

| | | | |
|-------------------|---|--------------------------|------------------------|
| Project | Former A&A Brake Service Site | Report No. | 40 |
| BCP Site | NYSDEC BCP SITE C224372 | Date | 9/23/2024 |
| Location | 558 Sackett Street | File No. | 0206384 |
| Client | Sackett Heights LLC | Temperature | H: 67°F L: 60°F |
| Contractor | Blue Sky Builders, International Concrete | Wind Direction | NE to SW, up to 13 mph |
| Weather | Overcast | Personnel on Site | G. Poulton |
| Humidity | 56% | Time on Site | 6:30 am to 4:00 pm |

H & A of New York Engineering and Geology, LLP (Haley & Aldrich) was present document implementation of the May 2024 NYSDEC-Approved Remedial Action Work Plan (RAWP) and Decision Document for the Former A&A Brake Service Site C224372, located at 558 Sackett Street, Brooklyn, NY. Site observations are summarized below.

Daily Observations:

- Contractor (Blue Sky) continued soil excavation in the northern portion of the Site.
- Contractor loaded tri-axle trucks with soil for off-Site disposal at Clean Earth New Castle located in New Castle, DE (CENC).
- Contractor (Blue Sky) installed lagging walls around piles in the northern portion of the Site.
- Contractor (Blue Sky) welded steel beams to pilings in the northern portion of the site.
- Chris DiScafani from WSP, arrived on-Site to document field activities on behalf of the NYSDEC. No complaints were noted.
- Daily vibration monitoring data appended to this report.

Waste Disposal/Backfill Import Tracking:

Material Export:

- Soil disposal is summarized below:

| | <i>Facility: Posillico Materials, Farmingdale, NY (Non-Haz Soil)</i> | | <i>Facility: Clean Earth of North Jersey, Kearny, NJ (Haz Soil)</i> | | <i>Facility: Clean Earth of New Castle, New Castle, DE (Non-Haz Soil)</i> | | <i>Totals:</i> | |
|---------------|--|---------------|---|--------------|---|--------------|-----------------|---------------|
| <i>Today:</i> | <u>0 Loads</u> | <u>0 CY</u> | <u>0 Loads</u> | <u>0 CY</u> | <u>2 Loads</u> | <u>40 CY</u> | <u>2 Loads</u> | <u>40 CY</u> |
| <i>Total:</i> | <u>15 Loads</u> | <u>300 CY</u> | <u>1 Load</u> | <u>10 CY</u> | <u>2 Loads</u> | <u>40 CY</u> | <u>18 Loads</u> | <u>360 CY</u> |

*Note, 1 truck estimated at 20 cubic yards. Final tonnages will be presented in the FER.

- C&D disposal is summarized below:

| | <i>Facility: South Shore Recycling; Staten Island, NY (C&D)</i> | | <i>Totals:</i> | |
|---------------|---|---------------|-----------------|---------------|
| <i>Today:</i> | <u>0 Loads</u> | <u>0 CY</u> | <u>0 Loads</u> | <u>0 CY</u> |
| <i>Total:</i> | <u>14 Loads</u> | <u>280 CY</u> | <u>14 Loads</u> | <u>280 CY</u> |

Material Import:

- None.
- Material import is summarized below:

| | <i>Facility: Stavola of Tinton Falls, NJ; Bound Brook Quarry, NJ (1 ½ in Stone)</i> | | <i>Facility: Stavola of Tinton Falls, NJ; Bound Brook Quarry, NJ (¾ in Stone)</i> | | <i>Totals:</i> | |
|---------------|---|--------------|---|--------------|----------------|--------------|
| <i>Today:</i> | <u>0 Loads</u> | <u>0 CY</u> | <u>0 Loads</u> | <u>0 CY</u> | <u>0 Loads</u> | <u>0 CY</u> |
| <i>Total:</i> | <u>3 Loads</u> | <u>60 CY</u> | <u>1 Load</u> | <u>20 CY</u> | <u>4 Loads</u> | <u>80 CY</u> |

**Note, 1 truck estimated at 20 cubic yards. Final tonnages will be presented in the FER.*

Samples Collected:

- The following documentation endpoint samples were collected and sent to a laboratory for the NYSDEC Part 375 Full List TAL/TCL – semi-volatile organic compounds (SVOCs) analysis: CS05-SW-04D_3.5 and CS05-SW-04E_3.5.
- The soil samples were relinquished to Alpha Analytical of Westborough, MA (a ELPA certified laboratory) under chain of custody procedures.

CAMP Activities:

- Air monitoring during ground-intrusive activities was performed at one upwind and one downwind location during ground intrusive work from 7:00 am to 3:15 pm.
- An exceedance of 202.02 µg/m³ was observed around 1:00 p.m. when welding work was conducted on the pilings.
- No other exceedances observed.

welding releases a small amount of smoke. They are welding steel to the pilings near station 1

Activities Planned for Coming Week:

- Contractor (Blue Sky) will continue excavation of soil/fill material.
- Contractor (Blue Sky) will continue support-of-excavation installation.

Site Photographs:



Photo 1: View of contractor loading soil for off-Site disposal, facing West.

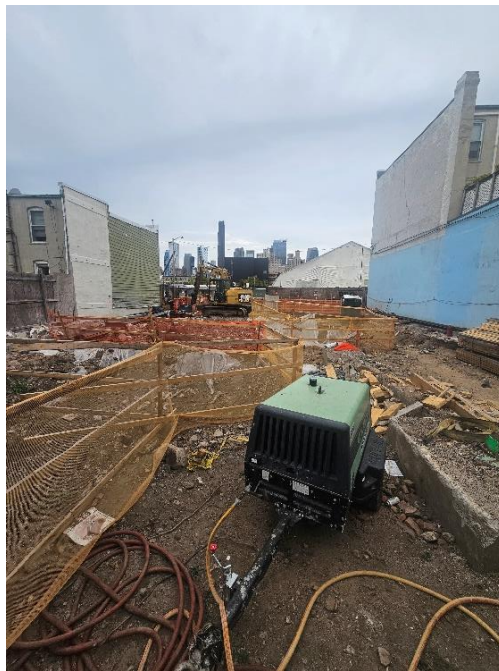
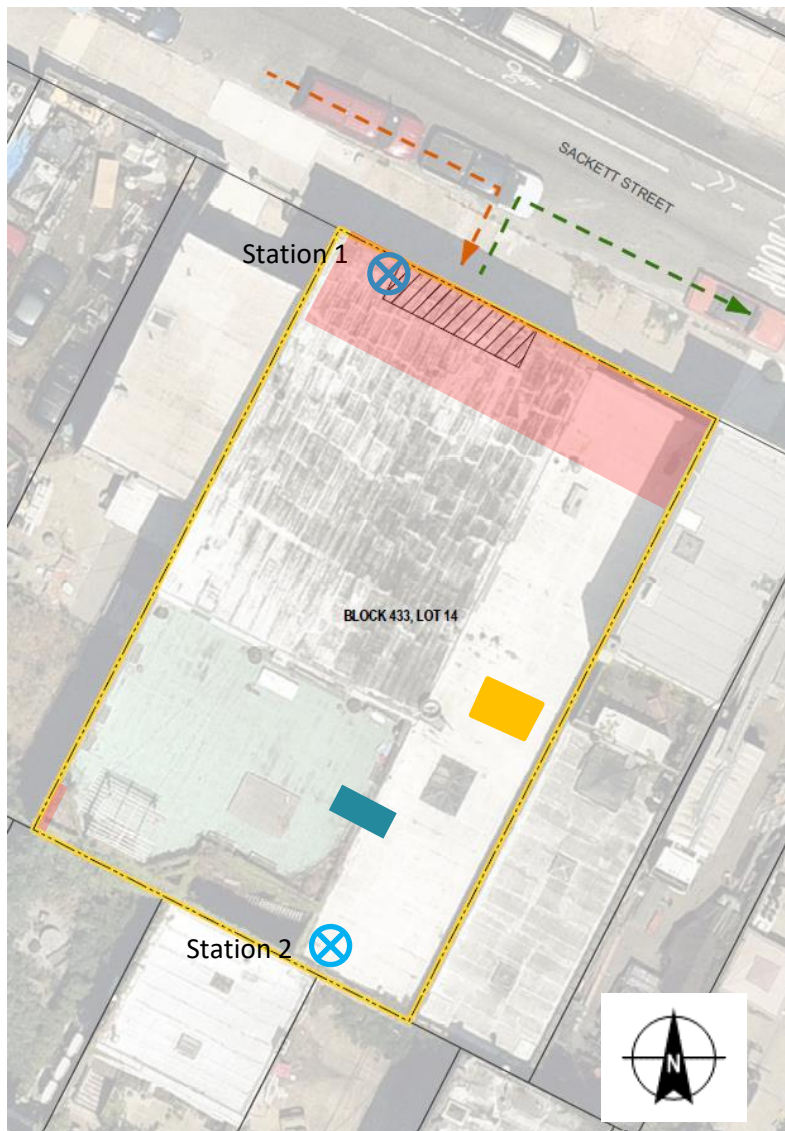









Photo 2: View of site conditions at shift end, facing North.

Site Plan:



LEGEND:

-  CAMP Station
-  Stabilized Truck Entrance and Truck Wash Area
-  Ingress
-  Egress
-  Approximate Work Area
-  Approximate UST Location
-  Approximate hydraulic lift Location

558 Sackett Street, Brooklyn NY

Air Monitoring Log

Date : 2024-09-23

Personnel : G. Poulton
 Weather : Overcast
 Humidity : 56%
 Wind Direction : NE to SW, 13 mph

Particulate Background (ug/m3) : 14.35
 PID Background (ppm) : 0.0

Action Levels : Downwind perimeter of work area above background levels

PID (ppm) : > 5 ppm for the 15-min average

Dust (ug/m3) : > 150 for the 15-min average

| Minute of Time | Avg. PM10 (Station1) | Avg. PM10 (Station2) | Avg. VOC(Station1) | Avg. VOC(Station2) | Odors | Notes Activities/Additional Monitoring |
|----------------|----------------------|----------------------|--------------------|--------------------|-------|---|
| 07:00 | 14.350 | 7.737 | 0.0 | 0.0 | | |
| 07:15 | 17.992 | 12.849 | 0.0 | 0.0 | | |
| 07:30 | 8.722 | 10.366 | 0.0 | 0.0 | | |
| 07:45 | 12.510 | 7.248 | 0.0 | 0.0 | | |
| 08:00 | 9.195 | 10.530 | 0.0 | 0.0 | | |
| 08:15 | 8.109 | 6.601 | 0.0 | 0.0 | | |
| 08:30 | 16.633 | 7.483 | 0.0 | 0.0 | | |
| 08:45 | 14.790 | 8.427 | 0.0 | 0.0 | | |
| 09:00 | 6.725 | 3.636 | 0.0 | 0.0 | | |
| 09:15 | 5.597 | 3.094 | 0.0 | 0.0 | | |
| 09:30 | 9.104 | 4.412 | 0.0 | 0.0 | | |
| 09:45 | 6.970 | 8.409 | 0.1 | 0.0 | | |
| 10:00 | 5.863 | 3.214 | 0.6 | 0.1 | | |
| 10:15 | 20.385 | 4.292 | 0.3 | 0.2 | | |
| 10:30 | 14.926 | 4.162 | 0.1 | 0.1 | | |
| 10:45 | 66.169 | 7.585 | 0.2 | 0.1 | | |

558 Sackett Street, Brooklyn NY

Air Monitoring Log

| Minute of Time | Avg. PM10 (Station1) | Avg. PM10 (Station2) | Avg. VOC(Station1) | Avg. VOC(Station2) | Odors | Notes Activities/Additional Monitoring |
|----------------|----------------------|----------------------|--------------------|--------------------|-------|--|
| 11:00 | 72.044 | 5.830 | 0.1 | 0.1 | | |
| 11:15 | 59.370 | 5.677 | 0.1 | 0.1 | | |
| 11:30 | 111.122 | 6.455 | 0.1 | 0.0 | | |
| 11:45 | 101.890 | 5.427 | 0.0 | 0.0 | | |
| 12:00 | 3.943 | 4.085 | 0.0 | 0.0 | | |
| 12:15 | 3.281 | 3.827 | 0.0 | 0.0 | | |
| 12:30 | 4.144 | 4.382 | 0.0 | 0.0 | | |
| 12:45 | 4.423 | 3.879 | 0.0 | 0.0 | | |
| 13:00 | 202.200 | 5.352 | 0.0 | 0.0 | | |
| 13:15 | 119.279 | 5.611 | 0.0 | 0.0 | | |
| 13:30 | 79.647 | 5.658 | 0.0 | 0.0 | | |
| 13:45 | 68.931 | 7.018 | 0.0 | 0.0 | | |
| 14:00 | 43.477 | 5.828 | 0.0 | 0.0 | | |
| 14:15 | 30.980 | 5.173 | 0.0 | 0.0 | | |
| 14:30 | 44.957 | 5.598 | 0.0 | 0.1 | | |
| 14:45 | 27.743 | 6.315 | 0.0 | 0.0 | | |
| 15:00 | 30.619 | 7.882 | 0.0 | 0.0 | | |
| 15:15 | 8.010 | 6.190 | 0.0 | 0.0 | | |

WEEKLY MONITORING REPORT



This Weekly Monitoring Report Includes the analysis and data of:

- Vibration Monitoring

Prepared For:
Blue Sky Builders

Prepared By:
Anslem Valmont –
Monitoring Specialist

Weekly Monitoring
9/23/2024 - 9/23/2024

Project Address:
558 Sackett Street,
Brooklyn,
Brooklyn NY 11215
BBL:/443/55

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Project Address:
558 Sackett Street, Brooklyn,
Brooklyn NY 11215



RE: Blue Sky Builders

Dear Mr. Hershy Silberstein,

I am delighted to share with you the Weekly Results of the Remote Vibration Monitoring, Optical Surveying Site Visits, and Crack Monitoring Site Visits, conducted this week at your construction site pursuant to the New York City DOB Building Code 3309 "Protection of Adjoining Properties".

This "Weekly Monitoring Report" contains the comprehensive results of the Vibration, Optical, and Crack Monitoring Services at your construction project located at , conducted by our professional team of Engineers, Surveyors, and filed personnel who performed site visits and inspections based on the outlined requirements detailed in the VMCP (Vibration Monitoring Control Plan) designed by our engineer based on the SOE Plans.

Vibration Monitoring Reports - are generated remotely by our Remote Monitoring Software and are being carefully reviewed by our Monitoring Specialists who oversee and report High Alerts in real time during the work.

Optical Monitoring Results - are documented by our Surveying Team who conducted site visits and inspection at your construction site using high-tech Survey instrumentation to document and record any movements in the optical Targets. The findings of the

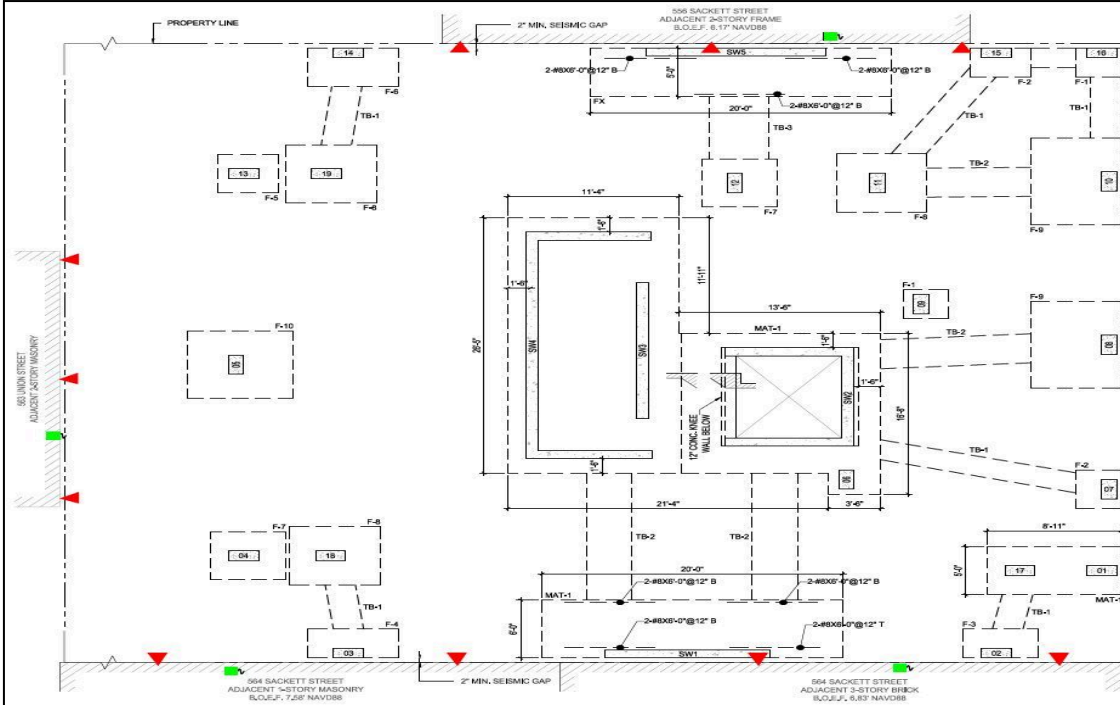
Crack Monitoring Results - are also generated by the findings of our filed team during this week's site visits at your construction site. These results are documented by photographs of the installed Gauges. Such results are also entered in graph charts to simplify the results.

We greatly appreciate your business and the trust you placed in us to service your professional firm, and strive to continue servicing you with the utmost dedication and professionalism to your great satisfaction and to constantly improve our services.

Please feel free to reach out to me with any questions or comments regarding this report.

Respectfully submitted,

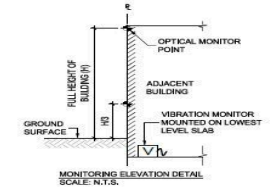
**Anslem Valmont – Director of
Monitoring**
anslemv@quiverleague.com
(212) 897-9947



2 MONITORING PLAN

- SCALE: 1/4" = 1'-0"
- MONITORING PROTOCOL:**
- FOR ALL FOUNDATION AND FOOTING INFORMATION, SEE FC-101.
 - ALL MONITORING REPORT MUST BE SENT TO [MONITORING@ELEVATEDENGINEERINGNYC.COM](mailto:info@quivermonitoring.com)
 - REFER TO MONITORING NOTES ON FC-001 FOR DETAILS.
 - VIBRATION MONITORING SHALL BE PLACED BEFORE EXCAVATION AND PROVIDE REALTIME ALERT TO ENGINEER OF RECORD.
 - OPTICAL MONITORING SHALL BE PLACED PRIOR TO EXCAVATION AND READING IS REQUIRED ONCE A WEEK DURING EXCAVATION WORK
 - THE FOLLOWING ARE THE MONITORING LIMITS:

| MONITORING LOCATION | THRESHOLD TYPE | |
|------------------------------|------------------|-----------------|
| | REVIEW LEVEL | ACTION LEVEL |
| ADJACENT BUILDINGS | OPTICAL | |
| ADJACENT BUILDINGS | 1/4 INCH | 1/2 INCH |
| NYCT STRUCTURES | 1/4 INCH | 1/2 INCH |
| STREET AND SIDEWALK PAVEMENT | 1/2 INCH | 1 INCH |
| ADJACENT BUILDINGS | VIBRATION | |
| ADJACENT BUILDINGS | 1.0 INCH/SECOND | 2.0 INCH/SECOND |
| NYCT STRUCTURES | 0.25 INCH/SECOND | 0.5 INCH/SECOND |
| ADJACENT BUILDINGS | CRACK GAUGES | |
| ADJACENT BUILDINGS | 3 MILLIMETERS | 6 MILLIMETERS |



- LEGEND**
- OPTICAL MONITORING POINT
 - VIBRATION MONITORING POINT

MONITORING GENERAL NOTE

- MONITORING CONTRACTOR IS TO BE NOTIFIED OF ANY AND ALL DESIRED ALTERATIONS TO THE MONITORING PLAN. NO MONITORING DEVICES MAY BE REMOVED OR ALTERED IN ANY WAY UNLESS DIRECTED BY THE MONITORING CONTRACTOR.
- AN EXISTING CONDITION SURVEY OF THE ADJACENT BUILDINGS SHOULD BE PREFORMED PRIOR TO THE COMMENCEMENT OF WORK ON SITE.
- CRACK GAUGE MONITORS ARE TO BE INSTALLED OVER ALL STRUCTURAL CRACKS DISCOVERED IN THE EXISTING CONDITIONS SURVEY.
- MONITORING CONTRACTOR IS TO BE NOTIFIED IF NEW BUILDING CRACKS ARE DISCOVERED DURING CONSTRUCTION AND ADDITIONAL CRACK GAUGES ARE TO BE INSTALLED.
- PERMISSION TO PLACE OR INSTALL MONITORING EQUIPMENT ON ANY BUILDING MUST BE OBTAINED FROM THE RESPECTIVE OWNER.
- MONITORING EQUIPMENT IS TO BE INSTALLED ONE WEEK PRIOR TO COMMENCEMENT OF WORK AND BASELINES DATA IS TO BE RECORDED.

- Optical Monitoring Point
- Vibration Monitor

NOTICE : this monitoring plan was drafted based on the SOE Plan of the subject property. This Monitoring Plans is intended for Monitoring Layout purpose only.

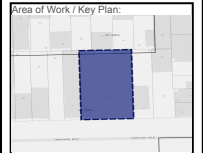
| MONITORING SUMMARY & PROTOCOL | | | | | |
|----------------------------------|--|---|---|---|---|
| MONITORING TYPE | DESCRIPTION | FREQUENCY OF INSPECTION | THRESHOLD | REQUIRED ACTION IF THRESHOLD IS EXCEEDED | FREQUENCY OF REPORT |
| VIBRATION MONITORING | AUTOMATED REMOTE VIBRATION MONITORING WITH A THREE COMPONENT SEISMOGRAPH | REMOTE VIBRATION MONITORING ALLOWANCE WORK HOURS RECORDED 24HRS EXCEEDING THE THRESHOLD WILL BE UPLOADED TO A REMOTE SERVER AND EMAIL ALERT WILL BE SENT TO ALL RESPONSIBLE PARTIES | PEAK PRACTICE VELOCITY > 2 IN/S FOR ADJACENT STRUCTURES | IF VIBRATIONS EXCEED 2 IN/S FOR ADJACENT STRUCTURES STOP ALL WORK IMMEDIATELY AND TAKE ADDITIONAL OPTICAL AND CRACK GAUGE INSPECTIONS. ALL DATA MUST BE REVIEWED BY THE SOE AND MONITORING CONTRACTOR. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER, OWNER, ENGINEER OF APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURE. | A WRITTEN REPORT INCLUDING DATA FROM THE OPTICAL, CRACK AND VIBRATION MONITORING SHALL BE PROVIDED AT THE END OF EACH WEEK SHOULD THE PREDETERMINED THRESHOLD FOR ANY TYPE OF CONSTRUCTION MONITORING BE EXCEEDED. A WRITTEN REPORT INCLUDING ALL RECORDED DATA WILL BE MADE AVAILABLE IMMEDIATELY. |
| HORIZONTAL AND VERTICAL CONTROLS | MANUAL OPTICAL SURVEYING WITH ELECTRONIC TOTAL STATION | CONDUCT OPTICAL MONITORING DAILY DURING UNDERPINNING AND AT LEAST Weekly DURING ALL OTHER PHASES OF FOUNDATION CONSTRUCTION UNTIL COMPLETION OF FIRST FLOOR SLAB | 0.5" DISPLACEMENT IN ANY DIRECTION | IF VERTICAL OR LATERAL BUILDING MOVEMENT REACHES 0.5" IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER, OWNER, ENGINEER AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER, OWNER AND ENGINEER OF APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES. | |
| CRACK GAUGE MONITORING | MANUAL OBSERVATION AND RECORDING OF MEASUREMENT WITH THE STAMPED DIGITAL PHOTOGRAPHY | AT SAME FREQUENCY AS OPTICAL MONITORING INSPECTIONS | 6mm DISPLACEMENT IN ANY DIRECTION | IF MOVEMENT REACHES 6mm IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER, OWNER, ENGINEER AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER, OWNER AND ENGINEER OF APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES. | |



QUIVER MONITORING

212-897-9946
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| No. | Issue / Revision | Date |
|-----|------------------|------------|
| 1 | Issue | 06/24/2024 |
| | | |
| | | |
| | | |



Client:
Blue Sky Builders

Project:
558 Sackett Street,
Brooklyn Brooklyn NY
11215

Drawing Title:
MONITORING PLAN

Engineering Seal:

| | |
|-----------------------|----------------|
| Y1 Project #: 20265 | Drawn By: R.P. |
| Date: 06/24/2024 | Checked By: |
| Drawing No: M5-100-02 | |
| Scale: NOT TO SCALE | Sheet 01 of 1 |

NEW YORK CITY DEPARTMENT OF BUILDINGS MONITORING CODES

Quiver Monitoring will refer to the following New York City DOB Building Codes:

Section 3309 “Protection of Adjoining Property”:

- **3309.3** Physical Examination
- **3309.4** Soil or foundation work affecting adjoining property
- **3309.4.3** Pre construction Survey
- **3309.4.4** Monitoring
- **3309.16** Monitoring Plan

Historic Structures:

- TPN 10/88 (Technical Policy and Procedure Notice) Historic Structures

NYC Transit / MTA Monitoring

- External Partner Program
-

3309.3 Physical Examination

When permission to enter upon adjoining property has been obtained, a physical examination of such property shall be conducted by the person causing the construction or demolition operations prior to the commencement of the operations and at reasonable periods during the progress of the work. Observed conditions shall be recorded by the person causing the construction or demolition operations, and such records shall be made available to the department upon request.

3309.4 Soil or foundation work affecting adjoining property

Whenever soil or foundation work occurs, regardless of the depth of such, the person who causes such to be made shall, at all times during the course of such work and at his or her own expense, preserve and protect from damage any adjoining structures, including but not limited to footings and foundations,

provided such person is afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining buildings and property, and to perform such work thereon as may be necessary for such purpose. If the person who causes the soil or foundation work is not afforded a license, such duty to preserve and protect the p>adjacent property shall devolve to the owner of such adjoining property, who shall be afforded a similar license with respect to the property where the soil or foundation work is to be made.

3309.4.3 Preconstruction Survey

No excavation work to a depth of 5 feet to 10 feet (1524 mm to 3048 mm) within 10 feet (3048 mm) of an adjacent building, or an excavation over 10 feet (3048 mm) anywhere on the site shall commence until the person causing an excavation to be made has documented the existing conditions of all adjacent buildings in a preconstruction survey.

3309.4.4 Monitoring

During the course of excavation work the following shall be monitored in accordance with Section 3309.16:

1. Buildings that are within a distance from the edge of the excavation that is equal to or less than the maximum depth of the excavation.
2. Historic structures that are contiguous to or within a lateral distance of 90 feet (27 432 mm) from the edge of the lot where an excavation is occurring.

Exception: Monitoring is not required for excavations to a depth of five feet (1523 mm) or less, provided:

1. The excavation occurs more than 5 feet (1524 mm) from all footings and foundations; or
2. Where the excavation occurs within five feet (1524 mm) or less from a footing or foundation, such excavation does not occur below the level of the footing or foundation.

3309.16 Monitoring Plan

Where monitoring is required by Section 3309, such monitoring shall be in accordance with a monitoring plan developed by a registered design professional and acceptable to the commissioner. The monitoring plan shall be specific to the structures to be monitored and operations to be undertaken, and shall specify the scope and frequency of monitoring, acceptable tolerances, and reporting criteria for when tolerances are exceeded.

TPPN 10/88 (Technical Policy and Procedure Notice) Historic Structures

BC 3309 references New York City Department of Buildings Technical Policy and Procedure Notice #10/88 (TPPN 10/88) which outlines the documentation and monitoring requirements for adjacent structures located within Landmarks Preservation Commission (LPC) designated Historic Districts. TPPN 10/88 provides for monitoring of Landmark or Historic District buildings within 90 feet of any site with foundation construction or earthwork excavation.

NYC Transit / MTA Monitoring / External Partner Program

Private property owners who are building within 200 feet of MTA property, are required to communicate and provide proposed building plans and monitoring procedures to the NYC Transit Adjacency Projects Team and to follow the External Partner Program.

The Adjacency Projects Team reviews and approves, or provides a determination of no impact, for residential, commercial, and other developments initiated by the private sector. We will help identify the best design and engineering solutions to mitigate potential impacts to our transit system and customers.

APPENDIX A



**VIBRATION
MONITORING**

VIBRATION MONITORING

Remote Vibration Monitoring; Seismographs

Seismograph


Quiver Monitoring recommends the installation and maintenance of (4) Instatel Micromate seismographs for the protection of the adjacent structures. These seismographs will have serial numbers and proof of calibration certificate.


The calibration certificates will be provided prior to the vibration monitoring fieldwork. The seismographs will continuously monitor the two horizontal and one vertical component of motion and visually display the maximum value on screen. The systems will be equipped with a cellular modem to provide automated reporting and notifications. The equipment will be installed on or near the closest foundation wall adjacent to the construction project based on accessibility and permission from the owner. In the event an exceedance is recorded an email or text message will be sent as a notification or alert to designated recipients. Weekly reports will be submitted electronically with a summary of daily vibrations per monitor for that week's duration.

VIBRATION MONITORING LOCATIONS

Quiver Monitoring recommends the following vibration monitoring layout.

1. **UM17486:** Is installed at the 564 Sackett Street Exterior, front.
2. **UM17502:** Is installed at the 563 Union Street Exterior.
3. **UM22524:** Is installed at the 564 Sackett Street Exterior, rear.

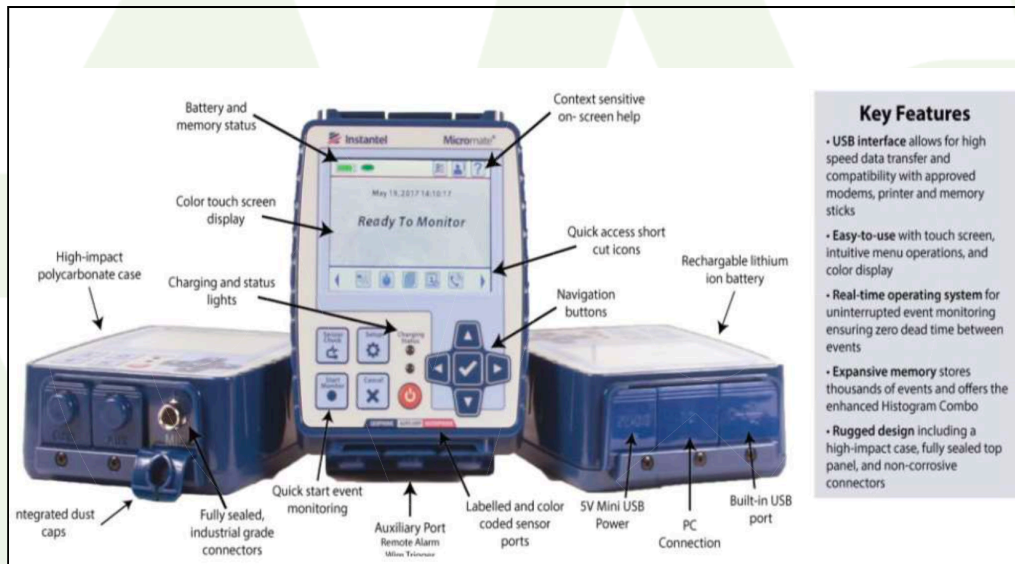


| | | |
|---|---|---|
|  <p>QUIVER MONITORING</p> | <p>Vibration Monitoring Layout 558 Sackett Street, Brooklyn Brooklyn NY 11215</p> | <p>Date of Installation MM/DD/YY 06/24/24</p> |
|---|---|---|

VIBRATION COMPLIANCE

The following vibration protocol will be used by notifications to the client and contractor(s) as follows:

1. A verbal warning shall be given to the client, contractor and the site engineer if any measured vibration level exceeds 1.000 inches per second.
2. A written warning shall be given to client, contractor and the engineer if any measured vibration level exceeds 2.000 inches per second.
3. All vibration producing construction activities must stop if readings exceed 2.000 inches per second. Take additional optical control and telltale readings to be reviewed in conjunction with vibration produced waveform. Work may continue once construction methods and monitoring data is reviewed and approved by all parties.
4. The remote communication system will relay all exceedances to Quiver Monitoring's central office and generate waveform alerts in the form of e-mails immediately to any approved site personnel.



GROUND VIBRATION AND AIR BLAST COMPLIANCE METHODS, UNITED STATES BUREAU OF MINES (USBM – RI8507)

It takes a considerable measure of vibration to harm surface structures, underground structures, pipelines, sewers and water wells. Surface structures, underground facilities and wells are dynamic in nature and in that capacity are dependent upon an assortment of internal and external forces, for example, settlement, weather, and changes in soil saturation, excavation and frost levels, etc.

The forces following up on the previously mentioned don't end upon the origin of vibration delivering activities in the territory. Damage is most effectively shown utilizing seismographic or other geophysical information developed during demolition / development processes.

Throughout the years much research has been given to deciding vibration levels capable for making harm to structures. These investigations were conducted by the United States Bureau of Mines, by the National Research Council of Canada, by insurance companies and by other geo technical consultants.

The consensus of these findings is that acceptable vibration levels is that of which a peak partial velocity (PPV) of 2.0 inches per second in any of the three components of movement is not surpassed by the ground motion at the structure of concern.

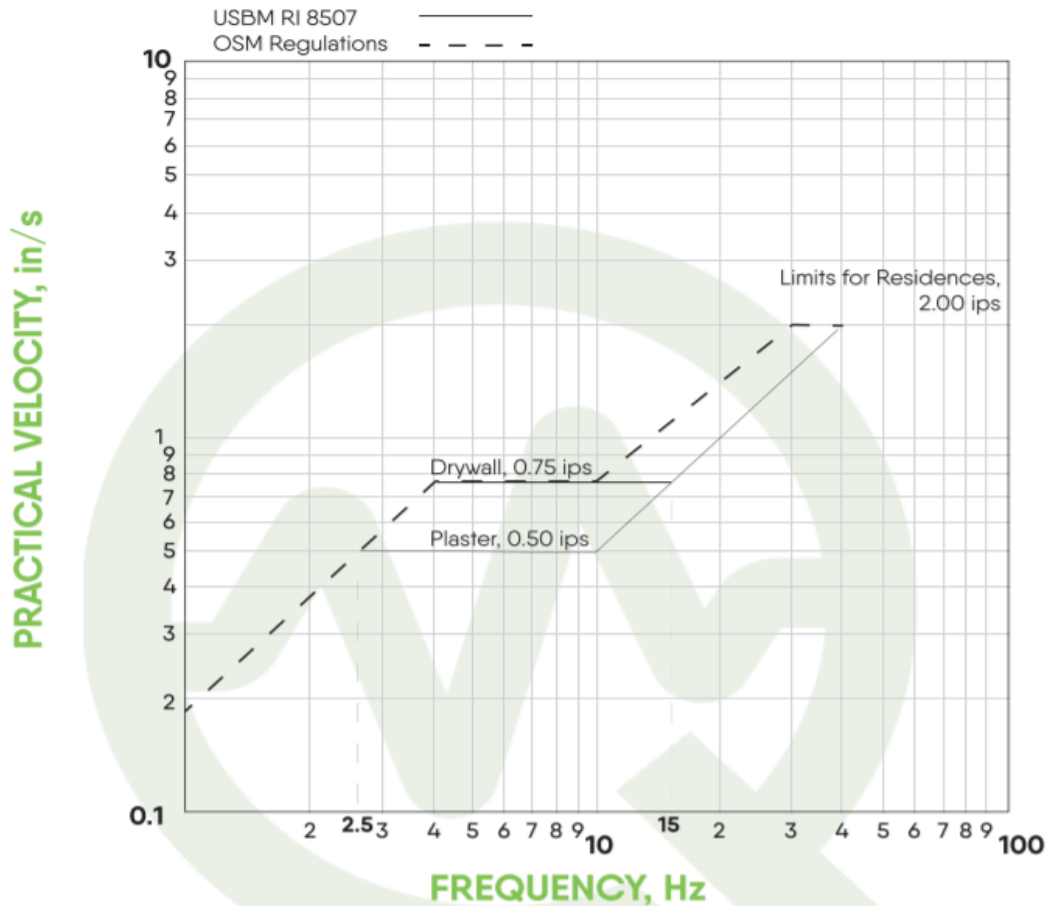
The PPV of 2.0 inches per second limit is generally deemed acceptable as a conservative safe limit for structures in many states for construction activities such as demolition and blasting activities as stated in the U.S Bureau of Mines RI- 8507.

The United States Bureau of Mines (USBM) & Office of Surface Mining (OSM) conducted further research in order to refine damage criteria based upon structure frequency response. The research by the USBM and OSM has established the following criteria relating the event of structural damage to certain frequencies and levels of ground motion.

The USBM report of investigation 8507 states that surface structures are most prone to damage as a result of vibration energy within the frequency range of 4-12hz. Within these parameters, a 0.5 inches per second maximum particle velocity is recommended to limit damage to mortar on wood strip inside parts of an older structure.

A limit of 0.75 inches per second maximum is recommended for the preservation of modern drywall interior construction. The damage threshold is regularly extensively higher for load bearing or other structural portions of a house

USBM REPORT OF INVESTIGATION 8507 DIAGRAM



| Classification | Description of Damage |
|-----------------|--|
| Threshold | Loosening of paint, small plaster cracks of joints between elements, lengthening of old cracks. |
| Minor | Loosening and falling of plaster, hairline cracks in masonry around openings near partitions, falling of loose mortar. |
| Major Weakening | Cracks of several millimeter sin walls, structural fall of masonry, e.g. chimneys, and load support ability. |

The Peak Particle Velocity of 2.0 in/sec is generally accepted as a conservative safe limit for structures states for construction activities such as demolition and blasting activities. USBM Report of Investigation 8507 states that surface structures are most prone to damage as a result of vibration energy within the frequency range of 4-12 hertz. Within this range, a 0.5 inches per second maximum particle velocity is recommended to preclude 'threshold' damage to plaster-on-wood lath interior portions of older structures. A maximum of 0.75 inches per second is recommended for the protection of modern drywall interior construction. The damage threshold is normally considerably higher for load bearing or other structural portions of a house.

The USBM Report of Investigation 8507 graph is shown on the following page. Above 12 hertz, the allowable vibration intensity increases to 2.0 inches per second as the frequency increases up to 40 hertz. Above 40 hertz, a constant 2.0 inches per second level is recommended to protect

the interior walls and ceiling of structures, regardless of construction material. With respect to vibration induced soil settlement, and underground structure and utility damage, other research has shown that vibration levels in excess of 5.0 inches per second are required for this to occur.

Human Response to Vibrations

Ground-borne vibration is not a phenomenon that most people experience every day. Human response to vibration in buildings is very complex. The degree of annoyance cannot always be explained by the magnitude of the vibration alone.

In some cases, the complaints are associated with measured vibration that is lower than the perception threshold. Other phenomena such as ground-borne noise, rattling, visual effects such as movement of objects, and time of day (e.g., late at night) all play some role in the response of individuals.

| Response Level | Velocity (in./sec.) | Percent of 2.0 in./sec. |
|----------------|---------------------|-------------------------|
| Perceptible | .04 | 2% |
| Troublesome | .20 | 10% |
| Severe | .70 | 35% |

Device Number

UM22524

Exterior, rear 564 Sackett Street

Start September 23, 2024 06:00:05
Finish September 23, 2024 17:59:58
Number of Intervals/Interval 143.98/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S1.mmb
Operator Quiver League

Serial Number
Model Number
Battery Level
Unit Calibration
Event File Name
USB Sensor Support

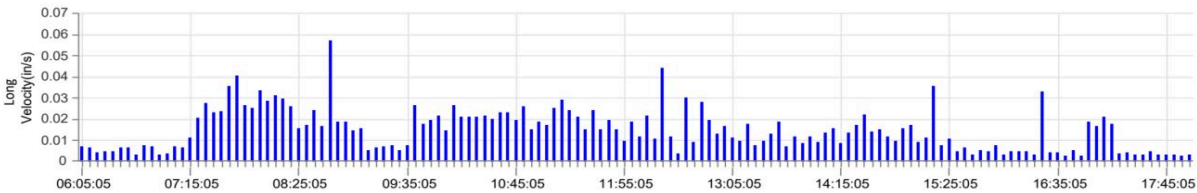
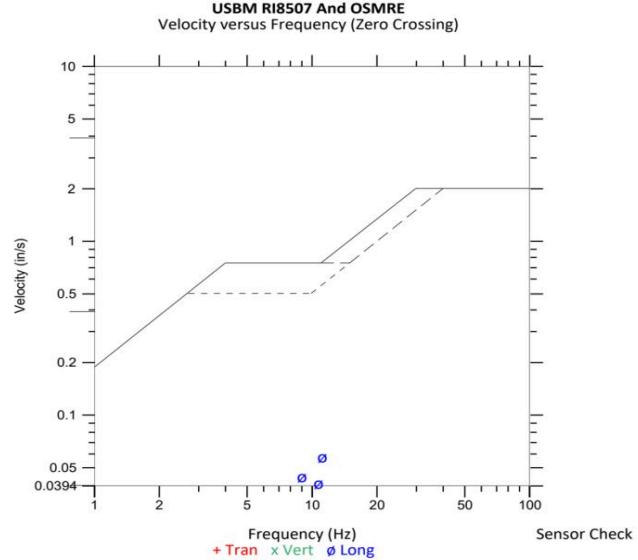
UM22524
 Micromate ISEE 11.0AK
 3.8 volts
 December 22, 2023 by InstanTEL
 UM22524_20240923060005.IDFH
 Disabled

Notes
Location 564 Sackett St building
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project

Extended Note IF VIBRATIONS REACH 0.25 IN/S ALERT THE CONSTRUCTION MANAGER AND ENGINEER. IF VIBRATIONS EXCEEDED 0.50 IN/S STOP ALL VIBRATION PRODUCING ACTIVITIES AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. FOLLOW UP WITH OPTICAL AND CRACK GAUGE MONITORS AND SUBMIT ALL RESULTS TO THE PROJECT ENGINEER. WORK SHALL RESUME WHEN APPROVED BY CONSTRUCTION MANAGER AND ENGINEER.

Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--|--------------|--------------|
| Peak Particle Velocity | 0.0140 in/s | 0.0295 in/s | 0.0571 in/s |
| Zero Crossing Frequency | 8.4 Hz | 10.2 Hz | 11.1 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 12:20:05 | 08:45:05 | 08:45:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.5 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.3 |
| Peak Vector Sum | 0.0599 in/s at September 23, 2024 08:45:05 | | |



Start September 23, 2024 18:00:29
Finish September 23, 2024 19:59:59
Number of Intervals/Interval 23.90/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S1.mmb
Operator Quiver League

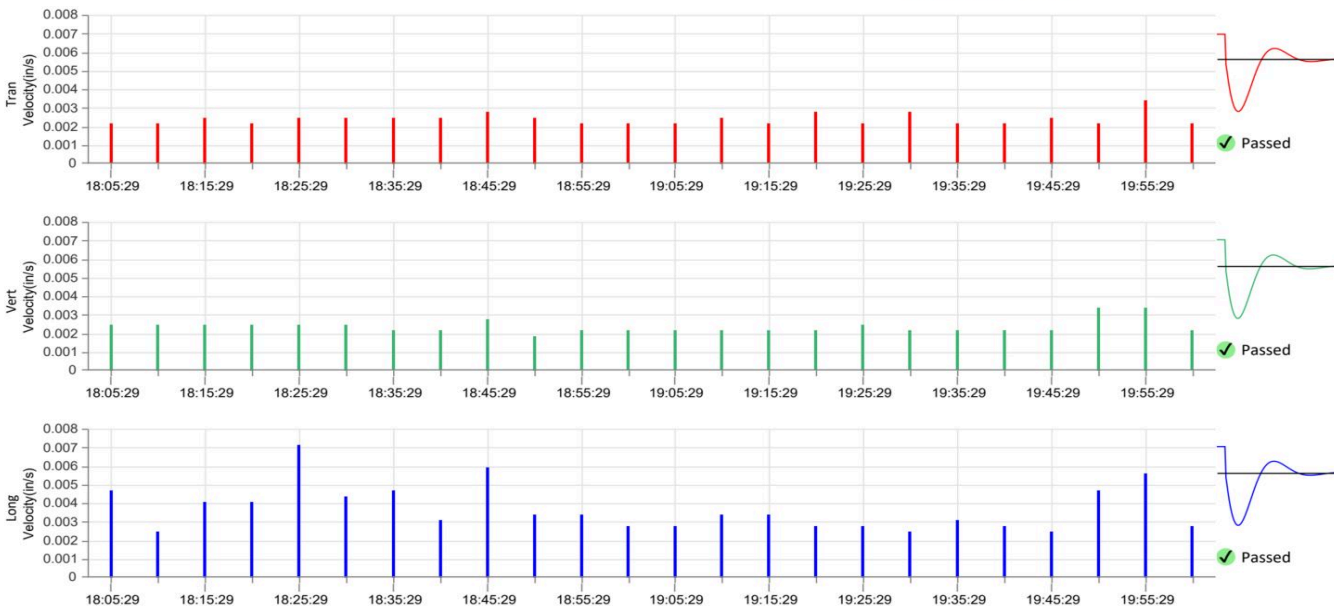
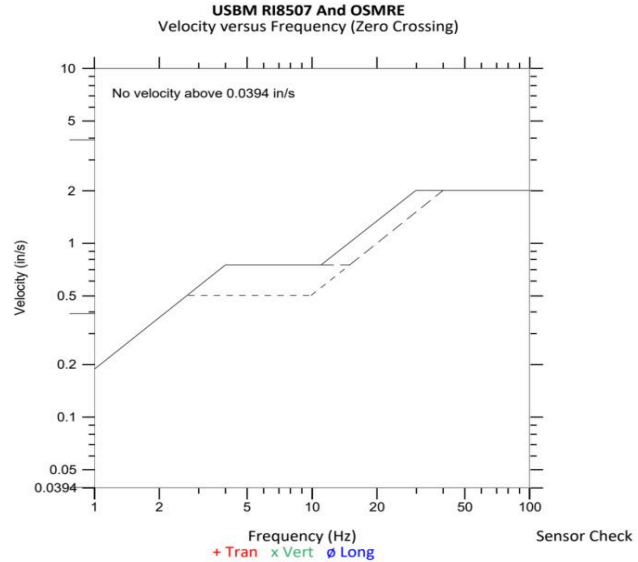
Serial Number UM22524
Model Number Micromate ISEE 11.0AK
Battery Level 3.8 volts
Unit Calibration December 22, 2023 by InstanTel
Event File Name UM22524_20240923180029.IDFH
USB Sensor Support Disabled

Notes
Location 564 Sackett St building
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project

Extended Note IF VIBRATIONS REACH 0.25 IN/S ALERT THE CONSTRUCTION MANAGER AND ENGINEER. IF VIBRATIONS EXCEEDED 0.50 IN/S STOP ALL VIBRATION PRODUCING ACTIVITIES AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. FOLLOW UP WITH OPTICAL AND CRACK GAUGE MONITORS AND SUBMIT ALL RESULTS TO THE PROJECT ENGINEER. WORK SHALL RESUME WHEN APPROVED BY CONSTRUCTION MANAGER AND ENGINEER.

Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--|--------------|--------------|
| Peak Particle Velocity | <0.005 in/s | <0.005 in/s | 0.0071 in/s |
| Zero Crossing Frequency | 9.8 Hz | 11.1 Hz | 26.9 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 19:55:29 | 19:50:29 | 18:25:29 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.5 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.2 |
| Peak Vector Sum | 0.0073 in/s at September 23, 2024 18:25:29 | | |



Device Number

UM17502

Exterior 563 Union Street

Start September 23, 2024 06:00:06
Finish September 23, 2024 17:59:59
Number of Intervals/Interval 143.98/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S2.mmb
Operator Quiver League

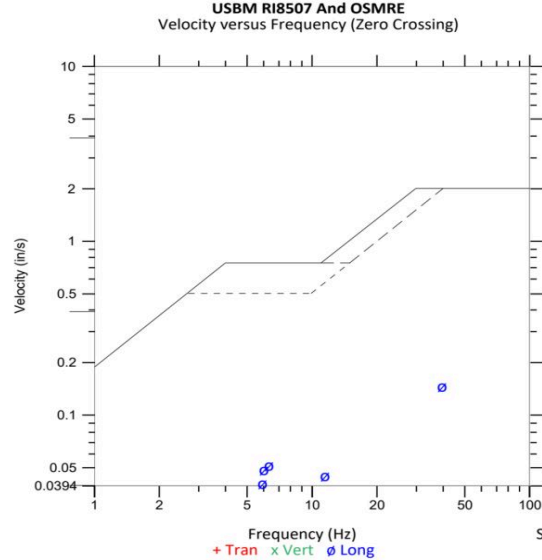
Serial Number UM17502
Model Number Micromate ISEE 11.0AK
Battery Level 3.8 volts
Unit Calibration April 25, 2024 by Instantel
Event File Name UM17502_20240923060006.IDFH
USB Sensor Support Disabled

Notes
Location 563 union st building (rear of site)
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project

Extended Note IF VIBRATIONS REACH 0.25 IN/S ALERT THE CONSTRUCTION MANAGER AND ENGINEER. IF VIBRATIONS EXCEEDED 0.50 IN/S STOP ALL VIBRATION PRODUCING ACTIVITIES AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. FOLLOW UP WITH OPTICAL AND CRACK GAUGE MONITORS AND SUBMIT ALL RESULTS TO THE PROJECT ENGINEER. WORK SHALL RESUME WHEN APPROVED BY CONSTRUCTION MANAGER AND ENGINEER.

Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--|--------------|--------------|
| Peak Particle Velocity | 0.0143 in/s | 0.0261 in/s | 0.1462 in/s |
| Zero Crossing Frequency | 46.5 Hz | 17.1 Hz | 39.4 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 10:55:06 | 08:45:06 | 10:55:06 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.6 | 4.8 | 5.0 |
| Peak Vector Sum | 0.1463 in/s at September 23, 2024 10:55:06 | | |



Start September 23, 2024 18:00:32
Finish September 23, 2024 19:59:59
Number of Intervals/Interval 23.89/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S2.mmb
Operator Quiver League

Serial Number
Model Number
Battery Level
Unit Calibration
Event File Name
USB Sensor Support

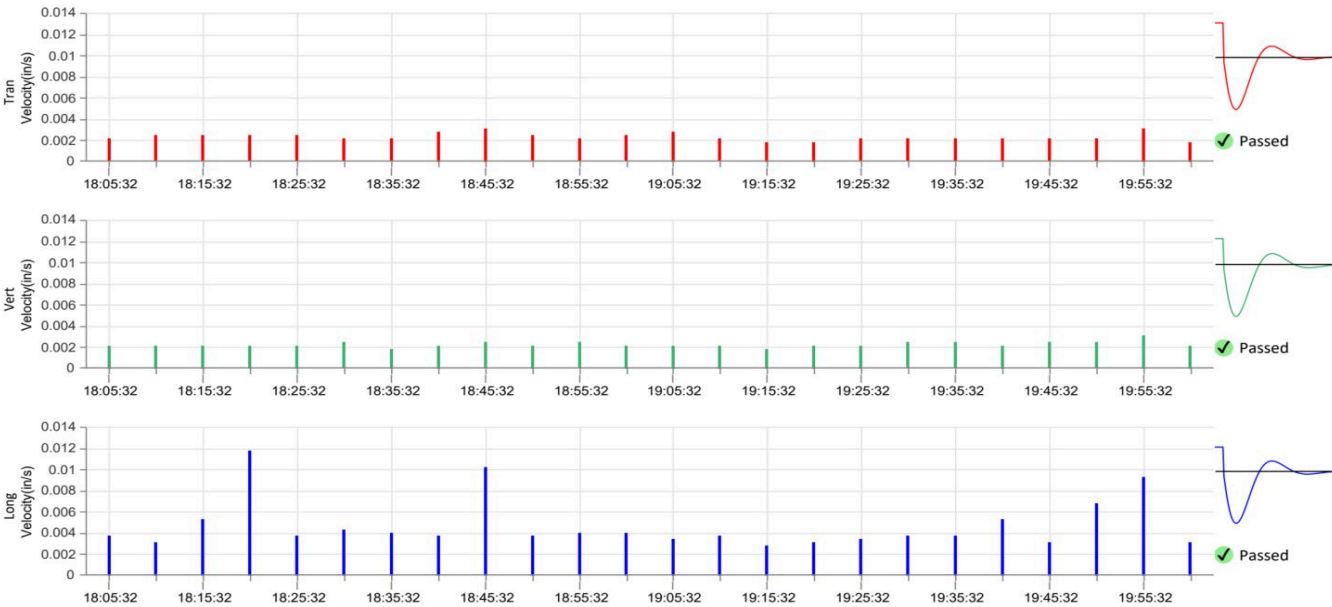
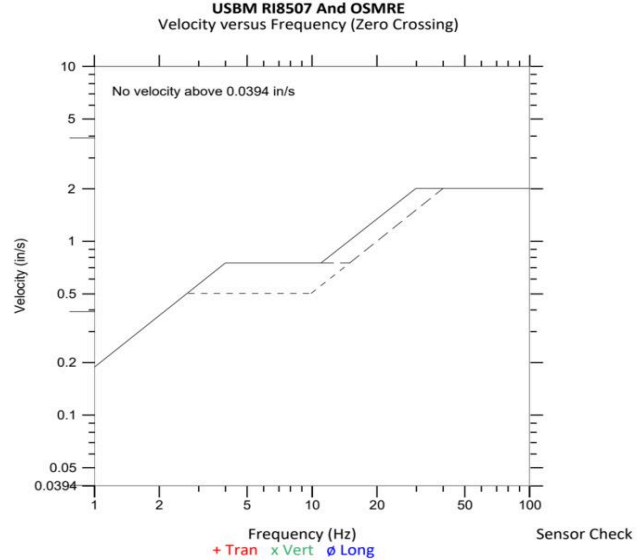
UM17502
 Micromate ISEE 11.0AK
 3.8 volts
 April 25, 2024 by Instantel
 UM17502_20240923180032.IDFH
 Disabled

Notes
Location 563 union st building (rear of site)
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project

Extended Note IF VIBRATIONS REACH 0.25 IN/S ALERT THE CONSTRUCTION MANAGER AND ENGINEER. IF VIBRATIONS EXCEEDED 0.50 IN/S STOP ALL VIBRATION PRODUCING ACTIVITIES AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. FOLLOW UP WITH OPTICAL AND CRACK GAUGE MONITORS AND SUBMIT ALL RESULTS TO THE PROJECT ENGINEER. WORK SHALL RESUME WHEN APPROVED BY CONSTRUCTION MANAGER AND ENGINEER.

Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--|--------------|--------------|
| Peak Particle Velocity | <0.005 in/s | <0.005 in/s | 0.0118 in/s |
| Zero Crossing Frequency | 14.2 Hz | 12.2 Hz | 4.3 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 18:45:32 | 19:55:32 | 18:20:32 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.5 | 4.8 | 4.9 |
| Peak Vector Sum | 0.0118 in/s at September 23, 2024 18:20:32 | | |



Device Number

UM17486

Exterior, front 564 Sackett Street

Start September 23, 2024 06:00:06
Finish September 23, 2024 17:59:59
Number of Intervals/Interval 143.98/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S4.mmb
Operator Quiver League

Serial Number UM17486
Model Number Micromate ISEE 10.90GC
Battery Level 3.8 volts
Unit Calibration March 22, 2023 by InstanTel
Event File Name UM17486_20240923060006.IDFH
USB Sensor Support Disabled

Notes
Location 564 Sackett St building front
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project

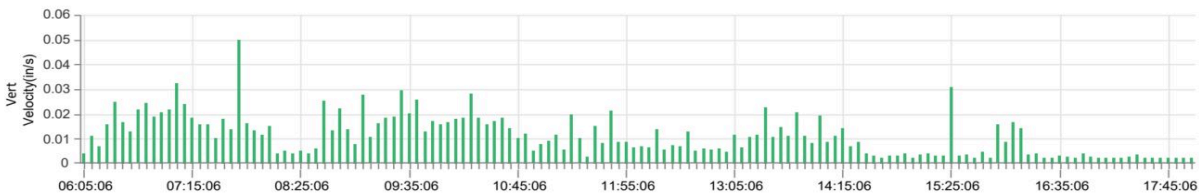
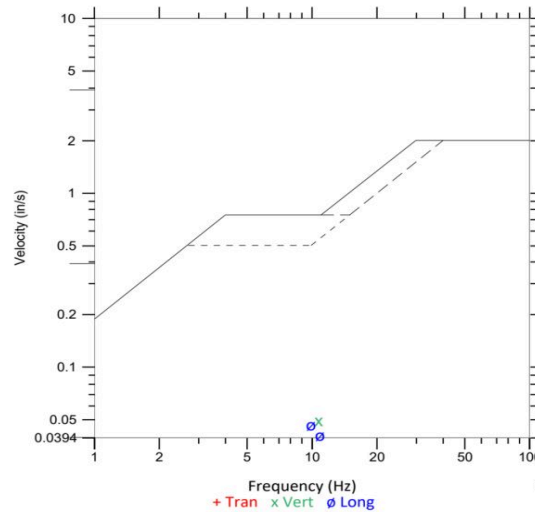
Extended Note IF VIBRATIONS REACH 0.25 IN/S ALERT THE CONSTRUCTION MANAGER AND ENGINEER. IF VIBRATIONS EXCEEDED 0.50 IN/S STOP ALL VIBRATION PRODUCING ACTIVITIES AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. FOLLOW UP WITH OPTICAL AND CRACK GAUGE MONITORS AND SUBMIT ALL RESULTS TO THE PROJECT ENGINEER. WORK SHALL RESUME WHEN APPROVED BY CONSTRUCTION MANAGER AND ENGINEER.

Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--------------|--------------|--------------|
| Peak Particle Velocity | 0.0158 in/s | 0.0496 in/s | 0.0465 in/s |
| Zero Crossing Frequency | 8.7 Hz | 10.7 Hz | 9.8 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 07:15:06 | 07:45:06 | 07:10:06 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.7 Hz | 7.3 Hz |
| Overswing Ratio | 4.1 | 3.8 | 4.3 |

Peak Vector Sum 0.0531 in/s at September 23, 2024 07:45:06

USBM R18507 And OSMRE
Velocity versus Frequency (Zero Crossing)



Start September 23, 2024 18:00:39
Finish September 23, 2024 19:59:59
Number of Intervals/Interval 23.87/300 sec
Sample Rate 1024 sps
Setup File Name 558 Sackett Street S4.mmb
Operator Quiver League

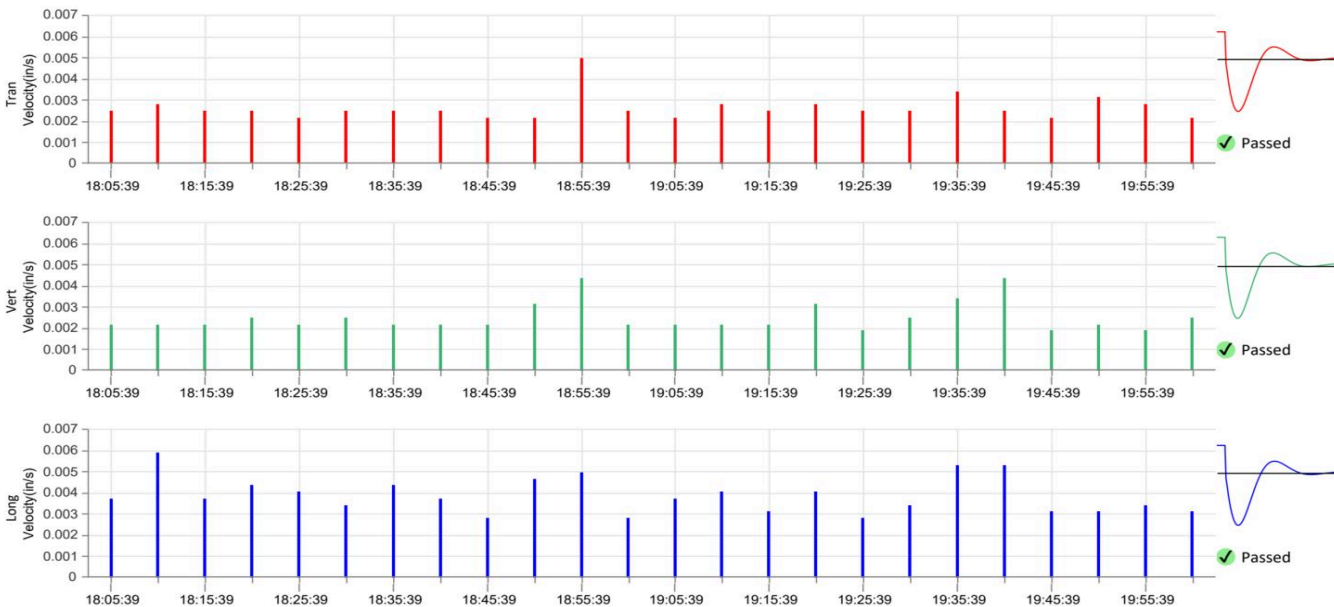
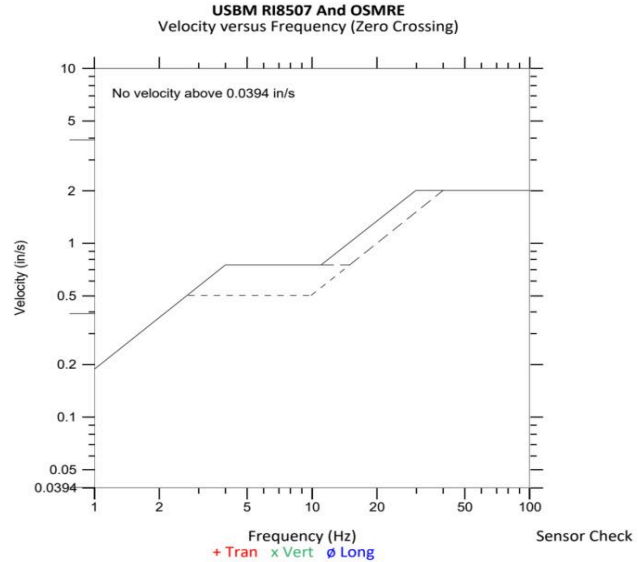
Serial Number UM17486
Model Number Micromate ISEE 10.90GC
Battery Level 3.8 volts
Unit Calibration March 22, 2023 by Instatel
Event File Name UM17486_20240923180039.IDFH
USB Sensor Support Disabled

Notes
Location 564 Sackett St building front
Client Bluesky builders
Company Quiver League
General Notes 558 Sackett Street Project






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Post Event Notes No text to be displayed.

| Geophone | Tran | Vert | Long |
|-------------------------|--|--------------|--------------|
| Peak Particle Velocity | <0.005 in/s | <0.005 in/s | 0.0059 in/s |
| Zero Crossing Frequency | 6.7 Hz | 7.8 Hz | 11.6 Hz |
| Date | Sep 23, 2024 | Sep 23, 2024 | Sep 23, 2024 |
| Time | 18:55:39 | 18:55:39 | 18:10:39 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.7 Hz | 7.3 Hz |
| Overswing Ratio | 4.1 | 3.8 | 4.2 |
| Peak Vector Sum | 0.0065 in/s at September 23, 2024 18:55:39 | | |



OUR SERVICES

-  Remote Vibration Monitoring
-  Monitoring Plan
-  Weekly Monitoring Reports
-  Crack Gauge Monitoring
-  Optical Monitoring

-  Pre-Construction Survey
-  Post Construction Survey
-  Sound/Noise Monitoring
-  Ground Water Monitoring
-  Noise Mitigation Plan (CNMP) Monitoring

“We Monitor Your Job Closely”

CONTACT US

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-  212-897-9946
-  Info@quivermonitoring.com
-  www.quivermonitoring.com