

Appendix E Noise Calculations

Field Photos

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Photograph 1. LT-I Looking East



Photograph 2. LT-I Looking North

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Photograph 3. LT-I Looking South



Photograph 4. LT-I Looking West

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Photograph 5. LT-2 Looking East



Photograph 6. LT-2 Looking North

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Photograph 9. ST-I Looking East



Photograph 10. ST-I Looking North

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Photograph 7. LT-2 Looking South



Photograph 8. LT-2 Looking West

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Photograph 11. ST-I Looking South



Photograph 12. ST-I Looking West

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Photograph 13. ST-2 Looking East



Photograph 14. ST-2 Looking North

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Photograph 15. ST-2 Looking South



Photograph 16. ST-2 Looking West

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Photograph 17. ST-3 Looking East



Photograph 18. ST-3 Looking North

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Photograph 19. ST-3 Looking South



Photograph 20. ST-3 Looking West

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Photograph 21. ST-4 Looking East



Photograph 22. ST-4 Looking North

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Photograph 23. ST-4 Looking South



Photograph 24. ST-4 Looking West

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Photograph 25. ST-5 Looking East



Photograph 26. ST-5 Looking North

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Photograph 27. ST-5 Looking South



Photograph 28. ST-5 Looking West

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Field Sheets

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FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave widening PROJ. # 00520.19

SITE IDENTIFICATION: ST1 OBSERVER(S): JCR
 ADDRESS: Clark Field
 START DATE / TIME: 1/21/20 12:31p END DATE / TIME: 1/21/20 12:51pm

METEOROLOGICAL CONDITIONS:
 TEMP: 64 °F HUMIDITY: 49.4 %R.H. WIND: CALM ~~LIGHT~~ MODERATE VARIABLE
 WINDSPEED: 2-3 MPH DIR: N NE E SE (S) SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVCST PRTLY CLOUDY FOG RAIN OTHER:

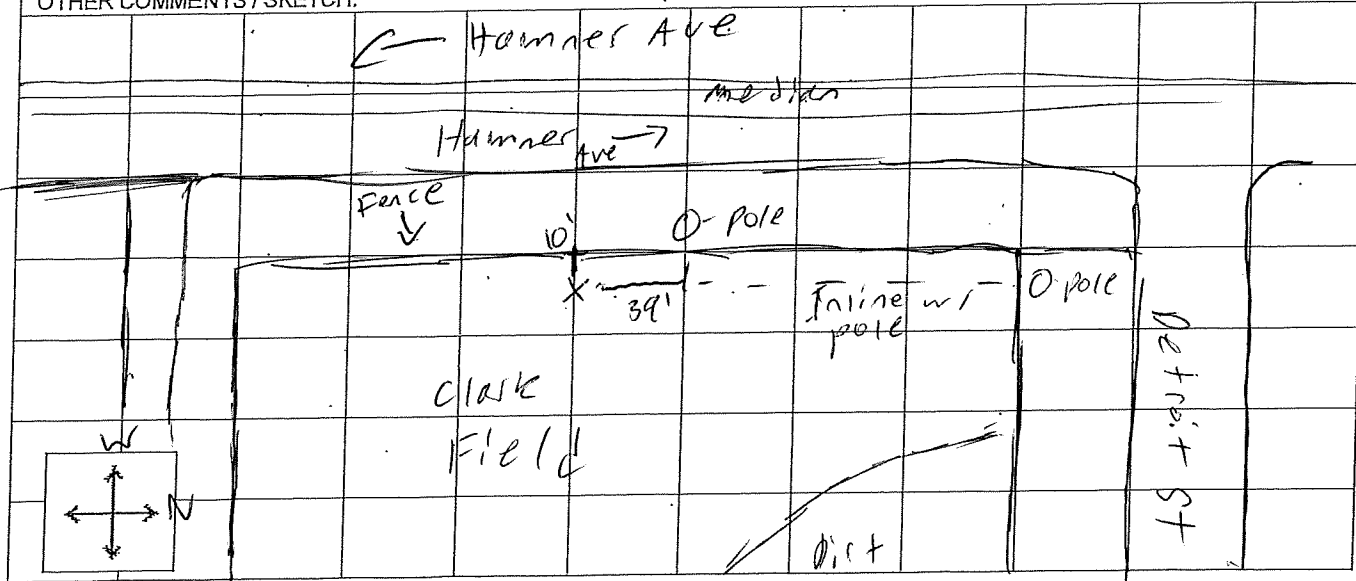
ACOUSTIC MEASUREMENTS:
 INSTRUMENT: LD 831 TYPE: (1) 2 SERIAL #: 3786
 CALIBRATOR: CAL 700 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 113.98 WINDSCREEN X
 SETTINGS: A-WEIGHTED (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

FILE / MEAS #	START TIME	END TIME	L									
			L _{eq}	max	1.67	8.33	25	50	90	99	min	
<u>027</u>	<u>12:31</u>	<u>12:51</u>	<u>61.5</u>	<u>74.5</u>	<u>66.7</u>	<u>64.9</u>	<u>62.4</u>	<u>60.1</u>	<u>54.8</u>	<u>52.1</u>	<u>49.2</u>	

COMMENTS:

NOISE SOURCE INFO:
 PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
 ROADWAY TYPE:
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / (BIRDS) / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
 TERRAIN: HARD SOFT (MIXED) FLAT OTHER:
 PHOTOS:
 OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave widening PROJ. # 00620.19

SITE IDENTIFICATION: ST 2 OBSERVER(S): JCR
 ADDRESS: Property lot near 4142 Acacia Ave
 START DATE / TIME: 1/21/20 11:59 AM END DATE / TIME: 1/21/20 12:19 PM

METEOROLOGICAL CONDITIONS:
 TEMP: 59 °F HUMIDITY: 45 %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: 2-3 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVCST PRTLY CLOUDY FOG RAIN OTHER: _____

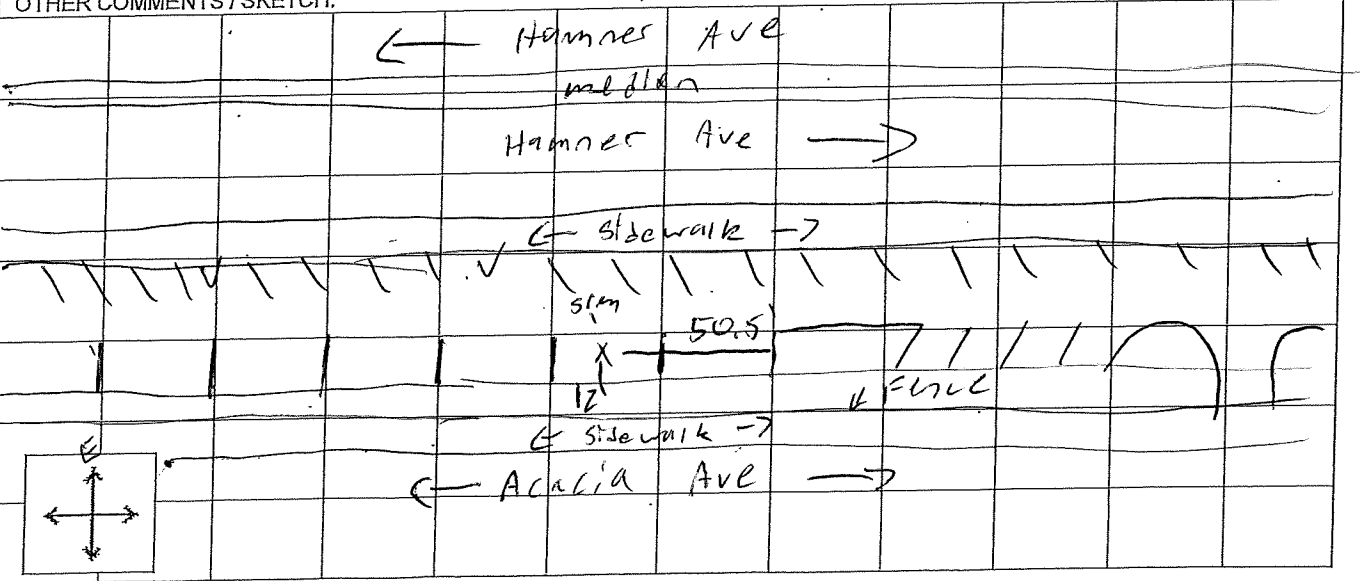
ACOUSTIC MEASUREMENTS:
 INSTRUMENT: LD 831 TYPE: A 2 SERIAL #: 3786
 CALIBRATOR: CAL 200 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 113.40 WINDSCREEN X
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L _{eq}	max	1.67	8.33	25	50	90	99	min
<u>.026</u>	<u>11:59</u>	<u>12:19</u>	<u>65.7</u>	<u>78.9</u>	<u>74.5</u>	<u>68.2</u>	<u>66.2</u>	<u>63.5</u>	<u>56.4</u>	<u>51.2</u>	<u>50.5</u>

COMMENTS:

NOISE SOURCE INFO:
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
 ROADWAY TYPE: _____
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: _____

DESCRIPTION / SKETCH:
 TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
 PHOTOS: _____
 OTHER COMMENTS / SKETCH: _____



FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave Widening PROJ. # 00 620.19

SITE IDENTIFICATION: ST3 OBSERVER(S): JCK
 ADDRESS: Silver Lakes Recreation & Sports park 6565 Hammer Ave
 START DATE / TIME: 1/21/20 - 10:38 AM END DATE / TIME: 1/21/20 - 10:58 AM

METEOROLOGICAL CONDITIONS:
 TEMP: 65 °F HUMIDITY: 42 %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: 2-3 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVCST PRTLY CLOUDY FOG RAIN OTHER: _____

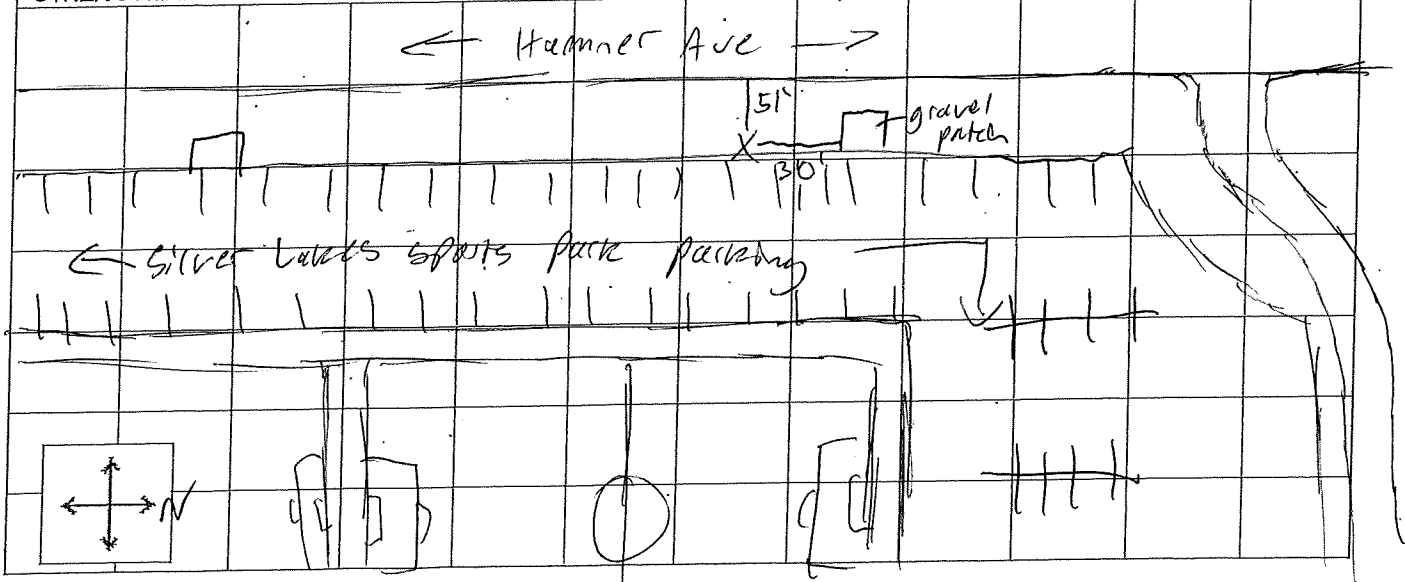
ACOUSTIC MEASUREMENTS:
 INSTRUMENT: LP 831 TYPE: 2 SERIAL #: 3786
 CALIBRATOR: CAL 200 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 114.03 WINDSCREEN: X
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L _{eq}	max	1.67	8.33	25	50	90	99	min
<u>.024</u>	<u>10:38</u>	<u>10:58</u>	<u>54.8</u>	<u>69.4</u>	<u>65.2</u>	<u>62.8</u>	<u>60.9</u>	<u>58.8</u>	<u>54.5</u>	<u>52.3</u>	<u>51.6</u>

COMMENTS:

NOISE SOURCE INFO:
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
 ROADWAY TYPE: _____
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:
paused out landscaping vehicle (3 times)

DESCRIPTION / SKETCH:
 TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
 PHOTOS: _____
 OTHER COMMENTS / SKETCH: _____



FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave widening PROJ. # 00520.19

SITE IDENTIFICATION: ST 4 OBSERVER(S): JLR
 ADDRESS: open space near 7408 Shady Tree St
 START DATE / TIME: 1/21/20 9:50 Am END DATE / TIME: 1/21/20 10:10 Am

METEOROLOGICAL CONDITIONS:
 TEMP: 57 °F HUMIDITY: 52 %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: 01 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR FOG PRTLY CLOUDY FOG RAIN OTHER: _____

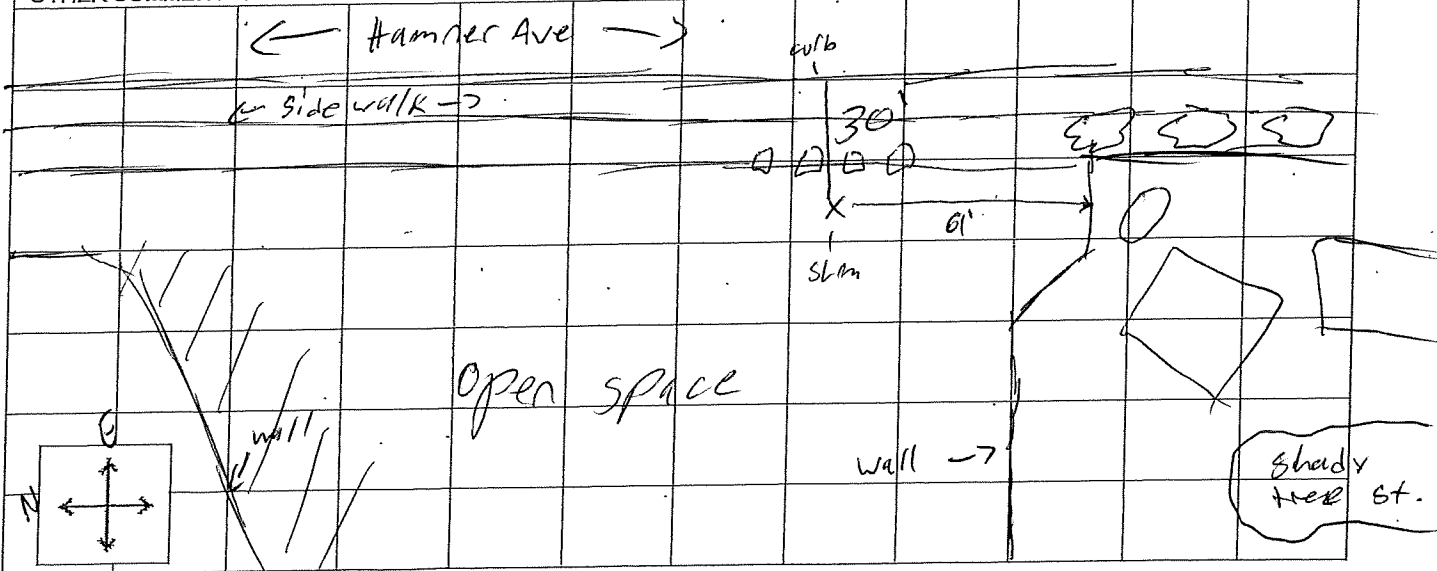
ACOUSTIC MEASUREMENTS:
 INSTRUMENT: LD 831 TYPE: 2 SERIAL #: 3786
 CALIBRATOR: CAL 200 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 114.0 AFTER 113.95 WINDSCREEN
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L									
			L _{eq}	max	1.67	8.33	25	50	90	99	min	
<u>023</u>	<u>9:50 Am</u>	<u>10:10</u>	<u>68.0</u>	<u>77.6</u>	<u>74.5</u>	<u>72.4</u>	<u>69.5</u>	<u>66.0</u>	<u>53.9</u>	<u>45.3</u>	<u>43.4</u>	

COMMENTS:

NOISE SOURCE INFO:
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
 ROADWAY TYPE: _____
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:
Roadway pavement is dry.

DESCRIPTION / SKETCH:
 TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
 PHOTOS: _____
 OTHER COMMENTS / SKETCH: _____



FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave Widening PROJ. # 00670.19

SITE IDENTIFICATION: <u>ST 5</u>	OBSERVER(S): <u>SCR</u>
ADDRESS: <u>between 7212 & 7222 Excelsior Dr</u>	END DATE / TIME: <u>1/21/20</u>
START DATE / TIME: <u>1/21/20, 11:23 AM</u>	

METEOROLOGICAL CONDITIONS:

TEMP: 70 °F HUMIDITY: 45 %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: 1-2 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVCST PRTLY CLOUDY FOG RAIN OTHER: _____

ACOUSTIC MEASUREMENTS:

INSTRUMENT: CD 831 TYPE: 1 2 SERIAL #: 3786
 CALIBRATOR: CAE 200 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 114.0 AFTER: 113.7 WINDSCREEN X
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L								
			L _{eq}	max	1.67	8.33	25	50	90	99	min
.025	11:23	11:43	54.1	67.7	64.3	59.1	51.6	48.7	44.5	42.8	41.9

COMMENTS:
paused out low flying aircraft.
paused out helicopters

NOISE SOURCE INFO:

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____

ROADWAY TYPE: _____

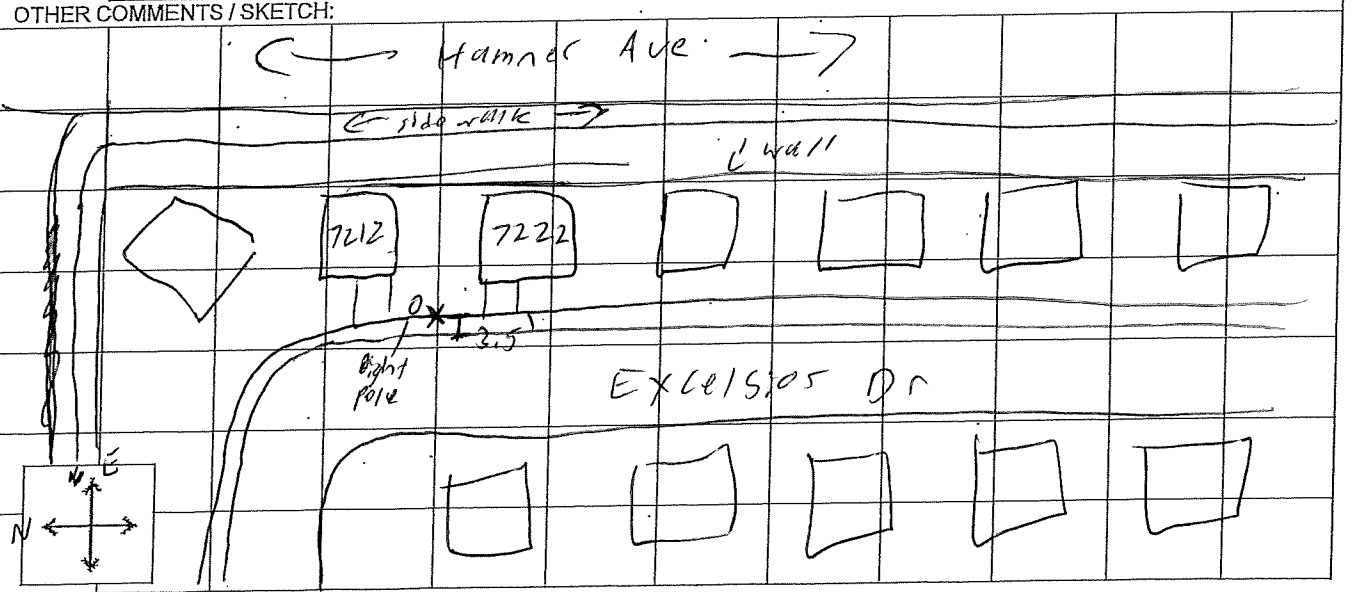
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: _____

DESCRIPTION / SKETCH:

TERRAIN: HARD SOFT MIXED FLAT OTHER: _____

PHOTOS: _____

OTHER COMMENTS / SKETCH: _____



FIELD NOISE MEASUREMENT DATA

PROJECT: Hammer Ave widening PROJ. # 00520.19

SITE IDENTIFICATION: LT 1 OBSERVER(S): XK
 ADDRESS: Road Near 7292 Excelsior Dr
 START DATE / TIME: 1/21/20 - 7:01 Am END DATE / TIME: 1/23/20 - 8:56 Am

METEROLOGICAL CONDITIONS:

TEMP: _____ °F HUMIDITY: _____ %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: _____ MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVRCAST PRTLY CLOUDY FOG RAIN OTHER: _____

ACOUSTIC MEASUREMENTS:

INSTRUMENT: pic #3 TYPE: 1 (2) SERIAL #: 3018
 CALIBRATOR: CAL 200 SERIAL #: 66015
 CALIBRATION CHECK, BEFORE: 94.0 AFTER 94.0 WINDSCREEN X
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L											
			L _{eq}	max	1.67	8.33	25	50	90	99	min			

COMMENTS: Started @ 7:01 Am mounted @ 440 km
Arrived @ 8:47 Am stopped @ 8:56 Am

NOISE SOURCE INFO:

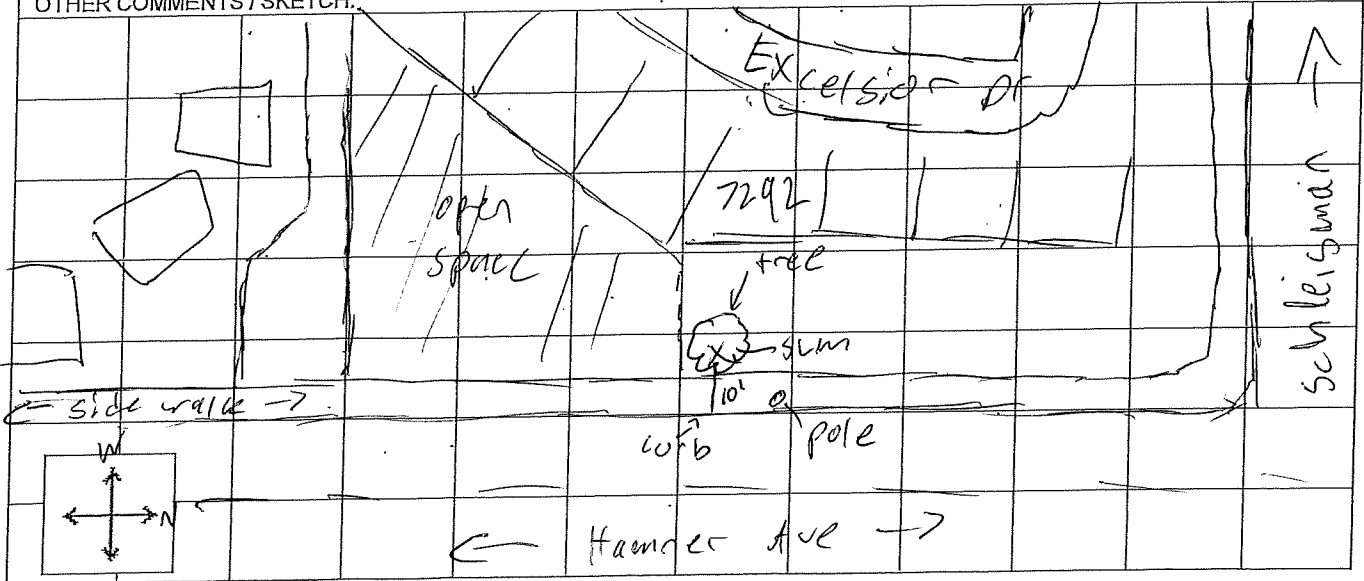
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
 ROADWAY TYPE: _____
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:

TERRAIN: HARD SOFT MIXED FLAT OTHER: _____

PHOTOS: _____

OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: Hamner Ave widening PROJ. # 00520.19

SITE IDENTIFICATION: LT 2 OBSERVER(S): SLK
 ADDRESS: Norco-Hammer Ave bus parking lot
 START DATE / TIME: 1/21/20 - 7:03 Am END DATE / TIME: 1/23/20 - 8:23 AM

METEROLOGICAL CONDITIONS:
 TEMP: _____ °F HUMIDITY: _____ %R.H. WIND: CALM LIGHT MODERATE VARIABLE
 WINDSPEED: _____ MPH DIR: N NE E SE S SW W NW STEADY GUSTY
 SKY: SUNNY CLEAR OVR CST PRTLY CLOUDY FOG RAIN OTHER: _____

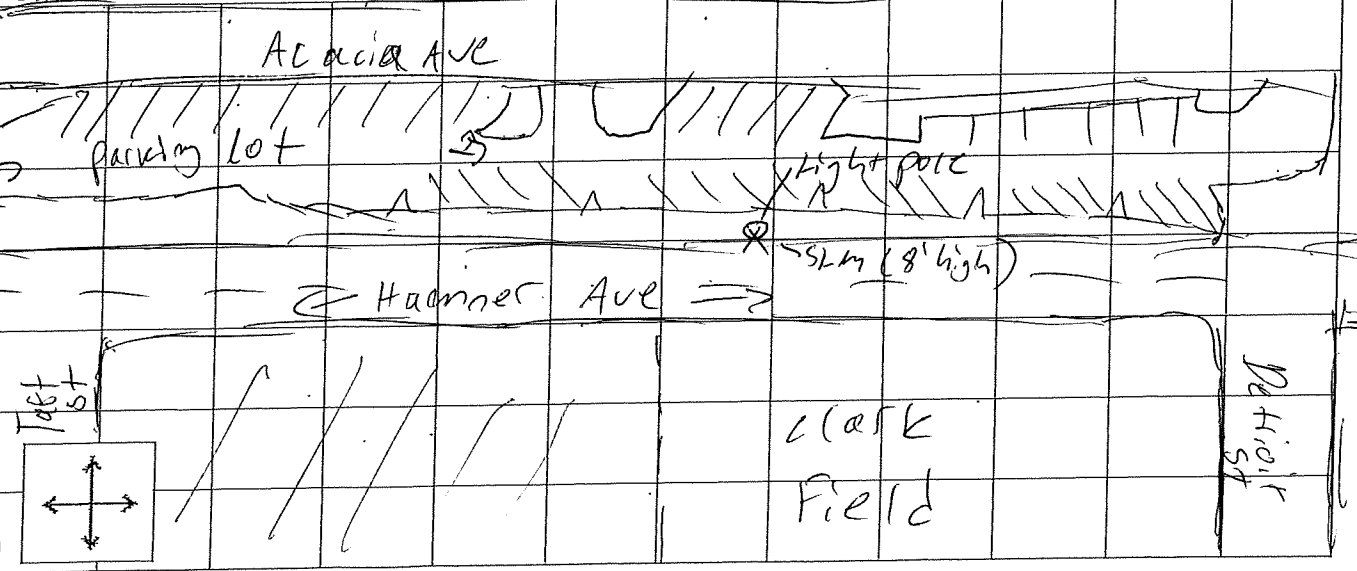
ACOUSTIC MEASUREMENTS:
 INSTRUMENT: YIC #2 TYPE: 1 SERIAL #: 3015
 CALIBRATOR: CAV 200 SERIAL #: 6645
 CALIBRATION CHECK, BEFORE: 94.0 AFTER: 93.9 WINDSCREEN: X
 SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L _{eq}	max	L							
					1.67	8.33	25	50	90	99	min	

COMMENTS: Mounted @ 9:10 Am
Arrived @ 8:19 Am, stopped @ 8:23 am

NOISE SOURCE INFO:
 PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
 ROADWAY TYPE: _____
 OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
 DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER: _____

DESCRIPTION / SKETCH:
 TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
 PHOTOS: _____
 OTHER COMMENTS / SKETCH: _____



Calibration Certificates

Calibration Certificate

Certificate Number 2019003009

Customer:

ICF
49 Discovery
Irvine, CA 92618, United States

Model Number	CAL200	Procedure Number	D0001.8386
Serial Number	6645	Technician	Scott Montgomery
Test Results	Pass	Calibration Date	8 Mar 2019
Initial Condition	Adjusted	Calibration Due	8 Mar 2020
Description	Larson Davis CAL200 Acoustic Calibrator	Temperature	25 °C ± 0.3 °C
		Humidity	33 %RH ± 3 %RH
		Static Pressure	101.3 kPa ± 1 kPa

Evaluation Method The data is acquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. **Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.**

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used

Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/06/2018	09/06/2019	001021
Larson Davis Model 2900 Real Time Analyzer	04/10/2018	04/10/2019	001051
Microphone Calibration System	03/04/2019	03/04/2020	005446
1/2" Preamplifier	09/20/2018	09/20/2019	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/07/2018	08/07/2019	006507
1/2 inch Microphone - RI - 200V	05/10/2018	05/10/2019	006510
Pressure Transducer	07/18/2018	07/18/2019	007368

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1681 West 820 North
Provo, UT 84601, United States
716-684-0001



Output Level

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
114	101.2	114.00	113.80	114.20	0.14	Pass
94	101.3	94.02	93.80	94.20	0.15	Pass

-- End of measurement results--

Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
114	101.2	1,000.18	990.00	1,010.00	0.20	Pass
94	101.3	1,000.20	990.00	1,010.00	0.20	Pass

-- End of measurement results--

Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
114	101.2	0.39	0.00	2.00	0.25 ‡	Pass
94	101.3	0.51	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Level Change Over Pressure

Tested at: 114 dB, 23 °C, 36 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
108.0	108.0	0.04	-0.30	0.30	0.04 ‡	Pass
101.3	101.2	0.00	-0.30	0.30	0.04 ‡	Pass
92.0	92.0	-0.03	-0.30	0.30	0.04 ‡	Pass
83.0	83.0	-0.03	-0.30	0.30	0.04 ‡	Pass
74.0	74.0	0.02	-0.30	0.30	0.04 ‡	Pass
65.0	65.0	0.15	-0.30	0.30	0.04 ‡	Pass

-- End of measurement results--

Frequency Change Over Pressure

Tested at: 114 dB, 23 °C, 36 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
108.0	108.0	0.00	-10.00	10.00	0.20 ‡	Pass
101.3	101.2	0.00	-10.00	10.00	0.20 ‡	Pass
92.0	92.0	0.00	-10.00	10.00	0.20 ‡	Pass
83.0	83.0	0.00	-10.00	10.00	0.20 ‡	Pass
74.0	74.0	0.00	-10.00	10.00	0.20 ‡	Pass
65.0	65.0	0.00	-10.00	10.00	0.20 ‡	Pass

-- End of measurement results--



Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 23 °C, 36 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
108.0	108.0	0.41	0.00	2.00	0.25 ‡	Pass
101.3	101.2	0.39	0.00	2.00	0.25 ‡	Pass
92.0	92.0	0.35	0.00	2.00	0.25 ‡	Pass
83.0	83.0	0.31	0.00	2.00	0.25 ‡	Pass
74.0	74.0	0.28	0.00	2.00	0.25 ‡	Pass
65.0	65.0	0.24	0.00	2.00	0.25 ‡	Pass

-- End of measurement results--

Signatory: Scott Montgomery

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 Provo, UT 84601, United States
 716-684-0001



Calibration Certificate

Certificate Number 2019003011

Customer:

ICF

49 Discovery

Irvine, CA 92618, United States

Model Number	831	Procedure Number	D0001.8384
Serial Number	0003786	Technician	Ron Harris
Test Results	Pass	Calibration Date	8 Mar 2019
Initial Condition	Inoperable	Calibration Due	8 Mar 2020
Description	Larson Davis Model 831 Class 1 Sound Level Meter Firmware Revision: 2.314	Temperature	23.59 °C ± 0.25 °C
		Humidity	48.8 %RH ± 2.0 %RH
		Static Pressure	84.61 kPa ± 0.13 kPa

Evaluation Method **Tested with:** **Data reported in dB re 20 µPa.**

Larson Davis PRM831. S/N 029611
PCB 377B02. S/N 312026
Larson Davis CAL200. S/N 9079
Larson Davis CAL291. S/N 0108

Compliance Standards Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2006) Type 1
IEC 61252:2002	ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005.

Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2015.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Correction data from Larson Davis Model 831 Sound Level Meter Manual, I831.01 Rev O, 2016-09-19

For 1/4" microphones, the Larson Davis ADP024 1/4" to 1/2" adaptor is used with the calibrators and the Larson Davis ADP043 1/4" to

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1/2" adaptor is used with the preamplifier.

Calibration Check Frequency: 1000 Hz; Reference Sound Pressure Level: 114 dB re 20 µPa; Reference Range: 0 dB gain

Periodic tests were performed in accordance with procedures from IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part3.

Pattern approval for IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1 successfully completed by Physikalisch-Technische Bundesanstalt (PTB) on 2016-02-24 certificate number DE-15-M-PTB-0056.

The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:2013 / ANSI/ASA S1.4-2014/Part 3, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organization responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013 / ANSI/ASA S1.4-2014/Part 2, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1; the sound level meter submitted for testing conforms to the class 1 specifications in IEC 61672-1:2013 / ANSI/ASA S1.4-2014/Part 1.

Description	Standards Used		
	Cal Date	Cal Due	Cal Standard
Larson Davis CAL291 Residual Intensity Calibrator	2018-09-19	2019-09-19	001250
SRS DS360 Ultra Low Distortion Generator	2018-06-21	2019-06-21	006311
Hart Scientific 2626-H Temperature Probe	2018-08-19	2019-08-19	006798
Larson Davis CAL200 Acoustic Calibrator	2018-07-24	2019-07-24	007027
Larson Davis Model 831	2019-02-22	2020-02-22	007182
PCB 377A13 1/2 inch Prepolarized Pressure Microphone	2019-03-06	2020-03-06	007185

Acoustic Calibration

Measured according to IEC 61672-3:2013 10 and ANSI S1.4-2014 Part 3: 10

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
1000 Hz	114.00	113.80	114.20	0.14	Pass

As Received Level: 112.20
Adjusted Level: 114.00

-- End of measurement results--

Acoustic Signal Tests, C-weighting

Measured according to IEC 61672-3:2013 12 and ANSI S1.4-2014 Part 3: 12 using a comparison coupler with Unit Under Test (UUT) and reference SLM using slow time-weighted sound level for compliance to IEC 61672-1:2013 5.5; ANSI S1.4-2014 Part 1: 5.5

Frequency [Hz]	Test Result [dB]	Expected [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
125	-0.19	-0.20	-1.20	0.80	0.23	Pass
1000	0.17	0.00	-0.70	0.70	0.23	Pass
8000	-2.90	-3.00	-5.50	-1.50	0.32	Pass

-- End of measurement results--



Self-generated Noise

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement	Test Result [dB]
A-weighted, 20 dB gain	40.13

-- End of measurement results--

-- End of Report--

Signatory: Ron Harris

LARSON DAVIS - A PCB PIEZOTRONICS DIV.
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



Scantek, Inc.

CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP[®]

CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No. 42405

Instrument: Sound Level Meter
Model: Piccolo (SLM-P3)
Manufacturer: Soft dB
Serial number: 140513018
ID number:
Tested with: Microphone

Customer: ICF International
Phone/Fax: 949-333-6619

Date Calibrated: 2/27/2019 **Due:** 2/27/2020
Status: Received | Sent
In tolerance: X | X
Out of tolerance: |
See comments: |
Contains non accredited tests: Yes No
Calibration service: Basic Standard
Address: 49 Discovery, Suite 250
Irvine, CA 92618

Tested in accordance with the following procedures and standards:

- Calibration of SLM & Dosimeters - Acoustical Tests, Scantek, Inc. Rev.7/6/2011

Instrumentation used for calibration:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence:	Cal. Due
				Cal. Lab / Accreditation	
1253 - Norsonic	Calibrator	25726	Nov 11, 2018	Scantek Inc. / NVLAP	Nov 11, 2019
4226 Bruel & Kjaer	Multifunction Calibrator	2305103	Sep 18, 2018	Bruel & Kjaer / A2LA	Sep 18, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA), and NPL (UK).

Environmental conditions

Temperature [°C]	Barometric Pressure [kPa]	Relative Humidity [%]
23.0	100.82	38.2

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	2/27/19	Date	2/5/2019

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Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS FROM PROCEDURES:	MET ^{1,2}	NOT MET ^{1,2}	NOT TESTED
Accuracy test: calibration w/ acoustical calibrator	X		
Level linearity test	X		
Differential linearity test	X		
Weighting network tests (A)	X		
Weighting network tests (C)	X		
Fast/Slow time constant test	X		
RMS crest factor test	X		
Steady state response test	X		
Integrating Functions Test (Leq/SEL Linearity):	X		

¹ The results of this calibration apply only to the instrument type with serial number identified above.

² Parameters are certified at actual environmental conditions.

Comments: The instrument was submitted to the selection of tests listed in the table above, and met the manufacturer specifications.

Measured Data: in Test Report # 42405 of three pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Phone/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory.

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Scantek, Inc.

CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCCL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP[®]

CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No. 42404

Instrument: Sound Level Meter
Model: Piccolo (SLM-P3)
Manufacturer: Soft dB
Serial number: 140513015
ID number:
Tested with: Microphone

Customer: ICF International
Phone/Fax: 949-333-6619

Date Calibrated: 2/27/2019 **Due:** 2/27/2020
Status:

Received	Sent
X	X

In tolerance:

X	X
---	---

Out of tolerance:

--	--

See comments:

--	--

Contains non accredited tests: Yes No
Calibration service: Basic Standard
Address: 49 Discovery, Suite 250
Irvine, CA 92618

Tested in accordance with the following procedures and standards:

- Calibration of SLM & Dosimeters - Acoustical Tests, Scantek, Inc. Rev.7/6/2011

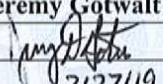
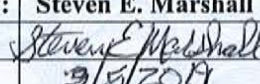
Instrumentation used for calibration:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence:	Cal. Due
				Cal. Lab / Accreditation	
1253 - Norsonic	Calibrator	25726	Nov 11, 2018	Scantek Inc. / NVLAP	Nov 11, 2019
4226 Bruel & Kjaer	Multifunction Calibrator	2305103	Sep 18, 2018	Bruel & Kjaer / A2LA	Sep 18, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA), and NPL (UK).

Environmental conditions

Temperature [°C]	Barometric Pressure [kPa]	Relative Humidity [%]
22.8	100.84	36.7

Calibrated by:	Jeremy Gotwalt	Authorized signatory:	Steven E. Marshall
Signature		Signature	
Date	2/27/19	Date	2/27/19

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This Calibration Certificate or Test Report shall not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS FROM PROCEDURES:	MET^{1,2}	NOT MET^{1,2}	NOT TESTED
Accuracy test: calibration w/ acoustical calibrator	X		
Level linearity test	X		
Differential linearity test	X		
Weighting network tests (A)	X		
Weighting network tests (C)	X		
Fast/Slow time constant test	X		
RMS crest factor test	X		
Steady state response test	X		
Integrating Functions Test (Leq/SEL Linearity):	X		

¹ The results of this calibration apply only to the instrument type with serial number identified above.

² Parameters are certified at actual environmental conditions.

Comments: The instrument was submitted to the selection of tests listed in the table above, and met the manufacturer specifications.

Measured Data: in Test Report # 42404 of three pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Phone/Fax: 410-290-7726/ -9167
callab@scantekinc.com

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This Calibration Certificate or Test Report shall not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 5/8/2020
 Case Description: Site Prep

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
com	Commercial	10	10	10

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor-1	No	43	84		50	0
Excacator-delete	No	38			80.7	0
Excacator-delete	No	38			80.7	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excacator-delete	80.7	76.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excacator-delete	80.7	76.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84	83	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
res	Residential	10	10	10

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor-1	No	43	84		50	0
Excacator-delete	No	38		80.7	50	0
Excacator-delete	No	38		80.7	50	0

Equipment	Results													
	Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excacator-delete	80.7	76.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excacator-delete	80.7	76.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84	83	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 5/8/2020
 Case Description: Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)			Equipment		
		Daytime	Evening	Night	Spec Lmax	Actual Lmax	Receptor Distance (feet)
com	Commercial	10	10	10			
					Usage%	(dBA)	Estimated Shielding (dBA)
Description	Device						
Grader-delete	No	41	85			50	0
Compressot (Air)-Delete	No	48		77.7		50	0
Compactor (ground) - delete	No	43		83.2		50	0
Generator	No	50		80.6		50	0
Pump - delete	No	74		80.9		50	0
Scraper-delete	No	48		83.6		50	0
Tractor-1	No	43	84			50	0
backhoe1	No	37		77.6		50	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader-delete	85	81.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressot (Air)-Delete	77.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground) - delete	83.2	79.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pump - delete	80.9	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper-delete	83.6	80.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
backhoe1	77.6	73.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)			
		Daytime	Evening	Night	
res	Residential	10	10	10	10

Description	Impact Device	Usage(%)	Equipment Spec		Receptor Distance (feet)	Estimated Shielding (dBA)
			Lmax (dBA)	Actual Lmax (dBA)		
Grader-delete	No	41	85		50	0
Compressot (Air)-Delete	No	48		77.7	50	0
Compactor (ground) - delete	No	43		83.2	50	0
Generator	No	50		80.6	50	0
Pump - delete	No	74		80.9	50	0
Scraper-delete	No	48		83.6	50	0
Tractor-1	No	43	84		50	0
backhoe1	No	37		77.6	50	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader-delete	85	81.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressot (Air)-Delete	77.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground) - delete	83.2	79.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pump - delete	80.9	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper-delete	83.6	80.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
backhoe1	77.6	73.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 5/8/2020
 Case Description: Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)			Equipment		
		Daytime	Evening	Night	Spec Lmax	Actual Lmax	Receptor Distance (feet)
com	Commercial	10	10	10			
Description	Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)	
						Shielding	Shielding
Grader-delete	No	41	85		50	0	0
Compressot (Air)-Delete	No	48		77.7	50	0	0
Compactor (ground) - delete	No	43		83.2	50	0	0
Generator	No	50		80.6	50	0	0
Pump - delete	No	74		80.9	50	0	0
Scraper-delete	No	48		83.6	50	0	0
Tractor-1	No	43	84		50	0	0
backhoe1	No	37		77.6	50	0	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		
Grader-delete	85	81.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressot (Air)-Delete	77.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground) - delete	83.2	79.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pump - delete	80.9	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper-delete	83.6	80.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
backhoe1	77.6	73.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
res	Residential	10	10	10

Description	Impact	Device	Usage(%)	Equipment			Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	
Grader-delete	No		41	85		50	0
Compressot (Air)-Delete	No		48		77.7	50	0
Compactor (ground) - delete	No		43		83.2	50	0
Generator	No		50		80.6	50	0
Pump - delete	No		74		80.9	50	0
Scraper-delete	No		48		83.6	50	0
Tractor-1	No		43	84		50	0
backhoe1	No		37		77.6	50	0

Equipment	Results													
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
Grader-delete	85	81.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressot (Air)-Delete	77.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground) - delete	83.2	79.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pump - delete	80.9	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper-delete	83.6	80.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor-1	84	80.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
backhoe1	77.6	73.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 5/8/2020
 Case Description: Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
com	Commercial	10	10	10

Description	Impact Device	Usage(%)	Equipment			Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)		
Paver - delete	No	42			77.2	50	0
Roller-delete	No	38			80	50	0
Pavement Scarafier	No	20			89.5	50	0

Equipment	Calculated (dBA)		Results						Noise Limit Exceedance (dBA)											
	*Lmax	Leq	Day			Evening			Night			Day			Evening			Night		
			Lmax	Leq	N/A	Lmax	Leq	N/A	Lmax	Leq	N/A	Lmax	Leq	N/A	Lmax	Leq	N/A	Lmax	Leq	N/A
Paver - delete	77.2	73.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller-delete	80	75.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.5	83.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Description	Land Use	---- Receptor #2 ----		
		Baselines (dBA)		
		Daytime	Evening	Night
res	Residential	10	10	10

Description	Impact Device	Usage(%)	Equipment			Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	
Paver - delete	No	42		77.2	50	0
Roller-delete	No	38		80	50	0
Pavement Scarafier	No	20		89.5	50	0

Equipment	Results													
	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
Paver - delete	77.2	73.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller-delete	80	75.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.5	84.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.