/13/2021	7:10 PM	60	3
5/13/2021	7:20 PM	58	4
5/13/2021	7:30 PM	56	3
5/13/2021	7:40 PM	56	2
5/13/2021	7:50 PM	56	1
5/13/2021	8:00 PM	55	0
5/13/2021	8:10 PM	55	0
5/13/2021	8:20 PM	55	0
5/13/2021	8:30 PM	55	0
5/13/2021	8:40 PM	54	0
5/13/2021	8:50 PM	53	0
5/13/2021	9:00 PM	53	0
5/13/2021	9:10 PM	52	0
5/13/2021	9:20 PM	52	0
5/13/2021	9:30 PM	51	0
5/13/2021	9:40 PM	50	0
5/13/2021	9:50 PM	51	0
5/13/2021	10:00 PM	50	0
5/13/2021	10:10 PM	50	0
5/13/2021	10:20 PM	49	0
5/13/2021	10:30 PM	48	0
5/13/2021	10:40 PM	47	0
5/13/2021	10:50 PM	47	0
5/13/2021	11:00 PM	47	0
5/13/2021	11:10 PM	47	0
5/13/2021	11:20 PM	46	0
5/13/2021	11:30 PM	46	0
5/13/2021	11:40 PM	45	0
5/13/2021	11:50 PM	44	0
5/14/2021	12:00 AM	44	0
5/14/2021	12:10 AM	44	1

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/14/2021	12:20 AM	44	1
5/14/2021	12:30 AM	44	0
5/14/2021	12:40 AM	44	0
5/14/2021	12:50 AM	44	0
5/14/2021	1:00 AM	44	0
5/14/2021	1:10 AM	43	1
5/14/2021	1:20 AM	43	0
5/14/2021	1:30 AM	43	0
5/14/2021	1:40 AM	43	0
5/14/2021	1:50 AM	42	0
5/14/2021	2:00 AM	41	0
5/14/2021	2:10 AM	41	0
5/14/2021	2:20 AM	40	0
5/14/2021	2:30 AM	40	0
5/14/2021	2:40 AM	40	0
5/14/2021	2:50 AM	40	0
5/14/2021	3:00 AM	40	0
5/14/2021	3:10 AM	40	0
5/14/2021	3:20 AM	40	0
5/14/2021	3:30 AM	40	0
5/14/2021	3:40 AM	39	0
5/14/2021	3:50 AM	39	0
5/14/2021	4:00 AM	39	0
5/14/2021	4:10 AM	39	0
5/14/2021	4:20 AM	39	0
5/14/2021	4:30 AM	39	0
5/14/2021	4:40 AM	39	0
5/14/2021	4:50 AM	40	0
5/14/2021	5:00 AM	40	0
5/14/2021	5:10 AM	39	0
5/14/2021	5:20 AM	39	0
5/14/2021	5:30 AM	39	0
5/14/2021	5:40 AM	39	0
5/14/2021	5:50 AM	38	0
5/14/2021	6:00 AM	38	0
5/14/2021	6:10 AM	39	0
5/14/2021	6:20 AM	39	0
5/14/2021	6:30 AM	38	0
5/14/2021	6:40 AM	39	0
5/14/2021	6:50 AM	39	0
5/14/2021	7:00 AM	40	0
5/14/2021	7:10 AM	41	0
5/14/2021	7:20 AM	42	1

APPENDIX D

Date	Time	Temperature (°F)	Windspeed (mph)
5/14/2021	7:30 AM	42	3
5/14/2021	7:40 AM	42	3
5/14/2021	7:50 AM	43	2
5/14/2021	8:00 AM	43	0
5/14/2021	8:10 AM	43	0
5/14/2021	8:20 AM	45	0
5/14/2021	8:30 AM	48	0
5/14/2021	8:40 AM	50	0
5/14/2021	8:50 AM	52	0
5/14/2021	9:00 AM	54	2
5/14/2021	9:10 AM	55	2
5/14/2021	9:20 AM	55	0
5/14/2021	9:30 AM	56	1
5/14/2021	9:40 AM	57	1
5/14/2021	9:50 AM	57	2
5/14/2021	10:00 AM	58	1