

May 6, 2019

Mr. Greg Griffin
EYA (dba RT South Associates, LLC)
4800 Hampden Lane, Suite 300
Bethesda, Maryland 20814

Subject: **Report No. 39, Summary of Seismograph
Monitoring Data, April 1 through 30, 2019,
Robinson Landing – Phase 2 Project,
Alexandria, Virginia (SSI Job No. 15-1080)**

Dear Mr. Griffin:

Seismic Surveys, Inc. (SSI) is pleased to submit this Summary of Seismograph Monitoring Data for the above referenced project. These services are required under DSUP Permit Condition 76 and have been provided in accordance with our contract dated July 22, 2016.

Seismograph Data Summary

Instantel® and Sigicom® seismographs are being used for the monitoring stations. The seismographs are programmed to continuously record ground vibration in Histogram Combo™ Mode (Instantel®) and Simultaneous Bargraph and Waveform Registration (SBWR) mode (Sigicom®) where a histogram of peak particle velocity (PPV) versus time for every minute is recorded. The seismograph locations and PPV at each location are summarized in Table 1. Seismograph locations are shown in the attached Figure 1 – Cutoff Wall Construction Monitoring Location Plan.

Table 1
Vibration Data Summary

SSI Station No.	Seismograph Serial No.	Location	Date / Time of Maximum Measured Construction Vibration	Maximum PPV (in/sec) / Frequency (Hz)	Vibration Alert Threshold (in/sec)
1	27790	58 Wolfe Street	04-26-19 / 0900	0.026 / 7.0	0.25
3	68950 ^a	311 S. Union Street	04-04-19 / 1300	0.034 / 14	0.25
	70210 ^a		04-20-19 / 1724	0.170 / 58.5	
6	70790	100.5 Duke Street	04-15-19 / 1100	0.014 / 10.5	0.25
9	MP13057 ^b	401 S. Union Street	04-02-19 / 0810	0.023 / >100	0.12
	UM11647 ^b		04-30-19 / 1550	0.017 / 9.5	
11	67060	2 Wolfe Street	04-26-19 / 0808	0.022 / 6.5	0.25
12	66740	101 Wolfe Street	04-01-19 / 1500	0.050 / 46.5	0.25
13	65260	Hotel Indigo – 220 S. Union Street	04-08-19 / 1300	0.030 / 9.0	0.25

^{a-} Unit 68950 was removed and replaced on April 15, 2019 for calibration.

^{b-} MP13057 was removed and replaced with UM11647 for calibration on April 26, 2019.

The maximum peak particle velocity (PPV) measured at any conventional dwelling with a PPV threshold of 0.25 in/sec was 0.170 in/sec on April 20, 2019, at approximately 1724 hours. The maximum PPV measured in the vicinity of historic dwellings with a PPV threshold of 0.12 in/sec was 0.023 in/sec on April 2, 2019, at approximately 0810 hours.

Conclusion

Based on the analysis presented herein, we offer the following conclusion:

- Measured construction related vibrations during this period were well below established project thresholds.

Limitations

The vibration measurements taken under this agreement and reported herein were conducted in accordance with current standards of the industry. SSI does not warrant that vibration damage to the premises being monitored will not occur even when readings indicate vibration levels or movement below normally accepted threshold values.

We appreciate the opportunity to have been of service on this project. If you have questions or you require additional information, please call.

Sincerely,

SEISMIC SURVEYS, INC.



Brynn K. Harris, C.P.G.
Project Geologist



David K. Miller, P.G.
Principal

Attachment:

- Figure 1 – Cut Off Wall Construction Monitoring Location Plan

DKM/BKH/bms

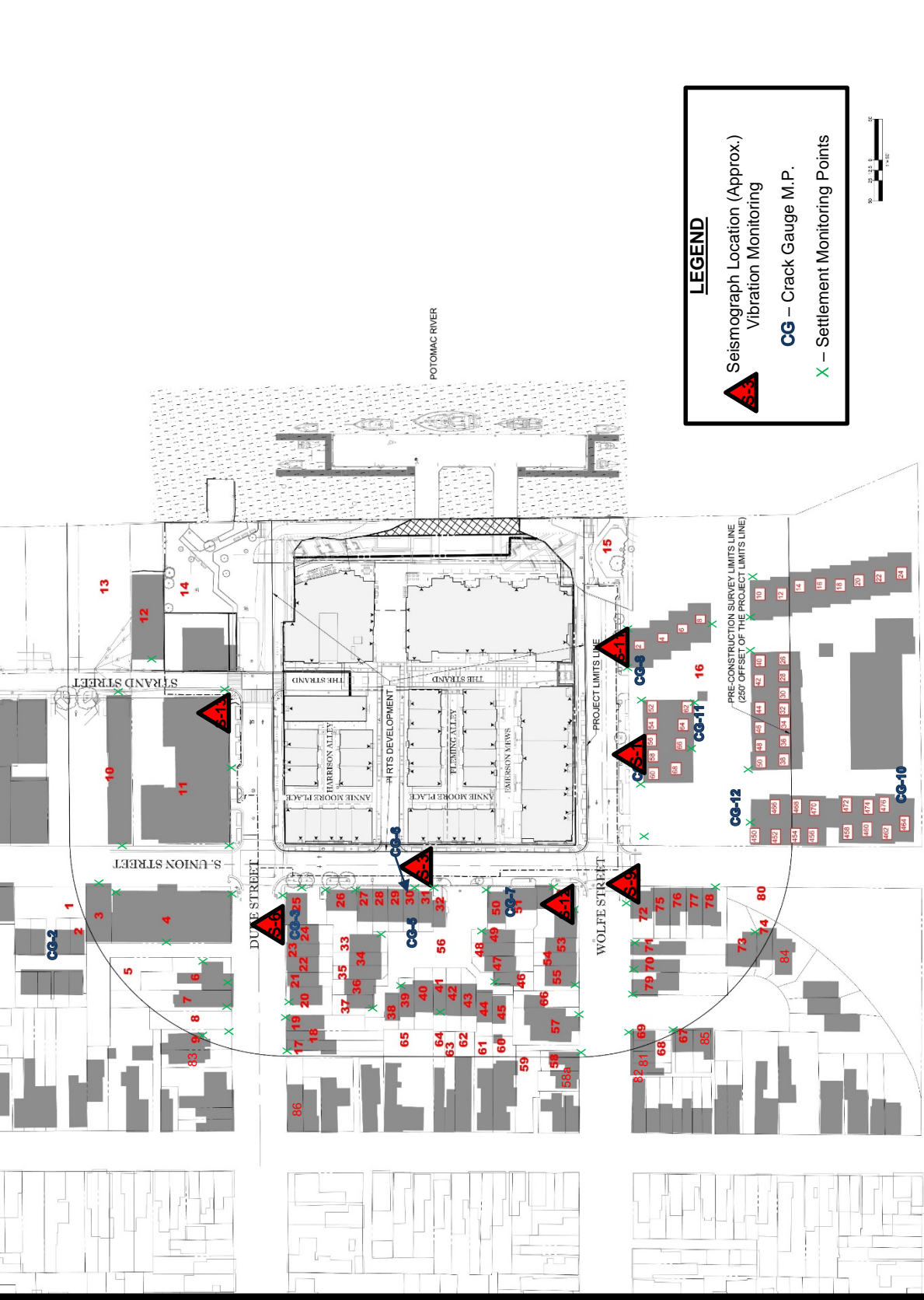
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Vibration Letter 2019.05.06 BKH 15-1080.docx



PROJECT: EXHIBIT
 RT SOUTH ASSOCIATES LLC
 LOCATION OF SITE: ROBINSON TERMINAL SOUTH, CITY OF ALEXANDRIA, VA

BOHLER ENGINEERING
 2028 WAVE & DANIEL ELLIOTT FERRY ROAD, SUITE 200, ALEXANDRIA, VIRGINIA 22304
 WWW.BOHLERENGINEERING.COM

PROJECT TITLE: PRE-CONSTRUCTION SURVEY LIMITS
 SHEET NUMBER: 1 of 1



LEGEND

- Seismograph Location (Approx.)
Vibration Monitoring
- CG – Crack Gauge M.P.
- X – Settlement Monitoring Points



Figure 1 – Cutoff Wall Construction Monitoring Location Plan
 Robinson Landing Project Phase 2 (After 06-18-18)
 Alexandria, Virginia