Fastfrate Ottawa Holdings Warehouse

22T010

Post Ground Improvement Report

ID	22T010 – Fastfrate Ottawa Holdings Warehouse – Final Report	Pages	7 + Appendices

Rev	Date	Author	Verified by	Modifications
0	07/15/2022	MKE	JEG	Final Report – 100% Completion Progress

Contents

Figures & Tables

Appendices

1. Introduction

Menard Canada Inc. (MENARD) was retained by Tomlinson Group of Companies (Tomlinson) on behalf of CBRE Ltd (CBRE) to perform the ground improvement scope of work for a site located at the southeast of the intersection of Rideau Street and Somme Street in the Hawthorne Industrial Park in Ottawa, Ontario. The proposed construction consists of a new 8,640m^2 warehouse for Fastfrate Ottawa Holdings.

This report summarizes the work performed on site including QA/QC information and related drawings.

2. Reference Documents

The following documents were used during the execution of the project:

- 2001 - Fastfrate - 33% Submission- 21.11.05-STR Drawings by Cunliffe & Associates.
- 200608 2009 05 Geotechnical Study Subdivision Plan Hawthorne Industrial Park by InspecSol date May 2009.
- 11215612-RPT-1-Geotchnical Investigation - Ottawa ON by GHD dated September 2020.
- 11231101-RPT-1-Supplementary Geotechnical Investigation by GHD dated January 2022.
- C006A_FASTFRATE_CIMA+_TOPOGRAPHICAL_SURVEY_PLAN_211216.
- GRADING_PLAN; SECTIONS by CIMA+ dated November 2021.
- C006A_FASTFRATE_CIMA+_GRADING_PLAN_211216 by Civitas Group dated December 16, 2021.

3. Design Criteria

The ground improvement scope of work was designed to achieve the following performance criteria:

- Improved bearing capacity of up to 200 kPa SLS (275 kPa ULS)
- Maximum total settlement of 25 mm and differential settlement of 19 mm.

4. Ground Improvement Works

Purpose

Dynamic Compaction (DC) is used to transmit high impacts to loose and soft soils that have an initial low bearing capacity, high compressibility and/or liquefaction potential in order to significantly improve their mechanical properties.

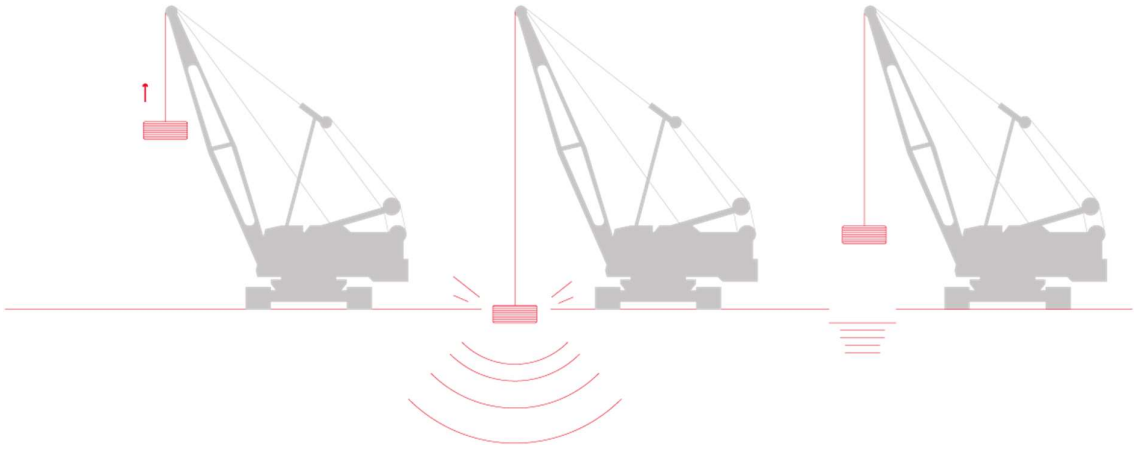


Figure 1 – Dynamic Compaction process

Site Preparation

Tomlinson prepared a working platform for the working pad by first stripping any topsoil and deleterious materials found at the surface and upfilling to 90.95 m using Granular B Type I recycled concrete. A 600 mm thick Granular B Type II fill layer was then placed and compacted to achieve a working pad at approximately 91.55 m EL. The pad was placed according to the building footprint as shown in the structural drawings 21.11.05-STR Drawings with an additional 4 m offset as per specifications. Please refer to drawing 22T010_DWG-200 in **Appendix A** for location of the working pad.

Work Performed

MENARD arrived at site on June 7th, 2022. The first two weeks on site, MENARD assembled and completed repairs on the crane. Dynamic Compaction work commenced on June 20th, 2022.

Dynamic compaction was performed using a conventional crawler crane dropping a 12.5-ton pounder from approximately 12 m high. The pattern of compaction points was based on a typical grid pattern with 3 phases and a final Ironing Phase. Phase 1 points were spaced out at approximately 8 m intervals. Phase 2 points were positioned to form a tighter square pattern around each Phase 1 point. Phase 3 points were positioned similarly around points of Phases 1 and 2. An additional, low impact Ironing Phase was performed over the compacted area to improve the surface zone and compact any disturbed surficial soils.

Dynamic compaction work was completed on Thursday, June 30th, 2022.

Please refer to the as-built drawing 22T010_DWG-200 in **Appendix A** for the location of the improved area and the compaction layout.

Modified Work

Compaction of the work area near the gas line required a reduced drop height (6m) and double the number of drops to minimize vibrations. This reduced the induced vibrations while maintaining the same energy for compaction.

5. In-Situ Testing

Pressuremeter Tests (PMTs) were completed concurrently with and following Dynamic Compaction to verify criteria achievement. A total of 4 PMTs were completed with varying testing depths verifying the optimal treatment criteria for all phases.

Please refer to drawing 22T010_DWG-200 in **Appendix A** for the location of the testing. The pressuremeter method was used to estimate the settlement of various footings, see below:

Table 1 - PMT Summary

	Estimated maximum total settlement	Estimated bearing capacity
PMT1	~ 19 mm	> 200 kPa
PMT2*	~ 24 mm	> 200 kPa
PMT3	~ 22 mm	> 200 kPa
PMT4	~ 16 mm	> 200 kPa

**PMT2 reached refusal after the first test depth, actual settlement will be lower as this model assumed ground below completed test depths was not improved.*

The test results for the PMTs are presented in **Appendix B**

6. Vibration Monitoring

Vibration monitoring was carried out by an external consultant (Explotech Engineering Ltd.). During the first point of compaction, an on-site representative was present with 4 seismographs to conduct vibration monitoring tests at 5 m intervals near the DC rig. Additional full-time vibration monitoring was conducted for the Enbridge gas main located to the west and south of the project area. No vibration exceeded the 25 mm/s PPV threshold.

Please refer to **Appendix C** for the vibration monitoring report.

7. Subsequent Works

Earthworks

It is important to perform any surface compaction that may be required after treatment. Granular materials that will be put in place to raise the grade and reach the intended final level will have to be compacted by layers according to the specifications and under the supervision of a geotechnical consultant. We recommend that all foundation work be checked and inspected by the geotechnical consultant.

Again, it should be noted that even following ground improvement, during excavation there may be local zones of deleterious fill including, but not limited to, organic soils, or soft cohesive soils. Excavation works should still follow the direction of the project's geotechnical consultant and some soils may need to be sub-excavated and replaced.

Foundations

The DC work was designed around the foundation details provided in 2001 - Fastfrate - 33% Submission-21.11.05-STR Drawings by Cunliffe & Associates

The building and foundation details were not finalized at the time of compaction. The DC work has been designed to achieve an improved bearing capacity up to 200 kPa SLS (275 kPa ULS) within the foundation limit (compaction zone, excluding 4m buffer along the compaction edge) in the provided structural package. The edge of all foundation elements must not extend beyond the final foundation limit to avoid the risk of intolerable settlements. See **Appendix A** for details on the foundation limits.

8. Conclusion

Dynamic Compaction was carried out using a crawler crane dropping a 12.5-ton pounder from a height of 12m. Works were performed between June 20th and June 30th, 2022. The treatment was applied on an effective area of approximately 8,640 m^2.

PMTs were completed concurrently and following Dynamic Compaction work to validate the design and verify the performance criteria were achieved. Based on the test results of the PMTs, the performance criteria were successfully achieved.

All of us at Menard have greatly appreciated the opportunity to take part in the construction of this project, and we wish to express our sincere gratitude for the continued confidence and cooperation extended by CBRE Ltd. And Tomlinson Group of Companies.

9. Closure

This Ground Improvement Final Report was written by Mr. Matthew Kerr, E.I.T., and reviewed by Mr. Julien Egron, P. Eng of Menard Canada.

Menard Canada Inc.

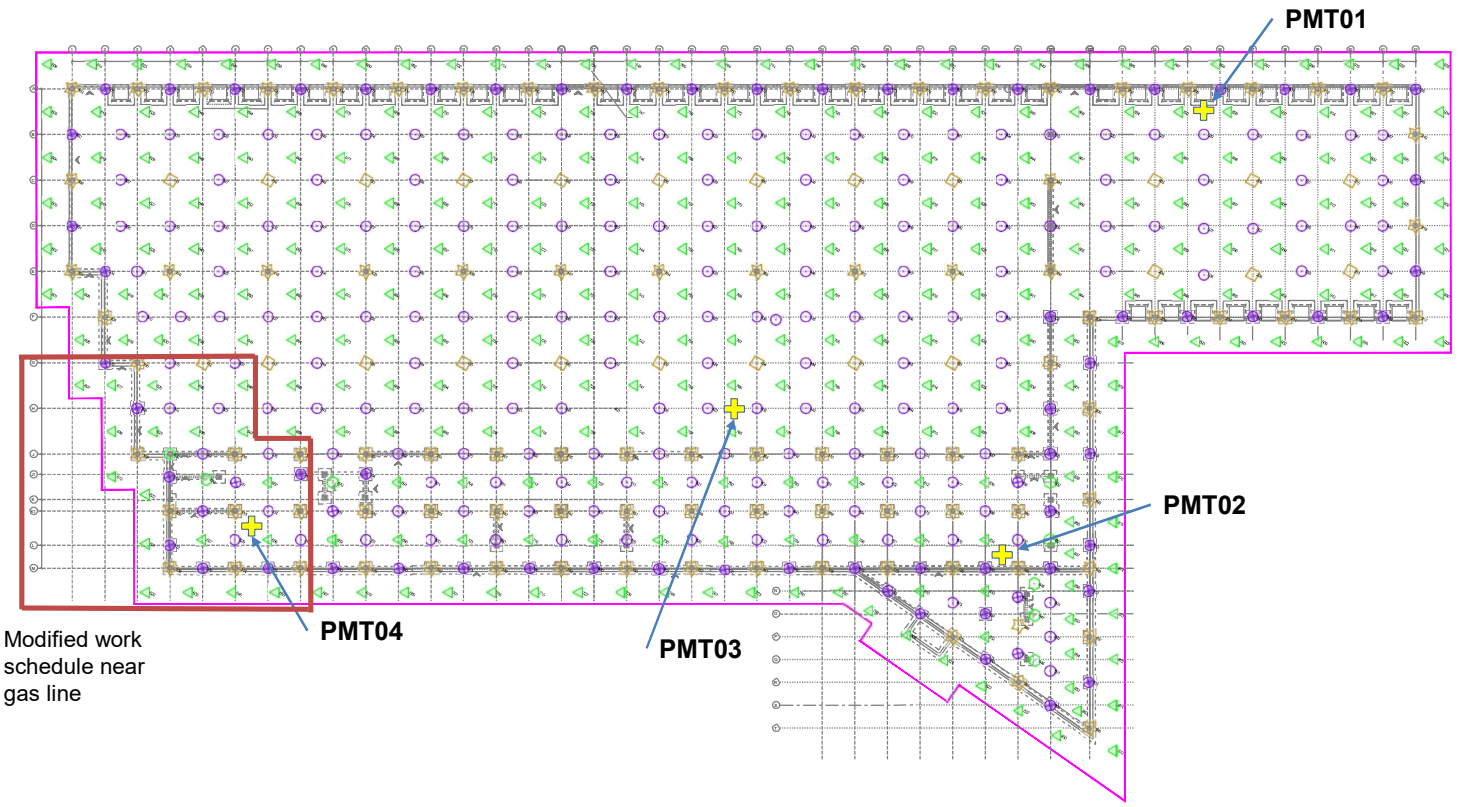
Julien Ergon, P. Eng.
Pre-construction Manager

Matthew Kerr, E.I.T.
Project Manager

Appendix A:
As-built drawings

RIDEAU ROAD

SOMME STREET



LEGEND

TREATMENT LIMIT

PHASE 1 (24) — PHASE 1 FOND. (95)

PHASE 2 (179) — PHASE 2 FOND. (71)

PHASE 3 (327) — PHASE 3 FOND. (8)

STAMP:

REVISIONS

No.	DATE	DESCRIPTION
0	JUN. 06, 2022	FOR CONSTRUCTION
1	JUL. 15. 2022	AS-BUILT

DRAWN BY: S. DZANOUNI

DRAWING REFERENCE: 20-107 S100, S101 & S102

DESIGNED BY: T. BRUCE, P.Eng.

FROM: CUNLIFFE & ASSOCIATES

VERIFIED BY: J. HUNT, P.Eng.

DATE: OCT. 01, 2021

CLIENT: TOMLINSON

menard
2 Campbell Drive, Unit 101
Uxbridge, ON
L9P 1H6
info@menardcanada.ca
TÉL.: (905)862-9032
FAX: (647)528-3206

PROJECT: FASTFRATE HOLDINGS WAREHOUSE
SOMME STREET, OTTAWA, ON.

WORK: DYNAMIC COMPACTION

DRAWING TITLE: TREATMENT PROGRAM

SCALE: 1:600 (0 6 12 18 m)

FOLDER: 22T010

FORMAT: 11 x 17

SYSTEM: METRIC

DRAWING N°: 200

X:\ON\JOBS\2022\22T010 FastFrate Holdings Warehouse\06. Drawings\03 Construction\22T010_AS_BUILT.dwg

Appendix B: PMT Results

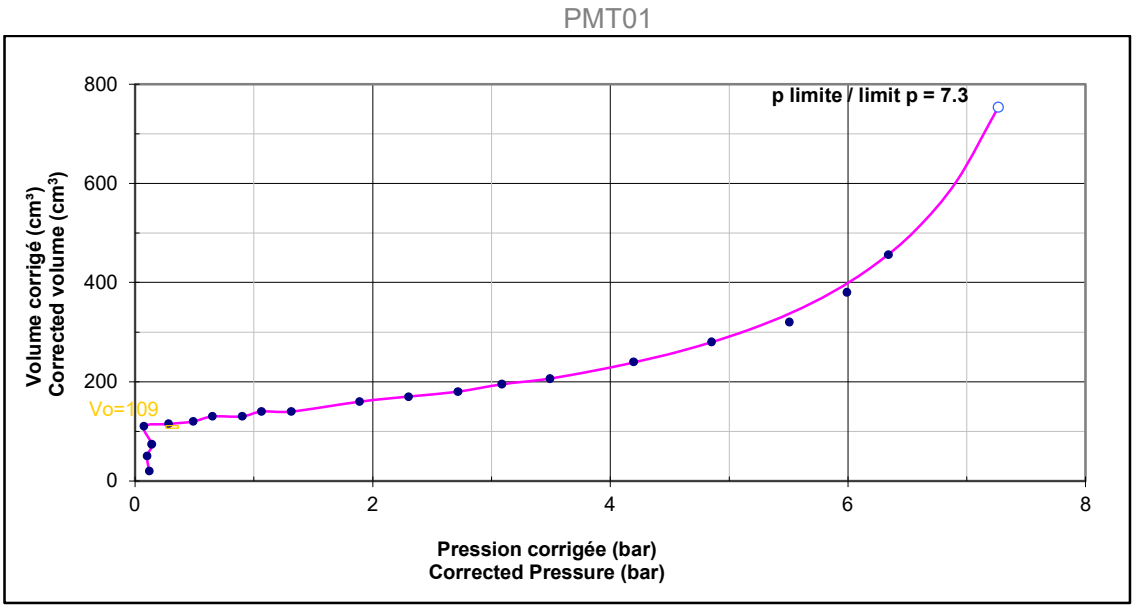


Figure 1: PMT01 curve at 1.5 m depth

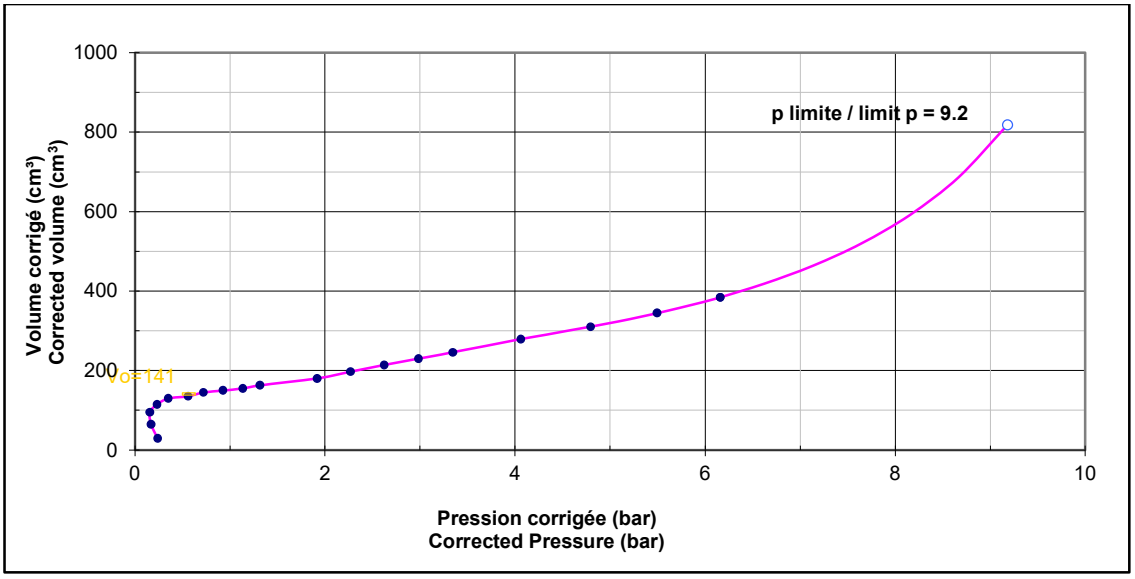


Figure 2: PMT01 curve at 3.5 m depth

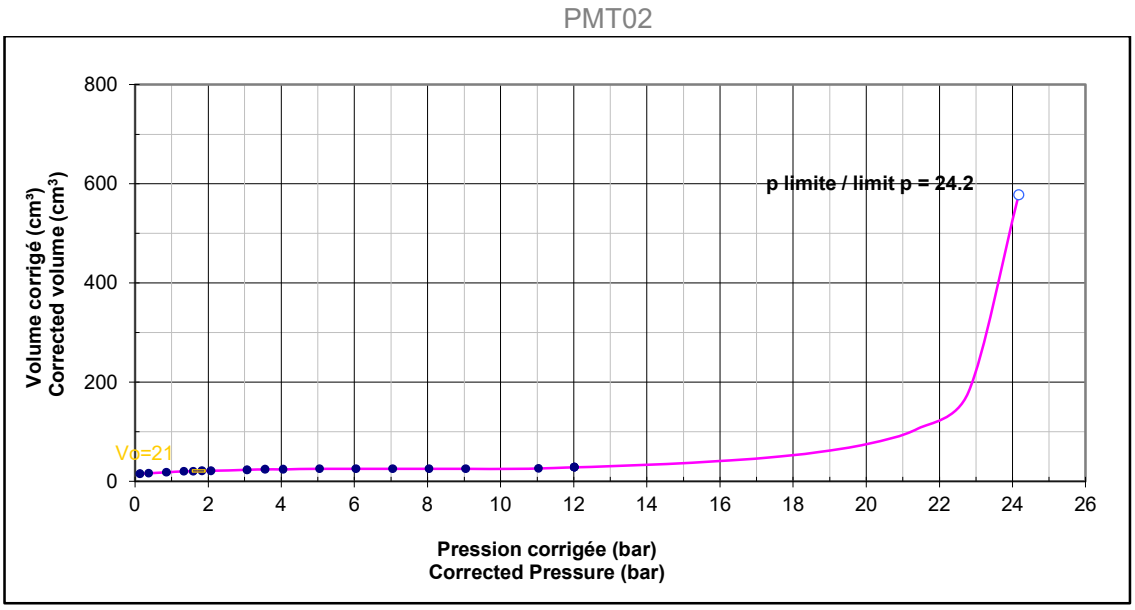


Figure 3: PMT02 curve at 1.2 m depth

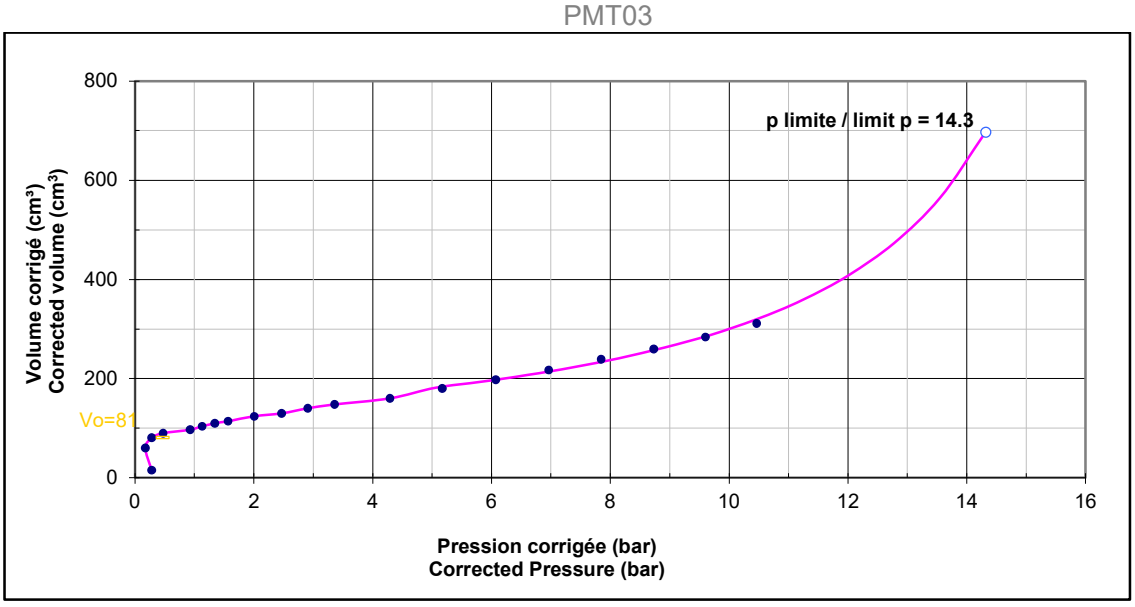


Figure 4: PMT03 curve at 3.0 m depth

PMT04

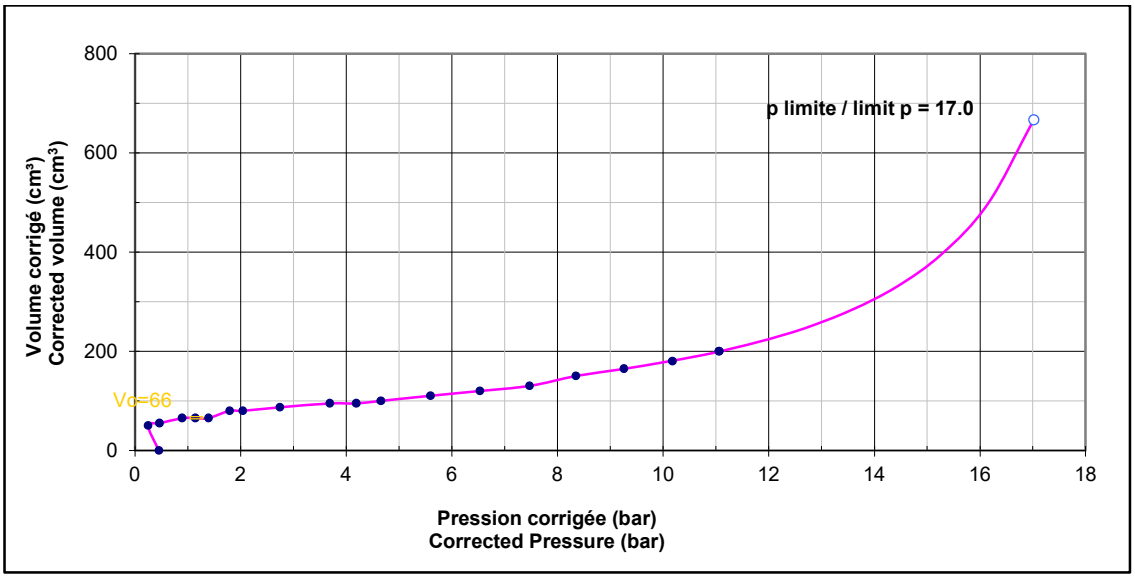


Figure 5: PMT04 curve at 3.0 m depth

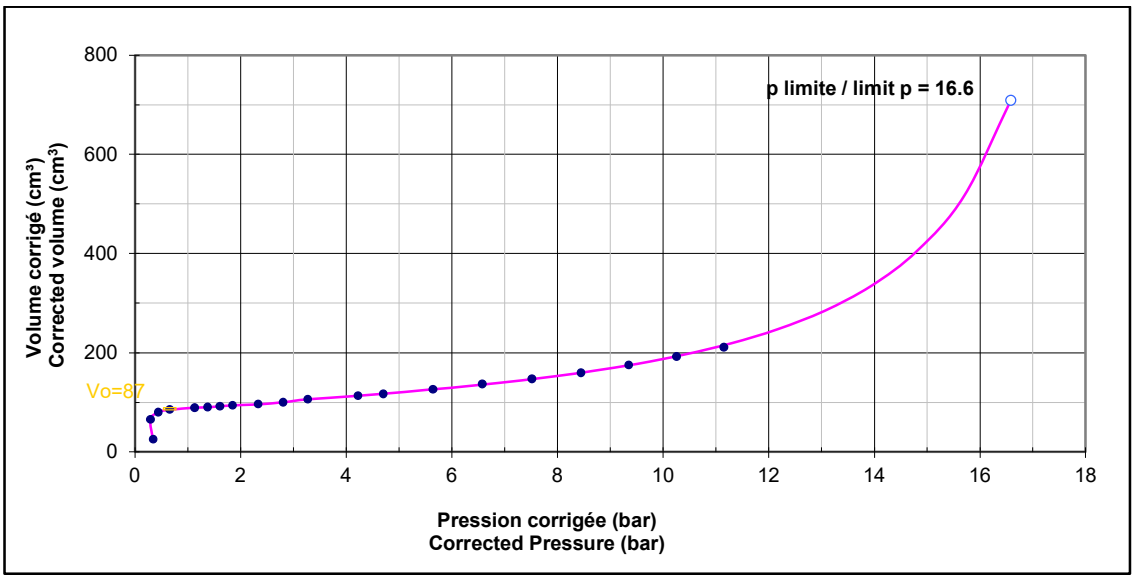


Figure 6: PMT03 curve at 4.5 m depth

Appendix C:
Vibration Monitoring Report

EXPLOTECH

Specialists in Explosives, Blasting and Vibration
Consulting Engineers

July 4, 2022

Menard Canada
1725 St. Laurent Blvd Unit 218
Ottawa, Ontario
K1G 3V4

Attention: Matthew Kerr

Re: South Gloucester Gas Main Monitoring Project
Final Vibration Monitoring Report – June 17, 2022 to June 30, 2022

Dear Mr. Kerr,

Attached please find the data detailing the results of the vibration monitoring program developed and implemented on site as part of the construction operations for the South Gloucester Gas Main Monitoring Project in Ottawa, Ontario. This vibration monitoring program was in place from June 17, 2022 to June 30, 2022 inclusive and was implemented to record vibrations present at the gas main adjacent to the construction operations in order to guard against possible adverse impacts.

A full time on site vibration monitoring program was implemented to delineate vibration intensities experienced on the gas main located near the required construction operations. The monitoring sensor listed below was installed above the gas main adjacent to construction operations during the time period specified above:

- **BE10016 – Gas Main**
    - Geophone was buried in the ground at the closest point over the gas main to monitor adjacent construction operations

The monitoring instrument installed consisted of an Instantel tri-directional digital seismograph capable of measuring vibration intensities up to 254mm/s at a frequency response of 1 – 315Hz. The unit was programmed to measure all vibration levels continuously at a sampling rate of 1024 samples per second. Following each five minute interval, the unit reviewed the 307,200 measured vibrations, and permanently recorded the peak particle velocity for that time interval while deleting all subordinate vibration intensities. This process was repeated for all subsequent five minute time intervals thereby providing maximum vibration intensities experienced at the structure throughout the day. Such a configuration permits continuous

monitoring of vibration levels and provides complete coverage of all vibrations, construction induced or otherwise, experienced at the monitored structure. Events recorded under this program mode are marked by an “H” on the vibrations summary report.

As an additional analytical tool, the unit was configured to record a more detailed waveform in the event that vibration intensities exceeded a pre-set trigger level set at 5mm/s. This feature permits advanced analysis in the event that anomalous elevated readings are recorded. Events recorded under this program mode are marked by a “W” on the vibrations summary report.

A review of the data collected on the project confirms that the maximum reading generated at the monitored location possibly related to the construction operations was as follows:

Maximum Vibration Readings at Monitored Location			
Location	***Date***	***Time***	***Velocity (mm/s)***
Gas Main	June 23, 2022	15:51	**18.41**

Effective June 30, 2022, the monitoring unit has been removed and the monitoring program has been terminated. Should you have any questions or concerns related to the information contained herein or the monitoring program undertaken, please do not hesitate to contact the undersigned at your leisure.

Kindest regards,

Jacob Adamczyk, B.A.Sc.
Explotech Engineering Ltd.

Vibration Summary
M8706A - Menard Canada
June 17, 2022 - June 30, 2022

Event Report: Event List - z:\7. monitoring data\archived seismo readings\m87xx\m8706a - menard - south gloucester gas main

Type	Serial No.	Date/Time	Tran Peak (mm/s)	Vert Peak (mm/s)	Long Peak (mm/s)	Mic Peak (dB)	PVS1 (mm/s)	Description
H	BE10016	Jun 17 /22 09:42:47	0.381	0.381	0.254	***	0.475	Gas Main, South Gloucester, ON
H	BE10016	Jun 18 /22 07:05:22	0.254	0.254	0.254	***	0.381	Gas Main, South Gloucester, ON
H	BE10016	Jun 19 /22 07:01:58	0.381	0.254	0.254	***	0.421	Gas Main, South Gloucester, ON
H	BE10016	Jun 20 /22 07:01:57	2.667	2.794	4.064	***	4.465	Gas Main, South Gloucester, ON
H	BE10016	Jun 21 /22 07:01:57	3.302	2.794	3.556	***	4.034	Gas Main, South Gloucester, ON
H	BE10016	Jun 22 /22 07:01:57	1.905	1.016	2.159	***	2.703	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 07:01:59	5.080	3.429	4.572	***	5.882	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:44:54	5.080	2.667	3.302	***	5.882	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 15:46:57	5.842	2.413	4.064	***	7.137	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:47:18	5.842	2.413	4.064	***	7.137	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 15:49:16	5.080	5.334	16.00	***	16.27	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:49:36	5.080	5.334	16.00	***	16.27	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 15:51:35	7.239	4.572	18.41	***	18.56	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:51:35	7.239	4.572	18.41	***	18.56	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 15:53:34	2.921	2.540	5.842	***	6.268	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:54:11	2.921	2.540	5.842	***	6.268	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 15:56:10	3.810	2.413	5.334	***	6.008	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 15:59:59	3.810	2.413	5.334	***	6.008	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 16:01:59	4.953	2.921	6.731	***	7.663	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 16:02:01	4.953	2.921	6.731	***	7.663	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 16:04:00	5.461	2.794	6.223	***	6.892	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 16:05:02	5.461	2.794	6.223	***	6.892	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 16:07:02	5.334	2.540	6.731	***	7.632	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 16:07:03	5.334	2.540	6.731	***	7.632	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 16:09:01	5.207	2.794	7.747	***	8.607	Gas Main, South Gloucester, ON
W	BE10016	Jun 23 /22 16:09:12	5.207	2.794	7.747	***	8.607	Gas Main, South Gloucester, ON
H	BE10016	Jun 23 /22 16:11:11	4.572	2.921	4.318	***	5.157	Gas Main, South Gloucester, ON
H	BE10016	Jun 24 /22 07:01:52	3.937	2.667	5.969	***	7.137	Gas Main, South Gloucester, ON
W	BE10016	Jun 24 /22 07:15:26	3.937	2.667	5.969	***	7.137	Gas Main, South Gloucester, ON
H	BE10016	Jun 24 /22 07:17:27	4.572	3.302	6.858	***	8.299	Gas Main, South Gloucester, ON
W	BE10016	Jun 24 /22 07:17:43	4.572	3.302	6.858	***	8.299	Gas Main, South Gloucester, ON
H	BE10016	Jun 24 /22 07:19:42	3.937	2.921	5.715	***	6.912	Gas Main, South Gloucester, ON
W	BE10016	Jun 24 /22 07:38:37	3.937	2.921	5.715	***	6.912	Gas Main, South Gloucester, ON
H	BE10016	Jun 24 /22 07:40:38	2.667	2.413	3.048	***	3.365	Gas Main, South Gloucester, ON
H	BE10016	Jun 25 /22 07:01:56	0.254	0.254	0.254	***	0.440	Gas Main, South Gloucester, ON
H	BE10016	Jun 26 /22 07:01:57	0.254	0.254	0.254	***	0.440	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 07:01:57	4.572	3.048	5.207	***	6.248	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:15:01	4.064	2.667	5.207	***	5.694	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:17:02	5.080	2.921	5.715	***	7.064	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:17:19	5.080	2.921	5.715	***	7.064	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:19:17	4.191	3.175	5.969	***	6.539	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:37:41	4.064	3.175	5.969	***	6.539	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:39:40	5.080	4.191	7.493	***	8.706	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:40:01	5.080	4.191	7.493	***	8.706	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:42:00	4.318	4.191	6.731	***	7.497	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:42:05	4.318	4.191	6.731	***	7.497	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:44:01	4.572	4.318	7.493	***	8.345	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:44:15	4.572	4.318	7.493	***	8.345	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:46:57	5.842	4.826	11.05	***	12.11	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:47:08	5.842	4.826	11.05	***	12.11	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:49:07	6.096	4.826	11.30	***	12.41	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:49:22	6.096	4.826	11.30	***	12.41	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:52:01	3.048	3.937	10.54	***	10.55	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:52:44	3.048	3.937	10.54	***	10.55	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:54:44	7.366	5.461	16.13	***	16.35	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:54:47	7.366	5.461	16.13	***	16.35	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:56:45	4.699	2.413	5.334	***	5.550	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:56:51	4.699	2.413	5.334	***	5.550	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 09:58:50	5.969	4.445	13.21	***	13.34	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 09:59:01	5.969	4.445	13.21	***	13.34	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:01:01	5.842	4.953	14.35	***	14.49	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:01:19	5.842	4.953	14.35	***	14.49	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:03:18	3.683	2.413	5.080	***	5.650	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:05:06	3.683	2.413	5.080	***	5.650	Gas Main, South Gloucester, ON

Vibration Summary
M8706A - Menard Canada
June 17, 2022 - June 30, 2022

Event Report: Event List - z:\7. monitoring data\archived seismo readings\m87xx\m8706a - menard - south gloucester gas main

Type	Serial No.	Date/Time	Tran Peak (mm/s)	Vert Peak (mm/s)	Long Peak (mm/s)	Mic Peak (dB)	PVS1 (mm/s)	Description
H	BE10016	Jun 27 /22 10:07:04	4.191	2.667	5.588	***	6.197	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:07:09	4.191	2.667	5.588	***	6.197	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:09:09	4.445	2.921	4.953	***	5.367	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:12:46	3.048	2.540	4.953	***	5.367	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:14:46	4.064	3.048	5.842	***	6.326	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:15:18	4.064	3.048	5.842	***	6.326	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:17:16	5.588	3.429	7.366	***	8.081	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:17:39	5.588	3.429	7.366	***	8.081	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:19:39	5.207	2.667	4.953	***	5.872	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:21:14	5.207	2.667	4.953	***	5.872	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:23:12	5.207	2.921	5.207	***	6.132	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:23:16	5.207	2.921	5.207	***	6.132	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:25:14	5.715	2.921	5.715	***	6.753	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:25:27	5.715	2.921	5.715	***	6.753	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:27:27	4.953	2.794	3.302	***	5.558	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:29:21	4.953	2.794	3.302	***	5.558	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:31:20	5.080	2.667	3.556	***	5.753	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:31:36	5.080	2.667	3.556	***	5.753	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:34:17	5.334	2.413	3.556	***	5.726	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:37:14	5.334	2.413	3.556	***	5.726	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:39:14	5.334	2.794	5.969	***	7.504	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:39:30	5.334	2.794	5.969	***	7.504	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:41:29	4.953	3.048	3.556	***	6.017	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 10:45:49	4.953	3.048	3.556	***	5.954	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 10:47:48	3.810	3.175	5.080	***	5.981	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 14:54:43	3.810	3.175	5.080	***	5.981	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 14:56:46	3.302	2.921	5.334	***	5.957	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:12:51	2.794	2.921	5.334	***	5.957	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:14:51	5.969	5.461	8.509	***	9.696	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:15:11	5.969	5.461	8.509	***	9.696	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:17:53	6.731	5.080	11.18	***	12.11	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:18:00	6.731	5.080	11.18	***	12.11	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:20:39	2.159	5.842	8.890	***	9.133	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:20:47	2.159	5.842	8.890	***	9.133	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:22:48	3.683	11.43	15.37	***	16.32	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:22:59	3.683	11.43	15.37	***	16.32	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:24:57	5.207	1.905	5.080	***	6.099	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:25:14	5.207	1.905	5.080	***	6.099	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:27:15	9.144	4.826	13.59	***	14.30	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:27:18	9.144	4.826	13.59	***	14.30	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:29:17	2.921	2.794	5.969	***	6.224	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:33:09	2.921	2.794	5.969	***	6.224	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:35:10	4.572	3.429	8.001	***	8.356	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:35:17	4.572	3.429	8.001	***	8.356	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:37:16	4.699	3.175	6.858	***	8.452	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:37:18	4.699	3.175	6.858	***	8.452	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:39:18	5.969	4.445	9.017	***	11.05	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:39:26	5.969	4.445	9.017	***	11.05	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:41:27	3.302	2.540	5.715	***	6.488	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:41:40	3.302	2.540	5.715	***	6.488	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:43:40	4.826	4.191	8.890	***	10.43	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:43:58	4.826	4.191	8.890	***	10.43	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:45:57	4.953	3.048	4.826	***	5.935	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:53:55	4.953	3.048	4.572	***	5.730	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:55:54	5.334	3.302	5.334	***	6.677	Gas Main, South Gloucester, ON
W	BE10016	Jun 27 /22 15:55:57	5.334	3.302	5.334	***	6.677	Gas Main, South Gloucester, ON
H	BE10016	Jun 27 /22 15:57:57	4.826	2.921	4.064	***	5.670	Gas Main, South Gloucester, ON
H	BE10016	Jun 28 /22 07:01:54	1.143	0.889	1.143	***	1.403	Gas Main, South Gloucester, ON
H	BE10016	Jun 29 /22 07:01:58	1.905	1.905	2.794	***	3.441	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:02:35	4.445	3.175	8.763	***	8.825	Gas Main, South Gloucester, ON
W	BE10016	Jun 30 /22 07:23:58	4.445	3.175	8.763	***	8.825	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:25:53	3.937	3.302	7.747	***	7.901	Gas Main, South Gloucester, ON
W	BE10016	Jun 30 /22 07:28:00	3.937	3.302	7.747	***	7.901	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:29:54	2.286	2.667	4.953	***	5.345	Gas Main, South Gloucester, ON

Vibration Summary
M8706A - Menard Canada
June 17, 2022 - June 30, 2022

Event Report: Event List - z:\7. monitoring data\archived seismo readings\m87xx\m8706a - menard - south gloucester gas main

Type	Serial No.	Date/Time	Tran Peak (mm/s)	Vert Peak (mm/s)	Long Peak (mm/s)	Mic Peak (dB)	PVS1 (mm/s)	Description
W	BE10016	Jun 30 /22 07:32:54	2.159	2.667	4.953	***	5.345	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:34:52	5.588	6.858	10.79	***	11.49	Gas Main, South Gloucester, ON
W	BE10016	Jun 30 /22 07:55:32	5.588	6.858	10.79	***	11.49	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:57:27	3.302	2.921	5.207	***	5.843	Gas Main, South Gloucester, ON
W	BE10016	Jun 30 /22 07:57:56	3.302	2.921	5.207	***	5.843	Gas Main, South Gloucester, ON
H	BE10016	Jun 30 /22 07:59:50	2.667	2.159	3.048	***	3.735	Gas Main, South Gloucester, ON