

New Jersey Turnpike Authority  
Newark Bay–Hudson County Extension  
Interchange 14 to Interchange 14A/ Newark Bay Bridge Replacement and  
Associated Improvements

## FINAL ENVIRONMENTAL ASSESSMENT APPENDIX D: NOISE ANALYSIS

*Submitted to:*



UNITED STATES COAST GUARD  
U.S. DEPARTMENT OF HOMELAND SECURITY

*Submitted by:*



New Jersey Turnpike Authority

April 18, 2025

## Appendix D-1

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Noise Prediction Roadway Network Figure

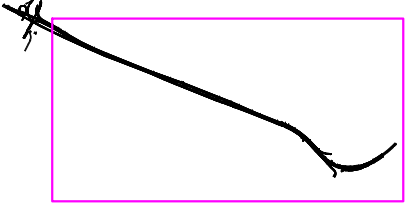




LEGEND

 Noise Modeling Roadway Link

KEY MAP



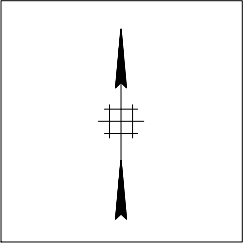
Date April 11, 2023

New Jersey Turnpike Authority  
Newark Bay Hudson County  
Extension

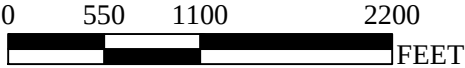
Figure D-1

Noise Modeling Roadway Network

Drawn by: M. Amabile      Checked by: S.P. Carpenter  
Paul Carpenter Associates, Inc.



PROJECT NORTH



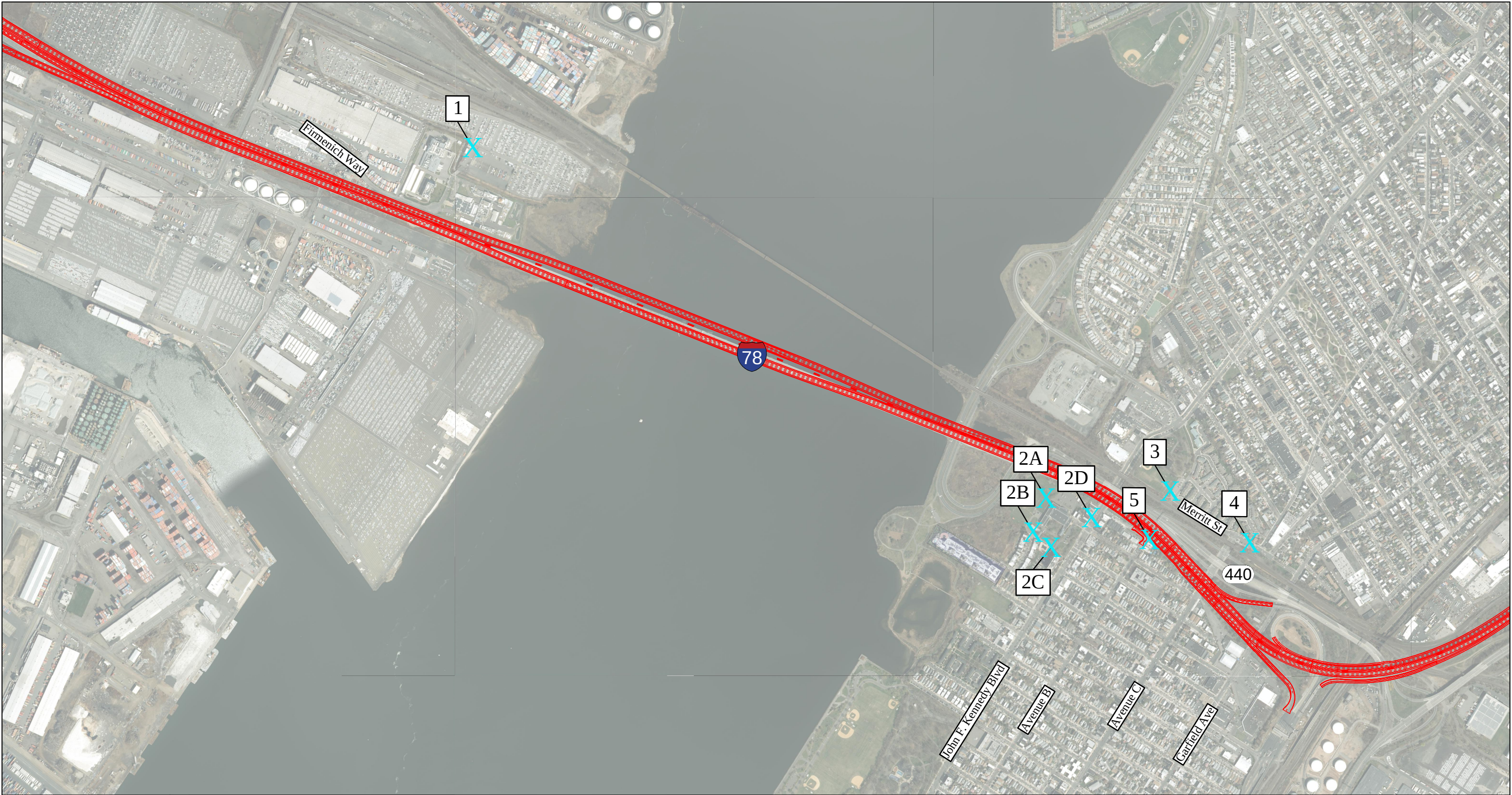


## Appendix D-2

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Noise Measurement Locations Figure

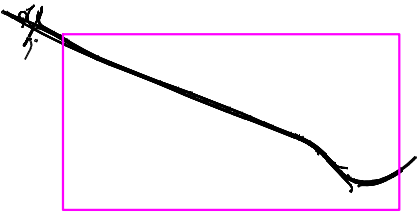




LEGEND

- X Noise Measurement Location
- # Noise Measurement Location Number
- Proposed Improvements

KEY MAP



Date April 11, 2023

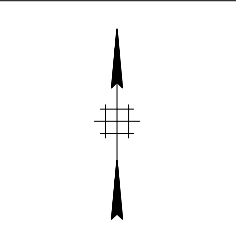
New Jersey Turnpike Authority

Newark Bay Hudson County  
Extension

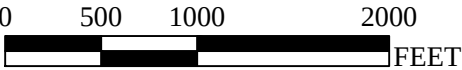
Figure D-2

Noise Measurement Locations

Drawn by: M. Amabile      Checked by: S.P. Carpenter  
Paul Carpenter Associates, Inc.



PROJECT NORTH





## Appendix D-3

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Noise Measurement Photo Log & Equipment Calibration Certificates



**NJTA Newark Bay - OPS T3820 NB-HCE  
Hudson County Extension Improvements - Project Area 1  
Noise Measurement Photos**



Site # 1: Behind 150 Firmenich Way - View Facing South



Site # 2A: Marist High School - View Facing North



**NJTA Newark Bay - OPS T3820 NB-HCE  
Hudson County Extension Improvements - Project Area 1  
Noise Measurement Photos (Cont.)**



Site # 2B: 35 Sunset Drive - View Facing Northwest



Site # 2C: Bayonne Tower Pool - View Facing Northwest

**NJTA Newark Bay - OPS T3820 NB-HCE  
Hudson County Extension Improvements - Project Area 1  
Noise Measurement Photos (Cont.)**



Site # 2D: 1261 JFK Boulevard - View Facing North



Site # 3: Mercer Park - View Facing South



**NJTA Newark Bay - OPS T3820 NB-HCE  
Hudson County Extension Improvements - Project Area 1  
Noise Measurement Photos (Cont.)**



Site # 4: 114 Merritt Street - View Facing East



Site # 5: W 58<sup>th</sup> Street - View Facing South



**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46146

**Instrument:** Acoustical Calibrator**Model:** CAL200**Manufacturer:** Larson Davis**Serial number:** 11291**Class (IEC 60942):** 1**Barometer type:****Barometer s/n:****Customer:** Paul Carpenter Associates, Inc.**Tel/Fax:** 973-822-8221 x21 / 973-833-9221**Date Calibrated:** 3/10/2021 **Cal Due:** 3/10/2022**Status:****In tolerance:** ☒ **Received** ☒ **Sent****Out of tolerance:****See comments:****Contains non-accredited tests:** ☐ Yes ☒ No**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**Tested in accordance with the following procedures and standards:**

Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| 140-Norsonic                | Real Time Analyzer   | 1403978       | Mar 20, 2020       | Scantek, Inc. / NVLAP    | Mar 20, 2021 |
| PC Program 1018 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 4192-Brüel&Kjær             | Microphone           | 2854675       | Jan 15, 2021       | Scantek, Inc. / NVLAP    | Jan 15, 2022 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |

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

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/10/2021              | Date                         | 3/12/2021                   |

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Page 1 of 2



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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT<br>MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|------------|----------|
| <b>Manufacturer specifications</b>                                             |                  |            |          |
| Manufacturer specifications: Sound pressure level                              | X                |            |          |
| Manufacturer specifications: Frequency                                         | X                |            |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |            |          |
| <b>Current standards</b>                                                       |                  |            |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |            |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |            |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -          |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |            |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |            |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.16 ± 1.0/1000.0 ± 10.0                                            | 0.37 ± 0.10/ < 3                                                                 | 93.94 ± 0.12/94.0 ± 0.4                                       |
| 1000.17 ± 1.0/1000.0 ± 10.0                                            | 0.46 ± 0.10/ < 3                                                                 | 113.93 ± 0.12/114.0 ± 0.4                                     |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 23.1 ± 0.0       | 101.06 ± 0.000            | 43.1 ± 0.0            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.

Compliance with any standard cannot be claimed based solely on the periodic tests.

**Measured Data:** in Acoustical Calibrator Test Report # 46146 of two pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C

Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167

[callab@scantekinc.com](mailto:callab@scantekinc.com)

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# Scantek, Inc.

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)

# NVLAP<sup>®</sup>

CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46147

Instrument: **Acoustical Calibrator**

Model: **CAL200**

Manufacturer: **Larson Davis**

Serial number: **11811**

Class (IEC 60942): **1**

Barometer type:

Barometer s/n:

Customer: **Paul Carpenter Associates, Inc.**

Tel/Fax: **973-822-8221 x21 / 973-833-9221**

Date Calibrated: **3/10/2021** Cal Due: **3/10/2022**

Status: **Received** **Sent**

In tolerance: **X** **X**

Out of tolerance:

See comments:

Contains non-accredited tests: **Yes** **X** **No**

Tested in accordance with the following procedures and standards:

Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| 140-Norsonic                | Real Time Analyzer   | 1403978       | Mar 20, 2020       | Scantek, Inc. / NVLAP    | Mar 20, 2021 |
| PC Program 1018 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 4192-Brüel&Kjær             | Microphone           | 2854675       | Jan 15, 2021       | Scantek, Inc. / NVLAP    | Jan 15, 2022 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |

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

|                |                        |                       |                             |
|----------------|------------------------|-----------------------|-----------------------------|
| Calibrated by: | Ronnie Buchanan        | Authorized signatory: | William D. Gallagher        |
| Signature      | <i>Ronnie Buchanan</i> | Signature             | <i>William D. Gallagher</i> |
| Date           | 3/10/2021              | Date                  | 3/12/2021                   |

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Page 1 of 2



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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|---------|----------|
| <b>Manufacturer specifications</b>                                             |                  |         |          |
| Manufacturer specifications: Sound pressure level                              | X                |         |          |
| Manufacturer specifications: Frequency                                         | X                |         |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |         |          |
| <b>Current standards</b>                                                       |                  |         |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |         |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |         |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -       |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |         |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |         |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.21 ± 1.0/1000.0 ± 10.0                                            | 0.23 ± 0.10/ < 3                                                                 | 93.90 ± 0.12/94.0 ± 0.4                                       |
| 1000.20 ± 1.0/1000.0 ± 10.0                                            | 0.33 ± 0.10/ < 3                                                                 | 113.90 ± 0.12/114.0 ± 0.4                                     |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 23.1 ± 0.0       | 101.06 ± 0.000            | 43.1 ± 0.0            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.

Compliance with any standard cannot be claimed based solely on the periodic tests.

**Measured Data:** in Acoustical Calibrator Test Report # 46147 of two pages.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1

ACCREDITED by NVLAP (an ILAC MRA signatory)

**NVLAP**<sup>®</sup>  
CALIBRATION

NVLAP Lab Code: 200625-0

# Calibration Certificate No.46652

**Instrument:** Acoustical Calibrator**Model:** CAL200**Manufacturer:** Larson Davis**Serial number:** 12145**Class (IEC 60942):** 1**Barometer type:****Barometer s/n:****Customer:** Paul Carpenter Associates, Inc.**Tel/Fax:** 973-822-8221 x21 / 973-833-9221**Date Calibrated:** 7/9/2021 **Cal Due:** 7/9/2022**Status:****In tolerance:**

|          |      |
|----------|------|
| Received | Sent |
| X        | X    |

**Out of tolerance:****See comments:****Contains non-accredited tests:** ☐ Yes ☒ No**Address:** 7 Columbia Turnpike, Suite 101,

Florham Park, NJ 07932

**Tested in accordance with the following procedures and standards:**

Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due      |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|---------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |               |
| 483B-Norsonic               | SME Cal Unit         | 31052         | Oct 31, 2020       | Scantek, Inc./ NVLAP     | Oct 31, 2021  |
| DS-360-SRS                  | Function Generator   | 33584         | Oct 23, 2019       | ACR Env./ A2LA           | Oct 23, 2021  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY47011118    | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022   |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2020        | ACR Env./ A2LA           | Dec 7, 2021   |
| 140-Norsonic                | Real Time Analyzer   | 1406423       | Nov 3, 2020        | Scantek / NVLAP          | Nov 3, 2021   |
| PC Program 1018 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -             |
| 4134-Brüel&Kjær             | Microphone           | 173368        | Oct 26, 2020       | Scantek, Inc. / NVLAP    | Oct 26, 2021  |
| 1203-Norsonic               | Preamplifier         | 14059         | March 3, 2021      | Scantek, Inc./ NVLAP     | March 3, 2022 |

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

|                       |                      |                              |                          |
|-----------------------|----------------------|------------------------------|--------------------------|
| <b>Calibrated by:</b> | Lydon Dawkins        | <b>Authorized signatory:</b> | William Gallagher        |
| Signature             | <i>Lydon Dawkins</i> | Signature                    | <i>William Gallagher</i> |
| Date                  | 7/9/2021             | Date                         | 7/12/2021                |

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Page 1 of 2



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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|---------|----------|
| <b>Manufacturer specifications</b>                                             |                  |         |          |
| Manufacturer specifications: Sound pressure level                              | X                |         |          |
| Manufacturer specifications: Frequency                                         | X                |         |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |         |          |
| <b>Current standards</b>                                                       |                  |         |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |         |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |         |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -       |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |         |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |         |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.01 ± 1.0/1000.0 ± 10.0                                            | 0.24 ± 0.10/ < 3                                                                 | 93.97 ± 0.12/94.0 ± 0.4                                       |
| 1000.01 ± 1.0/1000.0 ± 10.0                                            | 0.33 ± 0.10/ < 3                                                                 | 113.95 ± 0.12/114.0 ± 0.4                                     |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 22.7 ± 1.2       | 99.59 ± 0.000             | 49.5 ± 2.2            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.

Compliance with any standard cannot be claimed based solely on the periodic tests.

**Measured Data:** in Acoustical Calibrator Test Report # 46652 of two pages.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

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ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46145

**Instrument:** Acoustical Calibrator**Model:** CAL200**Manufacturer:** Larson Davis**Serial number:** 7100**Class (IEC 60942):** 1**Barometer type:****Barometer s/n:****Customer:** Paul Carpenter Associates, Inc.**Tel/Fax:** 973-822-8221 x21 / 973-833-9221**Date Calibrated:** 3/10/2021 **Cal Due:** 3/10/2022**Status:**

Received

Sent

**In tolerance:** X X**Out of tolerance:****See comments:****Contains non-accredited tests:** \_\_\_ Yes X No**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**Tested in accordance with the following procedures and standards:**

Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| 140-Norsonic                | Real Time Analyzer   | 1403978       | Mar 20, 2020       | Scantek, Inc. / NVLAP    | Mar 20, 2021 |
| PC Program 1018 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 4192-Brüel&Kjær             | Microphone           | 2854675       | Jan 15, 2021       | Scantek, Inc. / NVLAP    | Jan 15, 2022 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |

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

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/10/2021              | Date                         | 3/12/2021                   |

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Page 1 of 2



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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|---------|----------|
| <b>Manufacturer specifications</b>                                             |                  |         |          |
| Manufacturer specifications: Sound pressure level                              | X                |         |          |
| Manufacturer specifications: Frequency                                         | X                |         |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |         |          |
| <b>Current standards</b>                                                       |                  |         |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |         |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |         |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -       |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |         |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |         |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.14 ± 1.0/1000.0 ± 10.0                                            | 0.33 ± 0.10/ < 3                                                                 | 93.89 ± 0.12/94.0 ± 0.4                                       |
| 1000.13 ± 1.0/1000.0 ± 10.0                                            | 0.35 ± 0.10/ < 3                                                                 | 113.91 ± 0.12/114.0 ± 0.4                                     |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 23.2 ± 0.0       | 101.06 ± 0.000            | 41.0 ± 0.0            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.

Compliance with any standard cannot be claimed based solely on the periodic tests.

**Measured Data:** in Acoustical Calibrator Test Report # 46145 of two pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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## Calibration Certificate No.47188

**Instrument:** Acoustical Calibrator  
**Model:** CAL200  
**Manufacturer:** Larson Davis  
**Serial number:** 10494  
**Class (IEC 60942):** 1  
**Barometer type:**  
**Barometer s/n:**

**Date Calibrated:** 11/29/2021 **Cal Due:** 11/29/2022

|                                                                                                           |                 |             |
|-----------------------------------------------------------------------------------------------------------|-----------------|-------------|
| <b>Status:</b>                                                                                            | <b>Received</b> | <b>Sent</b> |
| <b>In tolerance:</b>                                                                                      | X               | X           |
| <b>Out of tolerance:</b>                                                                                  |                 |             |
| <b>See comments:</b>                                                                                      |                 |             |
| <b>Contains non-accredited tests:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                 |             |

**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

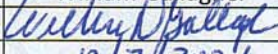
**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932

**Tested in accordance with the following procedures and standards:**  
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description           | S/N        | Cal. Date          | Traceability evidence    | Cal. Due      |
|-----------------------------|-----------------------|------------|--------------------|--------------------------|---------------|
|                             |                       |            |                    | Cal. Lab / Accreditation |               |
| 483B-Norsonic               | SME Cal Unit          | 31052      | Nov 8, 2021        | Scantek, Inc./ NVLAP     | Nov 8, 2022   |
| DS-360-SRS                  | Function Generator    | 88077      | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022   |
| 34401A-Agilent Technologies | Digital Voltmeter     | MY47011118 | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022   |
| PTU300-Vaisala              | Environmental Monitor | P5011262   | Sept 10, 2021      | ACR Env./ A2LA           | Sept 10, 2022 |
| 140-Norsonic                | Real Time Analyzer    | 1406423    | Nov 8, 2021        | Scantek / NVLAP          | Nov 8, 2022   |
| PC Program 1018 Norsonic    | Calibration software  | v.6.1T     | Validated Nov 2014 | Scantek, Inc.            | -             |
| 4134-Brüel&Kjaer            | Microphone            | 173368     | Nov 8, 2021        | Scantek, Inc. / NVLAP    | Nov 8, 2022   |
| 1203-Norsonic               | Preamplifier          | 14059      | March 3, 2021      | Scantek, Inc./ NVLAP     | March 3, 2022 |

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

|                       |                                                                                     |                              |                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|
| <b>Calibrated by:</b> | Bailey Partoza                                                                      | <b>Authorized signatory:</b> | William Gallagher                                                                     |
| Signature             |  | Signature                    |  |
| Date                  | 11 / 29 / 21                                                                        | Date                         | 12 / 7 / 2021                                                                         |

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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|---------|----------|
| <b>Manufacturer specifications</b>                                             |                  |         |          |
| Manufacturer specifications: Sound pressure level                              | X                |         |          |
| Manufacturer specifications: Frequency                                         | X                |         |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |         |          |
| <b>Current standards</b>                                                       |                  |         |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |         |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |         |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -       |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |         |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |         |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.24 ± 1.0/1000.0 ± 10.0                                            | 0.34 ± 0.10/ < 3                                                                 | 113.97 ± 0.12/114.0 ± 0.4                                     |
| 1000.26 ± 1.0/1000.0 ± 10.0                                            | 0.31 ± 0.10/ < 3                                                                 | 93.98 ± 0.12/94.0 ± 0.4                                       |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 22.5 ± 1.0       | 100.17 ± 0.000            | 43.3 ± 2.0            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Measured Data:** in Acoustical Calibrator Test Report # 47188 of two pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.47187

**Instrument:** Acoustical Calibrator  
**Model:** CAL200  
**Manufacturer:** Larson Davis  
**Serial number:** 11126  
**Class (IEC 60942):** 1  
**Barometer type:**  
**Barometer s/n:**

**Date Calibrated:** 11/29/2021 **Cal Due:** 11/29/2022

|                          |                 |             |
|--------------------------|-----------------|-------------|
| <b>Status:</b>           | <b>Received</b> | <b>Sent</b> |
| <b>In tolerance:</b>     | X               | X           |
| <b>Out of tolerance:</b> |                 |             |
| <b>See comments:</b>     |                 |             |

**Contains non-accredited tests:**    Yes    X    No

**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

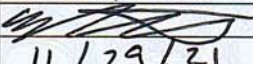
**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932

**Tested in accordance with the following procedures and standards:**  
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description           | S/N        | Cal. Date          | Traceability evidence    | Cal. Due      |
|-----------------------------|-----------------------|------------|--------------------|--------------------------|---------------|
|                             |                       |            |                    | Cal. Lab / Accreditation |               |
| 483B-Norsonic               | SME Cal Unit          | 31052      | Nov 8, 2021        | Scantek, Inc./ NVLAP     | Nov 8, 2022   |
| DS-360-SRS                  | Function Generator    | 88077      | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022   |
| 34401A-Agilent Technologies | Digital Voltmeter     | MY47011118 | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022   |
| PTU300-Vaisala              | Environmental Monitor | P5011262   | Sept 10, 2021      | ACR Env./ A2LA           | Sept 10, 2022 |
| 140-Norsonic                | Real Time Analyzer    | 1406423    | Nov 8, 2021        | Scantek / NVLAP          | Nov 8, 2022   |
| PC Program 1018 Norsonic    | Calibration software  | v.6.1T     | Validated Nov 2014 | Scantek, Inc.            | -             |
| 4134-Brüel&Kjær             | Microphone            | 173368     | Nov 8, 2021        | Scantek, Inc. / NVLAP    | Nov 8, 2022   |
| 1203-Norsonic               | Preamplifier          | 14059      | March 3, 2021      | Scantek, Inc./ NVLAP     | March 3, 2022 |

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

|                       |                                                                                     |                              |                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|
| <b>Calibrated by:</b> | Bailey Partoza                                                                      | <b>Authorized signatory:</b> | William Gallagher                                                                     |
| Signature             |  | Signature                    |  |
| Date                  | 11 / 29 / 21                                                                        | Date                         | 12 / 7 / 2021                                                                         |

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

| CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:                  | MET <sup>2</sup> | NOT MET | COMMENTS |
|--------------------------------------------------------------------------------|------------------|---------|----------|
| <b>Manufacturer specifications</b>                                             |                  |         |          |
| Manufacturer specifications: Sound pressure level                              | X                |         |          |
| Manufacturer specifications: Frequency                                         | X                |         |          |
| Manufacturer specifications: Total harmonic distortion                         | X                |         |          |
| <b>Current standards</b>                                                       |                  |         |          |
| ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection             | X                |         |          |
| ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level           | X                |         |          |
| ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability | -                | -       |          |
| ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency                      | X                |         |          |
| ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion      | X                |         |          |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

| Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Tone frequency (Hz): | Measured <sup>4</sup> /Acceptable <sup>5</sup><br>Total Harmonic Distortion (%): | Measured <sup>4</sup> /Acceptable Level <sup>5</sup><br>(dB): |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1000.18 ± 1.0/1000.0 ± 10.0                                            | 0.37 ± 0.10/ < 3                                                                 | 113.96 ± 0.12/114.0 ± 0.4                                     |
| 1000.19 ± 1.0/1000.0 ± 10.0                                            | 0.31 ± 0.10/ < 3                                                                 | 93.97 ± 0.12/94.0 ± 0.4                                       |

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 22.5 ± 1.0       | 100.17 ± 0.000            | 43.3 ± 2.0            |

**Tests made with following attachments to instrument:**

|                             |
|-----------------------------|
| Calibrator ½" Adaptor Type: |
| Other:                      |

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Measured Data:** in Acoustical Calibrator Test Report # 47187 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**RION CO., LTD.**

3-20-41 Higashimotomachi Kokubunji Tokyo 185-8533  
Phone:042(359)7888, Facsimile:042(359)7442

## **Certificate of Calibration**

**Name** : **Sound Level Meter, Class 1**  
**Model** : **NL-52**      **S/No.** : **00219946**  
**Date of Calibration** : **March, 08, 2021**

We hereby certify that the above product was tested and calibrated according to the prescribed Rion procedures, and that it fulfills specification requirements..

The measuring equipment and reference devices used for testing and calibrating this unit are managed under the Rion traceability system and are traceable according to official Japanese standards and official standards of countries belonging to the International Committee of Weights and Measures.

**RION CO., LTD.**

Manager, Quality Control Department



## Calibration Certificate No.46655

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01032443  
**Tested with:** Microphone UC-59 s/n 05827  
Preamplifier NH25 s/n 32471  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 7/9/2021 **Cal Due:** 7/9/2022

**Status:**

| Received | Sent |
|----------|------|
| X        | X    |

**In tolerance:**

**Out of tolerance:**

**See comments:**

**Contains non-accredited tests:** Yes ☒ No

**Calibration service:** Basic ☒ Standard

**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932

**Tested in accordance with the following procedures and standards:**

Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015

SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31052         | Oct 31, 2020       | Scantek, Inc./ NVLAP     | Oct 31, 2021 |
| DS-360-SRS                  | Function Generator   | 33584         | Oct 23, 2019       | ACR Env. / A2LA          | Oct 23, 2021 |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY47011118    | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022  |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2020        | ACR Env. / A2LA          | Dec 7, 2021  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

**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 (%) |
|------------------|---------------------------|-----------------------|
| 22.2             | 99.63                     | 42.7                  |

|                       |                      |                              |                          |
|-----------------------|----------------------|------------------------------|--------------------------|
| <b>Calibrated by:</b> | Lydon Dawkins        | <b>Authorized signatory:</b> | William Gallagher        |
| Signature             | <i>Lydon Dawkins</i> | Signature                    | <i>William Gallagher</i> |
| Date                  | 7/9/2021             | Date                         | 7/12/2021                |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES: | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|---------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10 | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                         | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13            | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13            | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13            | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14       | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16 | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                         | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                         | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                        | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                  | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                   | Passed                | 0.1                                                 |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13    | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.

Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 05827 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 32471 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 12145                   |
| Windscreen:                         | none                                            |

**Measured Data:** in Test Report # 46655 of 7 + 1 pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1

ACCREDITED by NVLAP (an ILAC MRA signatory)

**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

# Calibration Certificate No.46656

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **05827**  
Composed of:

Date Calibrated: **7/9/2021** Cal Due: **7/9/2022**  
Status: 

| Received | Sent     |
|----------|----------|
| <b>X</b> | <b>X</b> |
|          |          |
|          |          |

  
In tolerance: **X**  
Out of tolerance:  
See comments:

Contains non-accredited tests: Yes X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**

Tested in accordance with the following procedures and standards:

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due      |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|---------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |               |
| 483B-Norsonic               | SME Cal Unit         | 31052         | Oct 31, 2020       | Scantek, Inc./ NVLAP     | Oct 31, 2021  |
| DS-360-SRS                  | Function Generator   | 33584         | Oct 23, 2019       | ACR Env./ A2LA           | Oct 23, 2021  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY47011118    | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022   |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2020        | ACR Env./ A2LA           | Dec 7, 2021   |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -             |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021  |
| 1203-Norsonic               | Preamplifier         | 14059         | March 3, 2021      | Scantek, Inc./ NVLAP     | March 3, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 1, 2021   |

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

|                |                      |                       |                          |
|----------------|----------------------|-----------------------|--------------------------|
| Calibrated by: | Lydon Dawkins        | Authorized signatory: | William Gallagher        |
| Signature      | <i>Lydon Dawkins</i> | Signature             | <i>William Gallagher</i> |
| Date           | 7/9/2021             | Date                  | 7/12/2021                |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 22.6 ± 1.2       | 99.61 ± 0.020             | 43.5 ± 2.4            |

**Main measured parameters:**

| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| 250                 | -26.27 ± 0.12/ -27.0 ± 2.0                                                  | 48.58               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46656 of one page.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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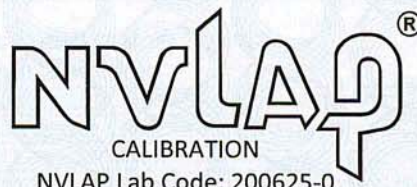
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# Scantek, Inc.

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)



## Calibration Certificate No.46137

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01243608  
**Tested with:** Microphone UC-59 s/n 07650  
Preamplifier NH25 s/n 43637  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 3/11/2021 **Cal Due:** 3/11/2022  
**Status:**

| Received | Sent |
|----------|------|
| X        | X    |
|          |      |

  
**In tolerance:** X  
**Out of tolerance:**  
**See comments:**  
**Contains non-accredited tests:** Yes ☒ No  
**Calibration service:** Basic ☒ Standard  
**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932

**Tested in accordance with the following procedures and standards:**  
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015  
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

**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 (%) |
|------------------|---------------------------|-----------------------|
| 21.6             | 101.03                    | 45.5                  |

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/11/2021              | Date                         | 3/12/2021                   |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES:  | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10  | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                          | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14        | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16  | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                          | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                          | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                         | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                   | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                    | Passed                | 0.1                                                 |
| FILTER TEST 1/OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3  | Passed                | 0.25                                                |
| FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3 | Passed                | 0.25                                                |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13     | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 07650 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 43637 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 11811                   |
| Windscreen:                         | none                                            |

**Measured Data:** in Test Report # 46137 of 9+1 pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1

ACCREDITED by NVLAP (an ILAC MRA signatory)

**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46138

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **07650**  
Composed of:

Date Calibrated: **3/10/2021** Cal Due: **3/10/2022**

|                   |                 |             |
|-------------------|-----------------|-------------|
| Status:           | <b>Received</b> | <b>Sent</b> |
| In tolerance:     | <b>X</b>        | <b>X</b>    |
| Out of tolerance: |                 |             |
| See comments:     |                 |             |

Contains non-accredited tests: Yes X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,**  
**Florham Park, NJ 07932**

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration: N-1504 Norsonic Test System:**

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 24, 2021 |

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/10/2021              | Date                         | 3/12/2021                   |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

|                  |                           |                       |
|------------------|---------------------------|-----------------------|
| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
| 23.1 ± 0.0       | 101.06 ± 0.000            | 43.1 ± 0.0            |

**Main measured parameters:**

|                     |                                                                             |                     |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
| 250                 | -27.16 ± 0.12/ -27.0 ± 2.0                                                  | 43.83               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46138 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46653

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01243610  
**Tested with:** Microphone UC-59 s/n 06943  
Preamplifier NH25 s/n 32470  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 7/9/2021 **Cal Due:** 7/9/2022**Status:****In tolerance:** ☒ **Received** ☒ **Sent****Out of tolerance:****See comments:****Contains non-accredited tests:** ☐ Yes ☒ No**Calibration service:** ☐ Basic ☒ Standard**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**Tested in accordance with the following procedures and standards:**

Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015

SLM &amp; Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31052         | Oct 31, 2020       | Scantek, Inc./ NVLAP     | Oct 31, 2021 |
| DS-360-SRS                  | Function Generator   | 33584         | Oct 23, 2019       | ACR Env./ A2LA           | Oct 23, 2021 |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY47011118    | Feb 4, 2021        | ACR Env./ A2LA           | Feb 4, 2022  |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2020        | ACR Env./ A2LA           | Dec 7, 2021  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

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 (%) |
|------------------|---------------------------|-----------------------|
| 22.2             | 99.63                     | 42.7                  |

|                       |                      |                              |                          |
|-----------------------|----------------------|------------------------------|--------------------------|
| <b>Calibrated by:</b> | Lydon Dawkins        | <b>Authorized signatory:</b> | William Gallagher        |
| Signature             | <i>Lydon Dawkins</i> | Signature                    | <i>William Gallagher</i> |
| Date                  | 7/9/2021             | Date                         | 7/12/2021                |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES:  | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10  | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                          | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14        | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16  | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                          | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                          | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                         | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                   | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                    | Passed                | 0.1                                                 |
| FILTER TEST 1/OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3  | Passed                | 0.25                                                |
| FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3 | Passed                | 0.25                                                |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13     | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 06943 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 32470 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 12145                   |
| Windscreen:                         | none                                            |

**Measured Data:** in Test Report # 46653 of 9 + 1 pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C

Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167

[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1

ACCREDITED by NVLAP (an ILAC MRA signatory)

**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46654

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **06943**  
Composed of:

Date Calibrated: **7/9/2021** Cal Due: **7/9/2022**

|                   |                 |             |
|-------------------|-----------------|-------------|
| Status:           | <b>Received</b> | <b>Sent</b> |
| In tolerance:     | <b>X</b>        | <b>X</b>    |
| Out of tolerance: |                 |             |
| See comments:     |                 |             |

Contains non-accredited tests: Yes X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration: N-1504 Norsonic Test System:**

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due      |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|---------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |               |
| 483B-Norsonic               | SME Cal Unit         | 31052         | Oct 31, 2020       | Scantek, Inc./ NVLAP     | Oct 31, 2021  |
| DS-360-SRS                  | Function Generator   | 33584         | Oct 23, 2019       | ACR Env./ A2LA           | Oct 23, 2021  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY47011118    | Feb 4, 2021        | ACR Env. / A2LA          | Feb 4, 2022   |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2020        | ACR Env./ A2LA           | Dec 7, 2021   |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -             |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021  |
| 1203-Norsonic               | Preamplifier         | 14059         | March 3, 2021      | Scantek, Inc./ NVLAP     | March 3, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 1, 2021   |

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

|                |                      |                       |                          |
|----------------|----------------------|-----------------------|--------------------------|
| Calibrated by: | Lydon Dawkins        | Authorized signatory: | William Gallagher        |
| Signature      | <i>Lydon Dawkins</i> | Signature             | <i>William Gallagher</i> |
| Date           | 7/9/2021             | Date                  | 7/12/2021                |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 22.7 ± 1.0       | 99.61 ± 0.020             | 43.3 ± 2.0            |

**Main measured parameters:**

| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| 250                 | -25.39 ± 0.12/ -27.0 ± 2.0                                                  | 53.77               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46654 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1

ACCREDITED by NVLAP (an ILAC MRA signatory)

**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46141

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01243611  
**Tested with:** Microphone UC-59 s/n 07653  
Preamplifier NH25 s/n 43640  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 3/11/2021 **Cal Due:** 3/11/2022

|                          |                 |             |
|--------------------------|-----------------|-------------|
| <b>Status:</b>           | <b>Received</b> | <b>Sent</b> |
| <b>In tolerance:</b>     | X               | X           |
| <b>Out of tolerance:</b> |                 |             |
| <b>See comments:</b>     |                 |             |

**Contains non-accredited tests:** ☐ Yes ☒ No**Calibration service:** ☐ Basic ☒ Standard**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**Tested in accordance with the following procedures and standards:**

Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015

SLM &amp; Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

**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 (%) |
|------------------|---------------------------|-----------------------|
| 21.6             | 101.03                    | 45.5                  |

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/11/2021              | Date                         | 3/12/2021                   |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES:  | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10  | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                          | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14        | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16  | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                          | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                          | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                         | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                   | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                    | Passed                | 0.1                                                 |
| FILTER TEST 1/OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3  | Passed                | 0.25                                                |
| FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3 | Passed                | 0.25                                                |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13     | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 07653 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 43640 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 11811                   |
| Windscreens:                        | none                                            |

**Measured Data:** in Test Report # 46141 of 9+1 pages.

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

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46142

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **07653**  
Composed of:

Date Calibrated: **3/11/2021** Cal Due: **3/11/2022**

|                   |                 |             |
|-------------------|-----------------|-------------|
| Status:           | <b>Received</b> | <b>Sent</b> |
| In tolerance:     | <b>X</b>        | <b>X</b>    |
| Out of tolerance: |                 |             |
| See comments:     |                 |             |

Contains non-accredited tests: Yes X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration: N-1504 Norsonic Test System:**

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 24, 2021 |

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | <i>3/11/2021</i>       | Date                         | <i>3/12/2021</i>            |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

|                  |                           |                       |
|------------------|---------------------------|-----------------------|
| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
| 21.6 ± 0.0       | 101.03 ± 0.000            | 45.5 ± 0.0            |

**Main measured parameters:**

|                     |                                                                             |                     |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
| 250                 | -28.00 ± 0.12/ -27.0 ± 2.0                                                  | 39.83               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46142 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46143

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01254347  
**Tested with:** Microphone UC-59 s/n 08808  
Preamplifier NH25 s/n 54429  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 3/11/2021 **Cal Due:** 3/11/2022**Status:**

| Received | Sent |
|----------|------|
| X        | X    |

**In tolerance:****Out of tolerance:****See comments:****Contains non-accredited tests:** Yes ☒ No**Calibration service:** Basic ☒ Standard**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**Tested in accordance with the following procedures and standards:**

Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015

SLM &amp; Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

**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 (%) |
|------------------|---------------------------|-----------------------|
| 21.7             | 100.62                    | 46.2                  |

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/11/2021              | Date                         | 3/12/2021                   |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES:  | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC 61672-3 ED.2 CLAUSE 10 | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                          | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14        | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16  | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                          | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                          | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                         | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                   | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                    | Passed                | 0.1                                                 |
| FILTER TEST 1/OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3  | Passed                | 0.25                                                |
| FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3 | Passed                | 0.25                                                |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13     | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 08808 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 54429 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 11811                   |
| Windscreen:                         | none                                            |

**Measured Data:** in Test Report # 46143 of 9+1 pages.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46144

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **08808**  
Composed of:

Date Calibrated: **3/11/2021** Cal Due: **3/11/2022**

|                   |                 |             |
|-------------------|-----------------|-------------|
| Status:           | <b>Received</b> | <b>Sent</b> |
| In tolerance:     | <b>X</b>        | <b>X</b>    |
| Out of tolerance: |                 |             |
| See comments:     |                 |             |

Contains non-accredited tests: Yes X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration: N-1504 Norsonic Test System:**

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 24, 2021 |

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/11/2021              | Date                         | 3/12/2021                   |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
|------------------|---------------------------|-----------------------|
| 21.6 ± 0.0       | 101.03 ± 0.000            | 45.5 ± 0.0            |

**Main measured parameters:**

| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| 250                 | -26.58 ± 0.12/ -27.0 ± 2.0                                                  | 46.88               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46144 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCSL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46139

**Instrument:** Sound Level Meter  
**Model:** NL52  
**Manufacturer:** Rion  
**Serial number:** 01254349  
**Tested with:** Microphone UC-59 s/n 08810  
Preamplifier NH25 s/n 54431  
**Type (class):** 1  
**Customer:** Paul Carpenter Associates, Inc.  
**Tel/Fax:** 973-822-8221 x21 / 973-833-9221

**Date Calibrated:** 3/11/2021 **Cal Due:** 3/11/2022  
**Status:**

| Received | Sent |
|----------|------|
| X        | X    |
|          |      |

  
**In tolerance:**

|   |
|---|
| X |
|---|

  
**Out of tolerance:**

|  |
|--|
|  |
|--|

  
**See comments:**

|  |
|--|
|  |
|--|

  
**Contains non-accredited tests:** Yes ☐ No ☒  
**Calibration service:** Basic ☐ Standard ☒  
**Address:** 7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932

Tested in accordance with the following procedures and standards:  
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015  
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1019 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1251-Norsonic               | Calibrator           | 30878         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |

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 (%) |
|------------------|---------------------------|-----------------------|
| 21.6             | 101.03                    | 45.5                  |

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | 3/11/2021              | Date                         | 3/12/2021                   |

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**Results summary:** Device complies with following clauses of mentioned specifications:

| CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS<br>REFERENCED IN PROCEDURES:  | RESULT <sup>2,3</sup> | EXPANDED<br>UNCERTAINTY<br>(coverage factor 2) [dB] |
|----------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10  | Passed                | 0.15                                                |
| SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11                          | Passed                | 0.30                                                |
| FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13             | Passed                | 0.20                                                |
| FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14        | Passed                | 0.20                                                |
| LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16  | Passed                | 0.25                                                |
| TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18                          | Passed                | 0.30                                                |
| PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19                          | Passed                | 0.35                                                |
| OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20                         | Passed                | 0.25                                                |
| HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21                   | Passed                | 0.1                                                 |
| LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15                    | Passed                | 0.1                                                 |
| FILTER TEST 1/OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3  | Passed                | 0.25                                                |
| FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3 | Passed                | 0.25                                                |
| COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13     | Passed                | See test report                                     |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. Compliance with any standard cannot be claimed based solely on the periodic tests.

**Tests made with the following attachments to the instrument:**

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Microphone:                         | Rion UC-59 s/n 08810 for acoustical test        |
| Preamplifier:                       | Rion NH25 s/n 54431 for all tests               |
| Other:                              | line adaptor ADP005 (18pF) for electrical tests |
| Accompanying acoustical calibrator: | Larson Davis CAL200 s/n 11811                   |
| Windscreen:                         | none                                            |

**Measured Data:** in Test Report # 46139 of 9+1 pages.

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

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)**NVLAP**<sup>®</sup>  
CALIBRATION  
NVLAP Lab Code: 200625-0

## Calibration Certificate No.46140

Instrument: **Microphone**  
Model: **UC-59**  
Manufacturer: **Rion**  
Serial number: **08810**  
Composed of:

Date Calibrated: **3/11/2021** Cal Due: **3/11/2022**

|                   |                 |             |
|-------------------|-----------------|-------------|
| Status:           | <b>Received</b> | <b>Sent</b> |
| In tolerance:     | <b>X</b>        | <b>X</b>    |
| Out of tolerance: |                 |             |
| See comments:     |                 |             |

Contains non-accredited tests:    Yes    X No

Customer: **Paul Carpenter Associates, Inc.**  
Tel/Fax: **973-822-8221 x21/973-833-9221**

Address: **7 Columbia Turnpike, Suite 101,  
Florham Park, NJ 07932**

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration: N-1504 Norsonic Test System:**

| Instrument - Manufacturer   | Description          | S/N           | Cal. Date          | Traceability evidence    | Cal. Due     |
|-----------------------------|----------------------|---------------|--------------------|--------------------------|--------------|
|                             |                      |               |                    | Cal. Lab / Accreditation |              |
| 483B-Norsonic               | SME Cal Unit         | 31061         | Jul 31, 2020       | Scantek, Inc./ NVLAP     | Jul 31, 2021 |
| DS-360-SRS                  | Function Generator   | 61646         | Dec 3, 2020        | ACR Env./ A2LA           | Dec 3, 2022  |
| 34401A-Agilent Technologies | Digital Voltmeter    | MY41022043    | Dec 04, 2020       | ACR Env./ A2LA           | Dec 04, 2021 |
| HM30-Thommen                | Meteo Station        | 1040170/39633 | Dec 7, 2021        | ACR Env./ A2LA           | Dec 7, 2022  |
| PC Program 1017 Norsonic    | Calibration software | v.6.1T        | Validated Nov 2014 | Scantek, Inc.            | -            |
| 1253-Norsonic               | Calibrator           | 28326         | Oct 26, 2020       | Scantek, Inc./ NVLAP     | Oct 26, 2021 |
| 1203-Norsonic               | Preamplifier         | 21270         | Jan 15, 2021       | Scantek, Inc./ NVLAP     | Jan 15, 2022 |
| 4180-Brüel&Kjær             | Microphone           | 2246115       | Oct 1, 2019        | DPLA / DANAK             | Oct 24, 2021 |

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

|                       |                        |                              |                             |
|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Calibrated by:</b> | Ronnie Buchanan        | <b>Authorized signatory:</b> | William D. Gallagher        |
| Signature             | <i>Ronnie Buchanan</i> | Signature                    | <i>William D. Gallagher</i> |
| Date                  | <i>3/11/2021</i>       | Date                         | <i>3/12/2021</i>            |

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

| CLAUSES / METHODS <sup>1</sup><br>FROM PROCEDURES        |                                 | MET <sup>2,3</sup> | NOT<br>MET | NOT<br>TESTED | MEASUREMENT<br>EXPANDED<br>UNCERTAINTY<br>(coverage factor 2)                                                                           |
|----------------------------------------------------------|---------------------------------|--------------------|------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Open circuit sensitivity (insert voltage method, 250 Hz) |                                 | X                  |            |               | See below                                                                                                                               |
| Frequency<br>response                                    | Actuator response               | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 8000 Hz: 0.2 dB<br>8 – 10 kHz: 0.5 dB<br>10 – 20 kHz: 0.7 dB<br>20 – 50 kHz: 0.9 dB<br>50 – 100 kHz: 1.2 dB |
|                                                          | FF/Diffuse field responses      | X                  |            |               | 63 – 200Hz: 0.3 dB<br>200 – 4000 Hz: 0.2 dB<br>4 – 10 kHz: 0.6 dB<br>10 – 20 kHz: 0.9 dB<br>20 – 50 kHz: 2.2 dB<br>50 – 100 kHz: 4.4 dB |
|                                                          | Scantek, Inc. acoustical method |                    |            | X             | 31.5 – 125 Hz: 0.16 dB<br>250, 1000 Hz: 0.12 dB<br>2 – 8 kHz: 0.8 dB<br>12.5 – 16 kHz: 2.4 dB                                           |

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

|                  |                           |                       |
|------------------|---------------------------|-----------------------|
| Temperature (°C) | Barometric pressure (kPa) | Relative Humidity (%) |
| 21.6 ± 0.0       | 101.03 ± 0.000            | 45.5 ± 0.0            |

**Main measured parameters:**

|                     |                                                                             |                     |
|---------------------|-----------------------------------------------------------------------------|---------------------|
| Tone frequency (Hz) | Measured <sup>4</sup> /Acceptable<br>Open circuit sensitivity (dB re 1V/Pa) | Sensitivity (mV/Pa) |
| 250                 | -26.46 ± 0.12/ -27.0 ± 2.0                                                  | 47.54               |

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

|                                                      |
|------------------------------------------------------|
| Protection grid mounted for sensitivity measurements |
| Actuator type: G.R.A.S. RA0014                       |

**Measured Data:** Found on Microphone Test Report # 46140 of one page.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory.  
This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Document stored as: Y:\Calibration Lab\Mic 2021\Rion59\_08810\_M1.doc



## Appendix D-4

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Certified Meteorological Data from Newark Liberty International Airport (EWR)



**NJTA Newark Bay - OPS T3820 NB-HCE**  
**Hudson County Extension Improvements - Project Area 1**  
**Peak Hour Noise Monitoring**

**Newark Airport Meteorological Observations (10/19/2021)**

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2021-10-19T05:51:00 | 0                           | 68                              | 13                       |
| 2021-10-19T06:51:00 | 0                           | 69                              | 13                       |
| 2021-10-19T07:00:00 | 0                           | 69                              | 13                       |
| 2021-10-19T07:51:00 | 0                           | 61                              | 13                       |
| 2021-10-19T08:51:00 | 0                           | 57                              | 11                       |
| 2021-10-19T09:51:00 | 0                           | 51                              | 9                        |

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2021-10-19T13:51:00 | 0                           | 30                              | 18                       |
| 2021-10-19T14:51:00 | 0                           | 27                              | 16                       |
| 2021-10-19T15:51:00 | 0                           | 28                              | 17                       |
| 2021-10-19T16:51:00 | 0                           | 33                              | 14                       |
| 2021-10-19T17:51:00 | 0                           | 39                              | 10                       |
| 2021-10-19T18:51:00 | 0                           | 41                              | 9                        |

**Newark Airport Meteorological Observations (11/17/2021)**

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2021-11-17T05:51:00 | 0                           | 73                              | 3                        |
| 2021-11-17T06:51:00 | 0                           | 68                              | 0                        |
| 2021-11-17T07:00:00 | 0                           | 68                              | 0                        |
| 2021-11-17T07:51:00 | 0                           | 73                              | 5                        |
| 2021-11-17T08:51:00 | 0                           | 63                              | 0                        |
| 2021-11-17T09:51:00 | 0                           | 56                              | 0                        |

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2021-11-17T13:51:00 | 0                           | 53                              | 10                       |
| 2021-11-17T14:51:00 | 0                           | 60                              | 9                        |
| 2021-11-17T15:51:00 | 0                           | 60                              | 10                       |
| 2021-11-17T16:51:00 | 0                           | 65                              | 7                        |
| 2021-11-17T17:51:00 | 0                           | 69                              | 7                        |
| 2021-11-17T18:51:00 | 0                           | 74                              | 0                        |



**NJTA Newark Bay - OPS T3820 NB-HCE**  
**Hudson County Extension Improvements - Project Area 1**  
**Peak Hour Noise Monitoring (cont.)**

**Newark Airport Meteorological Observations (03/16/2022)**

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2022-03-16T05:51:00 | 0                           | 66                              | 3                        |
| 2022-03-16T06:51:00 | 0                           | 61                              | 5                        |
| 2022-03-16T07:00:00 | 0                           | 61                              | 5                        |
| 2022-03-16T07:51:00 | 0                           | 53                              | 5                        |
| 2022-03-16T08:51:00 | 0                           | 46                              | 5                        |
| 2022-03-16T09:51:00 | 0                           | 44                              | 6                        |

| <b>Date/Time</b>    | <b>Hourly Precipitation</b> | <b>Hourly Relative Humidity</b> | <b>Hourly Wind Speed</b> |
|---------------------|-----------------------------|---------------------------------|--------------------------|
| 2022-03-16T13:51:00 | 0                           | 46                              | 13                       |
| 2022-03-16T14:51:00 | 0                           | 47                              | 13                       |
| 2022-03-16T15:51:00 | 0                           | 55                              | 11                       |
| 2022-03-16T16:51:00 | 0                           | 55                              | 11                       |
| 2022-03-16T17:51:00 | 0                           | 64                              | 9                        |
| 2022-03-16T18:51:00 | 0                           | 64                              | 6                        |

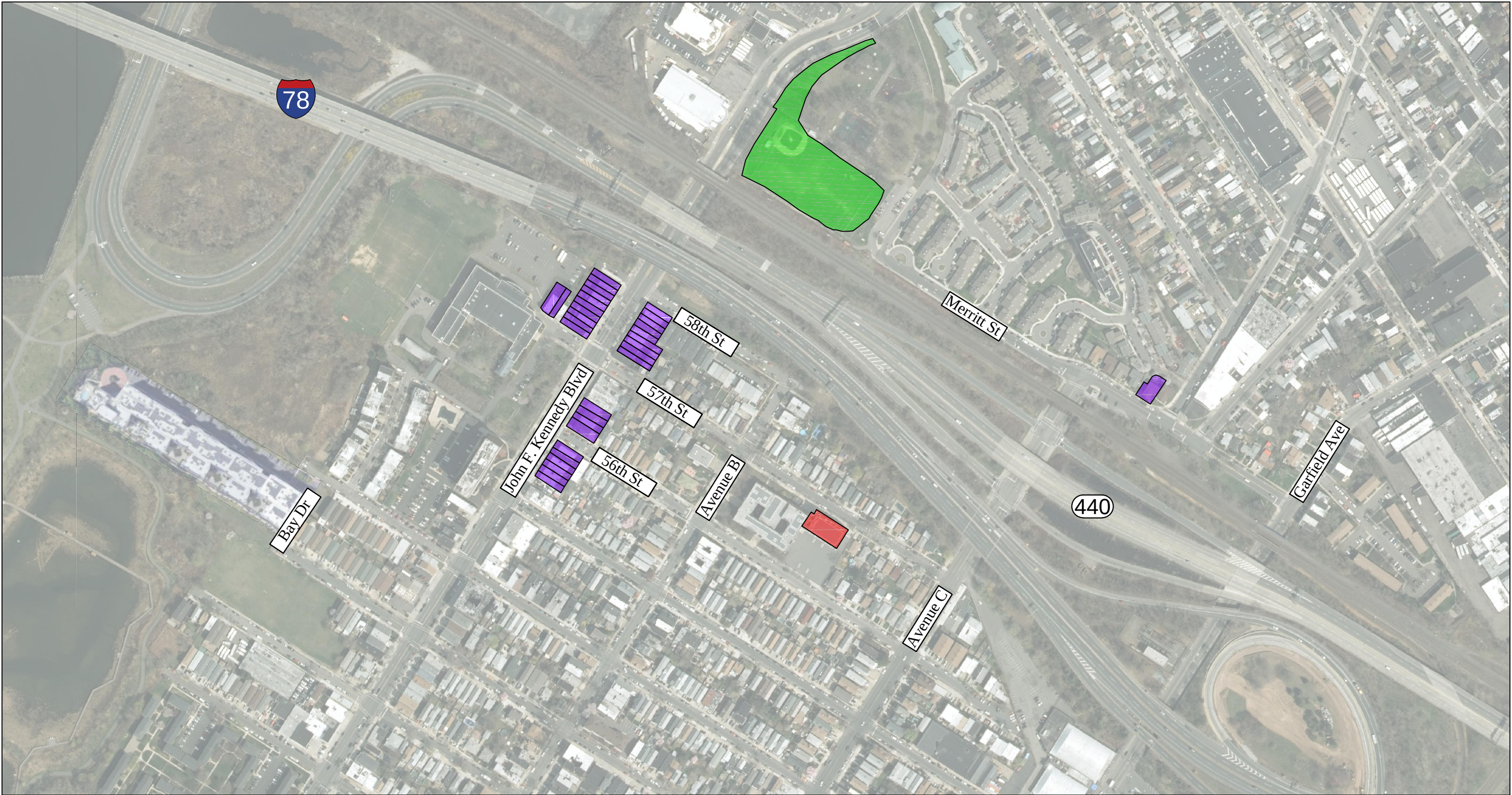


## Appendix D-5

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2050 No-Build & Build Noise Impact Figures

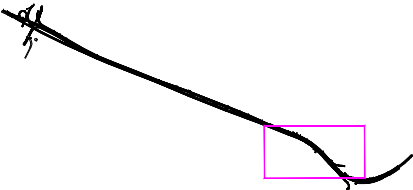




LEGEND

-  Category B - Dual-Family Structure that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category C - Special-Use Property that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category D - Special-Use Property that Approaches or Exceeds the NAC (52 dBA  $L_{eq}$  Interior)

KEY MAP



Date April 11, 2023

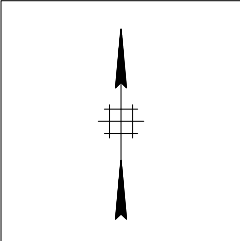
New Jersey Turnpike Authority

Newark Bay Hudson County  
Extension

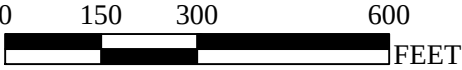
Figure D-3

2050 No Action Alternative Noise Impacts

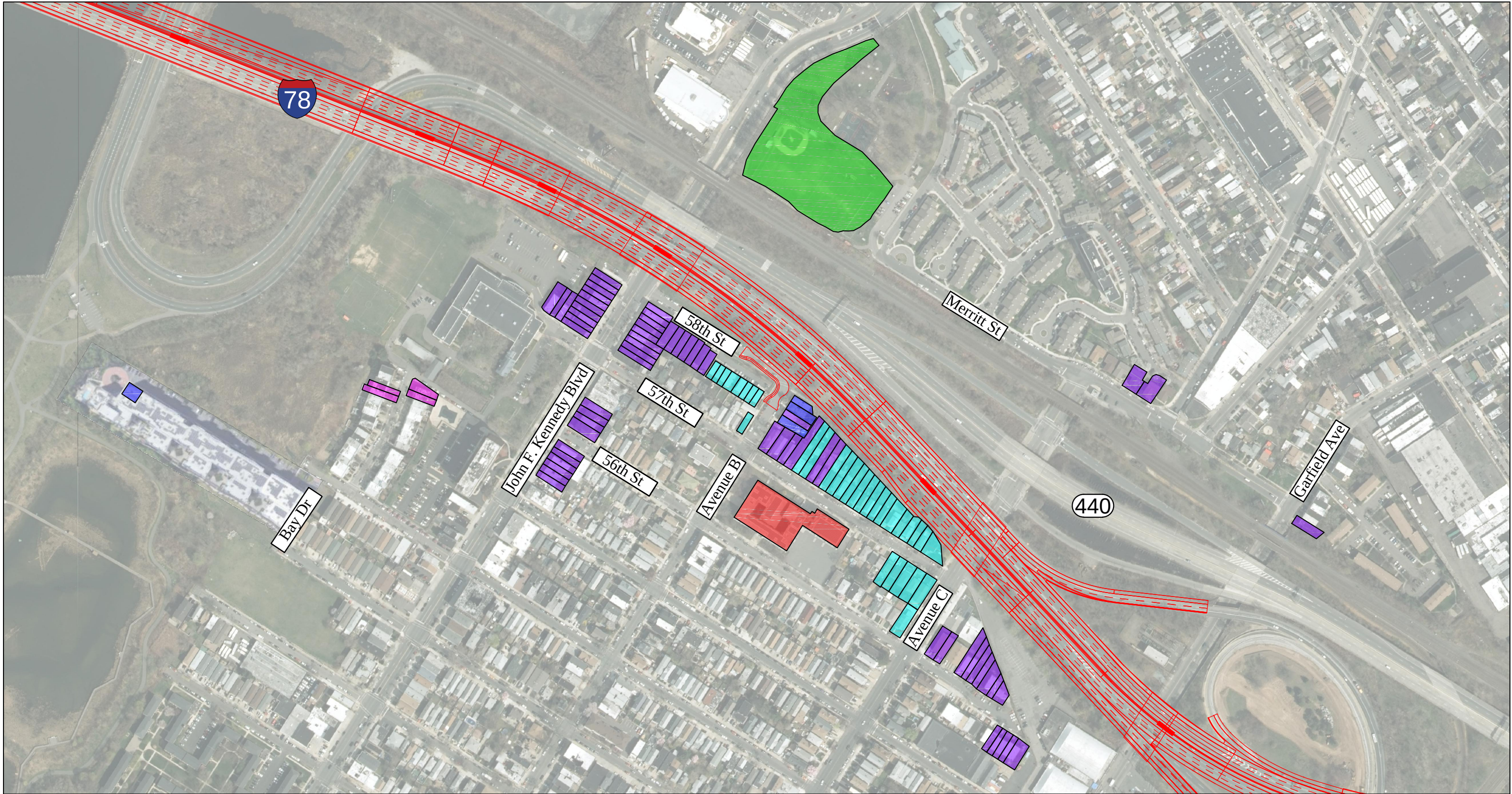
Drawn by: M. Amabile Checked by: S.P. Carpenter  
Paul Carpenter Associates, Inc.



PROJECT NORTH







LEGEND

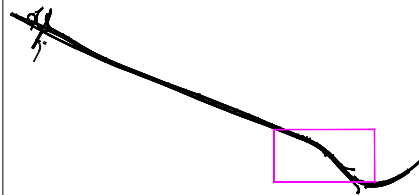
-  Category B - Single-Family Structure that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category B - Dual-Family Structure that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category B - Dual-Family Structure with Build Noise Levels 10 dBA  $L_{eq}$  over Existing Noise Levels

-  Category B - Multi-Family Structure that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category C - Special-Use Property that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category D - Special-Use Property that Approaches or Exceeds the NAC (52 dBA  $L_{eq}$  Interior)

 Proposed Improvements

0 150 300 600  
 FEET

KEY MAP



Date

April 11, 2023

New Jersey Turnpike Authority

Newark Bay Hudson County  
Extension

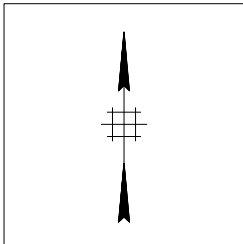
Figure D-4

2050 Proposed Action Noise Impacts

Drawn by: M. Amabile

Checked by: S.P. Carpenter

Paul Carpenter Associates, Inc.



PROJECT NORTH

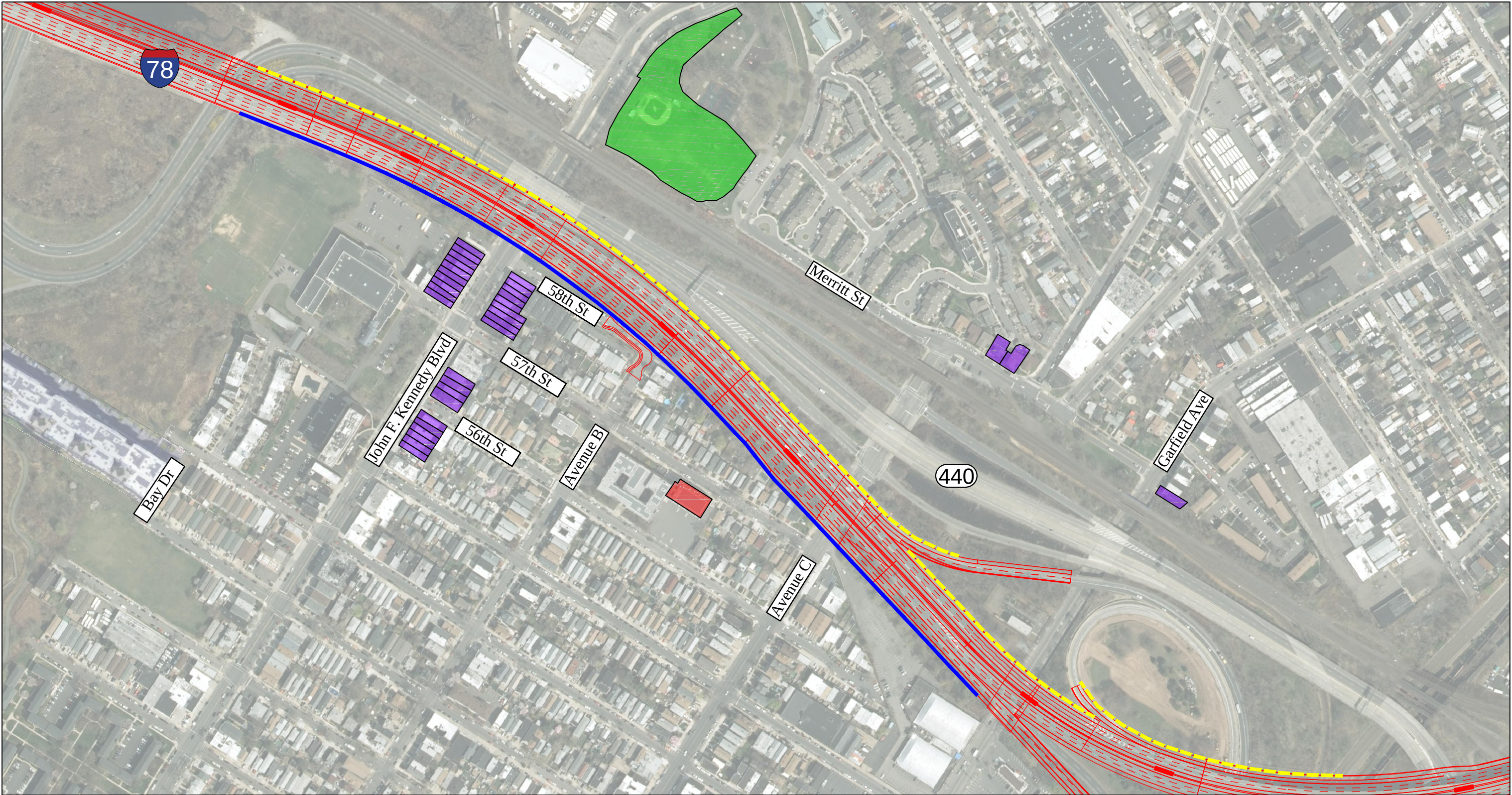


## Appendix D-6

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2050 Build With Noise Wall & Noise Impact Figure

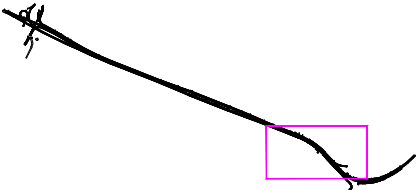




LEGEND

-  Category B - Dual-Family Structure that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category C - Special-Use Property that Approaches or Exceeds the NAC (67 dBA  $L_{eq}$ )
-  Category D - Special-Use Property that Approaches or Exceeds the NAC (52 dBA  $L_{eq}$  Interior)
-  Proposed Improvements
-  Proposed 18' Noise Wall (NB-HCE Eastbound Mainline Roadway)
-  Not-Proposed 18' Noise Wall System (NB-HCE Westbound Mainline Roadway)

KEY MAP

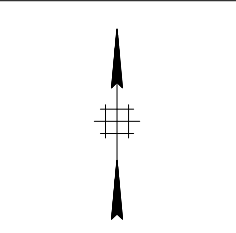


Date April 11, 2023

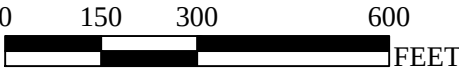
New Jersey Turnpike Authority  
Newark Bay Hudson County  
Extension

**Figure D-5**  
2050 Proposed Action With Noise  
Wall and Noise Impacts

Drawn by: M. Amabile Checked by: S.P. Carpenter  
Paul Carpenter Associates, Inc.



PROJECT NORTH





## Appendix D-7

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NB-HCE Eastbound Noise Barrier Analysis Worksheet



Barrier Analysis: HCE South NW\_18ft Extension

| Barrier Analysis                   |             |
|------------------------------------|-------------|
| Primary Benefits                   | 116         |
| Supplemental Benefits              | 46          |
| Total Benefits                     | 139         |
| Total Barrier Area (sf)            | 53,852      |
| Cost per SF                        | \$70        |
| Additional Costs                   | \$0         |
| Total Cost                         | \$3,769,640 |
| Total Budget                       | \$6,990,000 |
| Cost Per Benefit                   | \$27,120    |
| Cost Effective                     | YES         |
| 50% 1st Row Impacts Achieve 5 dBA? | YES (97%)   |
| 50% 1st Row Achieve 7 dBA NRDG?    | YES (73%)   |
| One Receptor Achieves 10 dBA NRDG? | YES         |

| Barrier Insertion Loss |      |
|------------------------|------|
| Minimum Insertion Loss | 0.5  |
| Maximum Insertion Loss | 16.3 |

| # of Barriers: 1    |                              |
|---------------------|------------------------------|
| Barrier Information |                              |
| Barrier #           | Barrier Name                 |
| 1                   | Build Noise Wall - HCE South |

(Please note that all noise level values/calculations are rounded off. Therefore, there may be slight mathematical discrepancies.)

| Receiver Information |                   |                       |                                |                               |                                                  |                                 |                |                          | Totals            |         |                 |                  |                 |                             |                          |            |
|----------------------|-------------------|-----------------------|--------------------------------|-------------------------------|--------------------------------------------------|---------------------------------|----------------|--------------------------|-------------------|---------|-----------------|------------------|-----------------|-----------------------------|--------------------------|------------|
| Receiver ID          | Receiver Address  | NAC Activity Category | Existing Noise Level (dBA Leq) | Build No Noise Wall (dBA Leq) | Existing to Build Noise Level Increase (dBA Leq) | Build With Noise Wall (dBA Leq) | Insertion Loss | Number of Dwelling Units | 1st Row Receptors | Impacts | 1st Row Impacts | Primary Benefits | Suppl. Benefits | No. 1st Row Impact Benefits | No. 1st Row Achieve NRDG | Budget     |
| 1                    | 35 Sunset Ave     | B                     | 53                             | 59                            | 6                                                | 54                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 2                    | 35 Sunset Ave     | B                     | 62                             | 63                            | 1                                                | 62                              | 2              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 3                    | 33 Sunset Ave     | B                     | 49                             | 58                            | 9                                                | 53                              | 5              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 4                    | 33 Sunset Ave     | B                     | 62                             | 63                            | 1                                                | 62                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 5                    | 31 Sunset Ave     | B                     | 52                             | 58                            | 6                                                | 55                              | 3              | 2                        |                   |         |                 |                  |                 |                             |                          |            |
| 6                    | 31 Sunset Ave     | B                     | 62                             | 63                            | 1                                                | 62                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 7                    | 29 Sunset Ave     | B                     | 47                             | 57                            | 10                                               | 51                              | 6              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 8                    | 29 Sunset Ave     | B                     | 62                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 9                    | 27 Sunset Ave     | B                     | 47                             | 56                            | 10                                               | 51                              | 6              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 10                   | 27 Sunset Ave     | B                     | 62                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 11                   | 25 Sunset Ave     | B                     | 47                             | 56                            | 9                                                | 50                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 12                   | 25 Sunset Ave     | B                     | 61                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 13                   | 23 Sunset Ave     | B                     | 47                             | 55                            | 9                                                | 50                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 14                   | 23 Sunset Ave     | B                     | 61                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 15                   | 21 Sunset Ave     | B                     | 50                             | 56                            | 6                                                | 52                              | 4              | 2                        |                   |         |                 |                  |                 |                             |                          |            |
| 16                   | 21 Sunset Ave     | B                     | 61                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 17                   | 19 Sunset Ave     | B                     | 47                             | 55                            | 8                                                | 49                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 18                   | 19 Sunset Ave     | B                     | 61                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 19                   | 17 Sunset Ave     | B                     | 46                             | 54                            | 8                                                | 48                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 20                   | 17 Sunset Ave     | B                     | 61                             | 62                            | 1                                                | 61                              | 1              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 37                   | 36 Sunset Ave     | B                     | 58                             | 62                            | 3                                                | 60                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 38                   | 36 Sunset Ave     | B                     | 50                             | 61                            | 12                                               | 57                              | 4              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 39                   | 34 Sunset Ave     | B                     | 57                             | 60                            | 3                                                | 58                              | 2              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 40                   | 34 Sunset Ave     | B                     | 48                             | 59                            | 11                                               | 53                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 41                   | 32 Sunset Ave     | B                     | 55                             | 59                            | 4                                                | 56                              | 2              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 42                   | 32 Sunset Ave     | B                     | 48                             | 57                            | 9                                                | 52                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 43                   | 30 Sunset Ave     | B                     | 54                             | 58                            | 4                                                | 55                              | 3              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 44                   | 30 Sunset Ave     | B                     | 48                             | 56                            | 8                                                | 51                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 45                   | 28 Sunset Ave     | B                     | 54                             | 58                            | 4                                                | 54                              | 4              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 46                   | 28 Sunset Ave     | B                     | 48                             | 55                            | 7                                                | 50                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 47                   | 26 Sunset Ave     | B                     | 52                             | 56                            | 5                                                | 52                              | 4              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 48                   | 26 Sunset Ave     | B                     | 48                             | 55                            | 7                                                | 50                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 49                   | 24 Sunset Ave     | B                     | 51                             | 56                            | 5                                                | 52                              | 4              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 50                   | 24 Sunset Ave     | B                     | 47                             | 54                            | 7                                                | 49                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 73                   | 1225 JFK Blvd     | B                     | 56                             | 61                            | 5                                                | 58                              | 3              | 144                      |                   |         |                 |                  |                 |                             |                          |            |
| 74                   | 1269 JFK Blvd     | B                     | 67                             | 73                            | 6                                                | 68                              | 5              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 75                   | 1269 JFK Blvd     | B                     | 64                             | 72                            | 8                                                | 65                              | 7              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 76                   | 1267A JFK Blvd    | B                     | 67                             | 72                            | 5                                                | 68                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 77                   | 1267A JFK Blvd    | B                     | 64                             | 70                            | 6                                                | 64                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 78                   | 1267B JFK Blvd    | B                     | 67                             | 72                            | 5                                                | 68                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 79                   | 1267B JFK Blvd    | B                     | 64                             | 70                            | 6                                                | 64                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 80                   | 1265 JFK Blvd     | B                     | 67                             | 71                            | 5                                                | 68                              | 3              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 81                   | 1265 JFK Blvd     | B                     | 64                             | 69                            | 5                                                | 63                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 82                   | 1263 JFK Blvd     | B                     | 67                             | 71                            | 4                                                | 68                              | 3              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 83                   | 1263 JFK Blvd     | B                     | 64                             | 69                            | 5                                                | 63                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 84                   | 1261 JFK Blvd     | B                     | 67                             | 70                            | 4                                                | 68                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 85                   | 1261 JFK Blvd     | B                     | 64                             | 69                            | 5                                                | 63                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 86                   | 1259 JFK Blvd     | B                     | 67                             | 70                            | 4                                                | 68                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 87                   | 1259 JFK Blvd     | B                     | 64                             | 68                            | 5                                                | 63                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 88                   | 1257 JFK Blvd     | B                     | 67                             | 70                            | 3                                                | 68                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 89                   | 1257 JFK Blvd     | B                     | 64                             | 68                            | 4                                                | 63                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 90                   | 1255B JFK Blvd    | B                     | 67                             | 70                            | 3                                                | 68                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 91                   | 1255B JFK Blvd    | B                     | 64                             | 68                            | 4                                                | 63                              | 4              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 92                   | 1255 JFK Blvd     | B                     | 66                             | 70                            | 3                                                | 68                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 93                   | 1255 JFK Blvd     | B                     | 64                             | 68                            | 4                                                | 64                              | 4              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 94                   | 1270 JFK Blvd     | B                     | 67                             | 74                            | 7                                                | 69                              | 5              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 95                   | 1268 A JFK Blvd   | B                     | 66                             | 72                            | 6                                                | 68                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 96                   | 1268 A JFK Blvd   | B                     | 59                             | 71                            | 12                                               | 59                              | 12             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 97                   | 1268 JFK Blvd     | B                     | 66                             | 71                            | 5                                                | 68                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 98                   | 1268 JFK Blvd     | B                     | 56                             | 68                            | 12                                               | 56                              | 12             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 99                   | 1266 JFK Blvd     | B                     | 66                             | 71                            | 5                                                | 68                              | 3              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 100                  | 1266 JFK Blvd     | B                     | 54                             | 66                            | 12                                               | 54                              | 12             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 101                  | 1264 JFK Blvd     | B                     | 66                             | 71                            | 5                                                | 68                              | 3              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 102                  | 1264 JFK Blvd     | B                     | 53                             | 64                            | 11                                               | 53                              | 11             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 103                  | 1262 JFK Blvd     | B                     | 66                             | 70                            | 4                                                | 68                              | 3              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 104                  | 1262 JFK Blvd     | B                     | 53                             | 63                            | 10                                               | 53                              | 10             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 105                  | 1260 JFK Blvd     | B                     | 66                             | 70                            | 4                                                | 67                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 106                  | 1260 JFK Blvd     | B                     | 53                             | 63                            | 9                                                | 54                              | 9              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 107                  | 1258 JFK Blvd     | B                     | 66                             | 69                            | 4                                                | 67                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 108                  | 1258 JFK Blvd     | B                     | 54                             | 62                            | 8                                                | 55                              | 7              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 109                  | 1256 A+B JFK Blvd | B                     | 66                             | 69                            | 3                                                | 67                              | 2              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |



| Receiver ID | Receiver Address  | NAC Activity Category | Existing Noise Level (dBA Leq) | Build No Noise Wall (dBA Leq) | Existing to Build Noise Level Increase (dBA Leq) | Build With Noise Wall (dBA Leq) | Insertion Loss | Number of Dwelling Units | 1st Row Receptors | Impacts | 1st Row Impacts | Primary Benefits | Suppl. Benefits | No. 1st Row Impact Benefits | No. 1st Row Achieve NRDG | Budget     |
|-------------|-------------------|-----------------------|--------------------------------|-------------------------------|--------------------------------------------------|---------------------------------|----------------|--------------------------|-------------------|---------|-----------------|------------------|-----------------|-----------------------------|--------------------------|------------|
| 110         | 1256 A+B JFK Blvd | B                     | 57                             | 63                            | 6                                                | 58                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 112         | 1246 JFK Blvd     | B                     | 66                             | 69                            | 3                                                | 68                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 113         | 1246 JFK Blvd     | B                     | 56                             | 62                            | 6                                                | 58                              | 4              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 114         | 1244 JFK Blvd     | B                     | 66                             | 69                            | 3                                                | 68                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 115         | 1244 JFK Blvd     | B                     | 52                             | 60                            | 7                                                | 55                              | 5              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 116         | 1242 JFK Blvd     | B                     | 66                             | 69                            | 3                                                | 68                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 117         | 1242 JFK Blvd     | B                     | 52                             | 59                            | 7                                                | 56                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 118         | 1240 JFK Blvd     | B                     | 66                             | 68                            | 3                                                | 68                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 119         | 1240 JFK Blvd     | B                     | 54                             | 60                            | 5                                                | 58                              | 2              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 120         | 1238 JFK Blvd     | B                     | 66                             | 68                            | 2                                                | 68                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 121         | 1238 JFK Blvd     | B                     | 55                             | 61                            | 6                                                | 58                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 122         | 1236 JFK Blvd     | B                     | 66                             | 68                            | 2                                                | 67                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 123         | 1236 JFK Blvd     | B                     | 52                             | 58                            | 6                                                | 55                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 124         | 1234A JFK Blvd    | B                     | 66                             | 68                            | 2                                                | 67                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 125         | 1234A JFK Blvd    | B                     | 51                             | 56                            | 5                                                | 54                              | 2              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 126         | 1234 JFK Blvd     | B                     | 66                             | 68                            | 2                                                | 67                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 127         | 1234 JFK Blvd     | B                     | 50                             | 56                            | 6                                                | 53                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 128         | 1232 JFK Blvd     | B                     | 66                             | 68                            | 2                                                | 67                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 129         | 1232 JFK Blvd     | B                     | 50                             | 55                            | 5                                                | 53                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 130         | 1230 JFK Blvd     | B                     | 66                             | 68                            | 2                                                | 67                              | 1              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 131         | 1230 JFK Blvd     | B                     | 51                             | 55                            | 5                                                | 53                              | 3              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 150         | 140 58th Street   | B                     | 62                             | 73                            | 11                                               | 63                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 151         | 138 58th Street   | B                     | 61                             | 73                            | 11                                               | 63                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 152         | 136 58th Street   | B                     | 61                             | 73                            | 12                                               | 62                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 153         | 134 58th Street   | B                     | 61                             | 73                            | 12                                               | 62                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 154         | 132 58th Street   | B                     | 61                             | 73                            | 12                                               | 62                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 155         | 130 58th Street   | B                     | 61                             | 73                            | 12                                               | 62                              | 10             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 156         | 128 58th Street   | B                     | 61                             | 73                            | 12                                               | 62                              | 11             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 157         | 126 58th Street   | B                     | 60                             | 77                            | 17                                               | 60                              | 16             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 158         | 124 58th Street   | B                     | 61                             | 77                            | 16                                               | 61                              | 16             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 159         | 122 58th Street   | B                     | 62                             | 77                            | 16                                               | 63                              | 15             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 160         | 120 58th Street   | B                     | 62                             | 78                            | 16                                               | 64                              | 14             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 161         | 118 58th Street   | B                     | 63                             | 78                            | 15                                               | 64                              | 14             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 162         | 116 58th Street   | B                     | 63                             | 78                            | 15                                               | 64                              | 14             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 163         | 114 58th Street   | B                     | 63                             | 78                            | 15                                               | 64                              | 14             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 164         | 112 58th Street   | B                     | 63                             | 78                            | 15                                               | 64                              | 14             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 55,000  |
| 165         | 360 Avenue B      | B                     | 60                             | 70                            | 10                                               | 61                              | 9              | 4                        | 4                 | 4       | 4               | 4                |                 | 4                           | 4                        | \$ 200,000 |
| 166         | 360 Avenue B      | B                     | 61                             | 71                            | 10                                               | 59                              | 12             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 167         | 358 Avenue B      | B                     | 59                             | 70                            | 11                                               | 60                              | 10             | 4                        |                   | 4       |                 | 4                |                 |                             |                          | \$ 200,000 |
| 168         | 358 Avenue B      | B                     | 60                             | 72                            | 12                                               | 59                              | 12             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 169         | 356 Avenue B      | B                     | 57                             | 69                            | 12                                               | 64                              | 6              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 170         | 356 Avenue B      | B                     | 60                             | 71                            | 11                                               | 60                              | 11             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 171         | 354 Avenue B      | B                     | 60                             | 69                            | 9                                                | 64                              | 5              | 3                        |                   | 3       |                 | 3                |                 |                             |                          | \$ 150,000 |
| 172         | 354 Avenue B      | B                     | 59                             | 71                            | 11                                               | 59                              | 11             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 173         | 139 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 174         | 137 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 175         | 135 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 176         | 133 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 177         | 131 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 178         | 129 57th Street   | B                     | 55                             | 61                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 179         | 127 57th Street   | B                     | 55                             | 62                            | 6                                                | 56                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 180         | 125 57th Street   | B                     | 56                             | 62                            | 7                                                | 56                              | 6              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 181         | 123 57th Street   | B                     | 56                             | 63                            | 7                                                | 57                              | 7              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 182         | 121 57th Street   | B                     | 56                             | 63                            | 7                                                | 57                              | 6              | 2                        |                   |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 183         | 119 57th Street   | B                     | 57                             | 65                            | 8                                                | 57                              | 8              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 184         | 111 57th Street   | B                     | 58                             | 68                            | 10                                               | 58                              | 9              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 185         | 109 57th Street   | B                     | 59                             | 68                            | 9                                                | 59                              | 9              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 186         | 107 57th Street   | B                     | 59                             | 69                            | 10                                               | 59                              | 10             | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 187         | 105 57th Street   | B                     | 60                             | 70                            | 10                                               | 61                              | 10             | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 188         | 103 57th Street   | B                     | 61                             | 72                            | 12                                               | 61                              | 12             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 189         | 101 57th Street   | B                     | 61                             | 73                            | 12                                               | 61                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 190         | 99 57th Street    | B                     | 61                             | 72                            | 11                                               | 61                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 191         | 95 57th Street    | B                     | 61                             | 73                            | 11                                               | 61                              | 12             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 192         | 93 57th Street    | B                     | 61                             | 73                            | 11                                               | 61                              | 12             | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 193         | 91 57th Street    | B                     | 62                             | 73                            | 11                                               | 61                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 194         | 89 57th Street    | B                     | 62                             | 73                            | 11                                               | 61                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 195         | 87 57th Street    | B                     | 62                             | 73                            | 11                                               | 62                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 196         | 85 57th Street    | B                     | 62                             | 73                            | 11                                               | 62                              | 12             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 197         | 83 57th Street    | B                     | 62                             | 73                            | 11                                               | 62                              | 11             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 198         | 81 57th Street    | B                     | 62                             | 72                            | 10                                               | 61                              | 11             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 199         | 79 57th Street    | B                     | 62                             | 71                            | 9                                                | 61                              | 10             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 200         | 77 57th Street    | B                     | 62                             | 71                            | 8                                                | 61                              | 10             | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 201         | 75 57th Street    | B                     | 63                             | 70                            | 8                                                | 61                              | 9              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 202         | 73 57th Street    | B                     | 63                             | 68                            | 5                                                | 61                              | 7              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 203         | 71 57th Street    | B                     | 63                             | 67                            | 4                                                | 60                              | 7              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 204         | 69 57th Street    | B                     | 63                             | 67                            | 4                                                | 61                              | 6              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           |                          | \$ 50,000  |
| 205         | 67 57th Street    | B                     | 63                             | 67                            | 5                                                | 62                              | 6              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           |                          | \$ 50,000  |
| 206         | 65 57th Street    | B                     | 63                             | 67                            | 4                                                | 61                              | 6              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           |                          | \$ 50,000  |
| 207         | 63 57th Street    | B                     | 64                             | 67                            | 4                                                | 60                              | 7              | 1                        | 1                 | 1       | 1               | 1                |                 | 1                           | 1                        | \$ 50,000  |
| 208         | 80 57th Street    | B                     | 56                             | 64                            | 8                                                | 58                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 209         | 76 57th Street    | B                     | 56                             | 65                            | 8                                                | 59                              | 6              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 210         | 74 57th Street    | B                     | 57                             | 65                            | 8                                                | 59                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 211         | 72 57th Street    | B                     | 58                             | 65                            | 7                                                | 60                              | 5              | 1                        |                   |         |                 |                  | 1               |                             |                          | \$ 25,000  |
| 212         | 70 57th Street    | B                     | 59                             | 66                            | 7                                                | 60                              | 6              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 213         | 65 57th Street    | B                     | 60                             | 67                            | 7                                                | 61                              | 7              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 214         | 66 57th Street    | B                     | 61                             | 68                            | 8                                                | 62                              | 7              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 215         | 64 57th Street    | B                     | 61                             | 69                            | 8                                                | 63                              | 7              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 216         | 62 57th Street    | B                     | 63                             | 70                            | 7                                                | 64                              | 6              | 1                        |                   | 1       |                 | 1                |                 |                             |                          | \$ 50,000  |
| 217         | 141 57th Street   | B                     | 55                             | 63                            | 9                                                | 56                              | 8              | 3                        |                   |         |                 |                  | 3               |                             |                          | \$ 75,000  |
| 218         | 79 56th Street    | B                     | 54                             | 58                            | 5                                                | 54                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 219         | 75 56th Street    | B                     | 53                             | 58                            | 5                                                | 54                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 220         | 73 56th Street    | B                     | 53                             | 58                            | 5                                                | 55                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |



| Receiver ID | Receiver Address  | NAC Activity Category | Existing Noise Level (dBA Leq) | Build No Noise Wall (dBA Leq) | Existing to Build Noise Level Increase (dBA Leq) | Build With Noise Wall (dBA Leq) | Insertion Loss | Number of Dwelling Units | 1st Row Receptors | Impacts | 1st Row Impacts | Primary Benefits | Suppl. Benefits | No. 1st Row Impact Benefits | No. 1st Row Achieve NRDG | Budget     |
|-------------|-------------------|-----------------------|--------------------------------|-------------------------------|--------------------------------------------------|---------------------------------|----------------|--------------------------|-------------------|---------|-----------------|------------------|-----------------|-----------------------------|--------------------------|------------|
| 221         | 71 56th Street    | B                     | 54                             | 59                            | 5                                                | 55                              | 3              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 222         | 69 56th Street    | B                     | 55                             | 59                            | 5                                                | 56                              | 3              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 223         | 67 56th Street    | B                     | 55                             | 60                            | 5                                                | 56                              | 3              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 224         | 65 56th Street    | B                     | 57                             | 61                            | 4                                                | 58                              | 3              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 225         | 63 56th Street    | B                     | 59                             | 63                            | 4                                                | 60                              | 3              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 226         | 63 56th Street    | B                     | 62                             | 67                            | 5                                                | 63                              | 4              | 1                        |                   | 1       |                 |                  |                 |                             |                          |            |
| 227         | 53 56th Street    | B                     | 57                             | 61                            | 3                                                | 59                              | 2              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 228         | 53 56th Street    | B                     | 61                             | 67                            | 7                                                | 62                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 229         | 51 56th Street    | B                     | 57                             | 60                            | 3                                                | 58                              | 2              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 230         | 51 56th Street    | B                     | 60                             | 67                            | 7                                                | 61                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 231         | 49 56th Street    | B                     | 54                             | 58                            | 3                                                | 55                              | 3              | 2                        | 2                 |         |                 |                  | 2               |                             |                          | \$ 50,000  |
| 232         | 49 56th Street    | B                     | 56                             | 63                            | 7                                                | 57                              | 6              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 233         | 47 56th Street    | B                     | 54                             | 57                            | 3                                                | 55                              | 3              | 2                        | 2                 |         |                 |                  | 2               |                             | 2                        | \$ 50,000  |
| 234         | 47 56th Street    | B                     | 57                             | 65                            | 8                                                | 58                              | 8              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 235         | 45 56th Street    | B                     | 52                             | 56                            | 4                                                | 52                              | 3              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 236         | 45 56th Street    | B                     | 58                             | 68                            | 10                                               | 58                              | 10             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 237         | 43 56th Street    | B                     | 51                             | 55                            | 4                                                | 51                              | 3              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 238         | 43 56th Street    | B                     | 59                             | 69                            | 10                                               | 59                              | 10             |                          |                   |         |                 |                  |                 |                             |                          | \$ 100,000 |
| 239         | 41 56th Street    | B                     | 51                             | 54                            | 4                                                | 51                              | 4              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 240         | 41 56th Street    | B                     | 60                             | 69                            | 9                                                | 59                              | 10             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 241         | 39 56th Street    | B                     | 50                             | 54                            | 4                                                | 50                              | 4              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 242         | 39 56th Street    | B                     | 61                             | 69                            | 9                                                | 59                              | 10             |                          |                   |         |                 |                  |                 |                             |                          |            |
| 243         | 37 56th Street    | B                     | 50                             | 54                            | 4                                                | 51                              | 3              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 244         | 37 56th Street    | B                     | 61                             | 69                            | 8                                                | 60                              | 9              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 245         | 35 56th Street    | B                     | 50                             | 54                            | 4                                                | 51                              | 3              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 246         | 35 56th Street    | B                     | 61                             | 69                            | 8                                                | 60                              | 9              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 247         | 33 56th Street    | B                     | 59                             | 61                            | 2                                                | 60                              | 1              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           | 2                        | \$ 100,000 |
| 248         | 33 56th Street    | B                     | 60                             | 68                            | 8                                                | 60                              | 8              |                          |                   |         |                 |                  |                 |                             |                          |            |
| 255         | 34 56th Street    | B                     | 60                             | 65                            | 5                                                | 61                              | 4              | 2                        |                   |         |                 |                  |                 |                             |                          |            |
| 256         | 32 56th Street    | B                     | 60                             | 66                            | 5                                                | 61                              | 5              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 257         | 30 56th Street    | B                     | 61                             | 66                            | 6                                                | 62                              | 5              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 258         | 28 56th Street    | B                     | 61                             | 66                            | 6                                                | 62                              | 5              | 2                        |                   | 2       |                 | 2                |                 |                             |                          | \$ 100,000 |
| 259         | 26 56th Street    | B                     | 61                             | 67                            | 6                                                | 62                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 260         | 24 56th Street    | B                     | 62                             | 67                            | 5                                                | 63                              | 4              | 2                        |                   | 2       |                 |                  |                 |                             |                          |            |
| 494         | 101 W 56th Street | C                     | 50                             | 52                            | 3                                                | 50                              | 2              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1041        | 101 W 56th Street | C                     | 53                             | 60                            | 7                                                | 56                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1045        | 101 W 56th Street | D                     | 47                             | 55                            | 9                                                | 49                              | 6              | 3                        |                   | 3       |                 | 3                |                 |                             |                          | \$ 150,000 |
| 1046        | 101 W 56th Street | D                     | 49                             | 56                            | 7                                                | 51                              | 5              | 3                        |                   | 3       |                 | 3                |                 |                             |                          | \$ 150,000 |
| 1047        | 101 W 56th Street | D                     | 54                             | 58                            | 5                                                | 54                              | 4              | 3                        |                   | 3       |                 |                  |                 |                             |                          |            |
| 1048-E1     | 101 W 56th Street | D                     | 41                             | 47                            | 6                                                | 42                              | 5              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1048-E2     | 101 W 56th Street | D                     | 43                             | 49                            | 6                                                | 45                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1048-E3     | 101 W 56th Street | D                     | 46                             | 51                            | 5                                                | 47                              | 4              | 1                        |                   | 1       |                 |                  |                 |                             |                          |            |
| 1048-M1     | 101 W 56th Street | D                     | 43                             | 48                            | 6                                                | 44                              | 5              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1048-M2     | 101 W 56th Street | D                     | 45                             | 50                            | 5                                                | 46                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1048-M3     | 101 W 56th Street | D                     | 48                             | 52                            | 4                                                | 49                              | 4              | 1                        |                   | 1       |                 |                  |                 |                             |                          |            |
| 1048-W1     | 101 W 56th Street | D                     | 44                             | 50                            | 6                                                | 46                              | 4              | 1                        |                   |         |                 |                  |                 |                             |                          |            |
| 1048-W2     | 101 W 56th Street | D                     | 46                             | 51                            | 6                                                | 48                              | 4              | 1                        |                   | 1       |                 |                  |                 |                             |                          |            |
| 1048-W3     | 101 W 56th Street | D                     | 49                             | 54                            | 4                                                | 50                              | 4              | 1                        |                   | 1       |                 |                  |                 |                             |                          |            |
| 1049        | 159 W 57th St     | B                     | 65                             | 70                            | 5                                                | 64                              | 6              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 1050        | 161 W 57th St     | B                     | 65                             | 70                            | 5                                                | 65                              | 6              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 1051        | 163 W 57th St     | B                     | 66                             | 71                            | 5                                                | 65                              | 6              | 2                        | 2                 | 2       | 2               | 2                |                 | 2                           |                          | \$ 100,000 |
| 340         | 190 W 54th Street | B                     | 64                             | 66                            | 1                                                | 65                              | 1              | 1                        | 1                 | 1       | 1               |                  |                 |                             |                          |            |
| 341         | 190 W 54th Street | B                     | 65                             | 66                            | 1                                                | 65                              | 1              | 1                        | 1                 | 1       | 1               |                  |                 |                             |                          |            |
| 345         | 190 W 54th Street | B                     | 64                             | 65                            | 2                                                | 64                              | 1              | 1                        | 1                 |         |                 |                  |                 |                             |                          |            |
| 349         | 190 W 54th Street | B                     | 64                             | 65                            | 2                                                | 64                              | 1              | 1                        | 1                 |         |                 |                  |                 |                             |                          |            |